International Association of Crime Analysts (IACA)

Information-Sharing Platforms

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About the IACA Standards, Methods, and Technology Committee

Through the Standards, Methods, and Technology Committee (SMT), the International Association of Crime Analysts (IACA) is committed to a continuing process of professionalization through standards and knowledge development. In 2011, the IACA chartered the SMT Committee for the purpose of defining “analytical methodologies, technologies, and core concepts relevant to the profession of crime analysis."¹ This document is part of a series of white papers produced by the SMT committee that accomplishes this purpose. The methodology for formulating the positions reflected in the white paper series includes 1) development of a draft paper through in-depth meetings and discussions of Subject Matter Experts², 2) review and feedback by the IACA Executive Board, 3) review and feedback from an independent editor with knowledge of crime analysis, and 4) review and feedback by IACA members facilitated through the IACA website (www.iaca.net). Questions about this process should be directed to the chair of the SMT Committee at SMT@iaca.net.

¹ Drawn from the mission statement of the Standards, Methods, and Technology Strategic Plan (April 2011).
² Subject Matter Experts are identified by the Standards, Methods, and Technology Committee based on their special knowledge demonstrated through publications, presentations, and practical experience and their willingness to participate.
Executive Summary

This document provides a high-level overview of the goals and considerations of implementing a collaborative information-sharing platform. An information-sharing platform is a centralized computer system that allows authenticated users to collect, manage, share, and discover structured and unstructured datasets from a variety of sources. It is designed to facilitate two-way communication between users and is often developed with blogs and/or forums. Information-sharing platforms serve as a channel for official and unofficial communication to facilitate top-down, bottom-up, and lateral communication. The deployment of information-sharing systems must consider the following issues: development, accessibility, usage policies, and legal considerations.

Development- Development can range from custom built (in-house or via a vendor) to the implementation and customization of existing technology platforms such as content management systems. Several free platforms have also been developed by State and Federal agencies. Custom built or customization of existing technology typically provides greater flexibility, but may have higher startup costs and require additional development and implementation time.

Accessibility- Access policies should specify who can access the system. There may be good reasons to allow non-law enforcement personnel or law enforcement officers from outside agencies into the system. This requires appropriate policies, methods of vetting individuals, and highly granular user access controls.

Usage policies- Organizational leaders should determine the scope of the use policy before deploying the platform. The policy should clearly identify appropriate usage of the system as well as the expected behavior from all participants.

Legal considerations- Legal considerations may include: public discovery, types of data that can and cannot be included in the system, and data retention policies. Legal council should be consulted in the development of these policies as regulations will vary by agency and jurisdiction.

Information-sharing platforms have the capacity to increase the development and sharing of information within, and between, organizations, but technical and organizational issues should be addressed before adopting these platforms. From a technical perspective, an agency should identify if existing platforms sufficiently address the organizational need or if custom development is needed. A reasonable but flexible policy governing the platforms use should be developed. Determining specific legal constraints, such as data retention requirements and public discovery applicability, should also be determined beforehand (See Appendices A, B, C, D and E for information-sharing examples and illustrations).
Overview

This document provides a high-level overview of the goals and considerations of implementing a collaborative, information-sharing platform. Data becomes information when it is effectively analyzed; information becomes knowledge when it is effectively communicated. Unfortunately, how an organization captures and uses data, shares information and intelligence, and increases knowledge is frequently subject to internal, cultural roadblocks that occur when individuals or groups create operational silos. These cultural barriers create substantial impediments to organizational knowledge management. Despite the gains from community policing and problem solving techniques, police departments continue to struggle with sharing information inter- or intra-organizationally. Consequently, the implementation of an information-sharing platform must be carefully considered from both a technical and operational perspective. This document highlights the critical issues that should be addressed before adopting a platform.

Defining Information-sharing Platforms

Information-sharing platforms have a wide variety of functionality and, as a result, are difficult to define. At a basic level, information-sharing platforms may be defined as a network of computers that allow for the sharing of information within an organization or externally as a secure regional information sharing environment. In order to be more meaningful, a more detailed definition is needed. For the purposes of this paper, the definition is as follows:

An information-sharing platform is a centralized computer system that allows authenticated users to collect, manage and share structured and unstructured data sets from a variety of sources. Information-sharing platforms are designed to facilitate two-way communication between users and often include user blogs and/or forums.

The information-sharing platform consists of a series of data-driven webpages and web applications that allow users to comment and share information within a centralized portal. Most commonly this web portal will contain a user forum or blog. It can contain static pages with links to commonly-used and relevant resources. Each component of the platform will have a purpose that is based on a task, project, event, daily activity, or other relevant purposes. There can be a primary audience for the page that includes team members responsible for a task, project, event, etc. Access to pages, tasks, or projects can be restricted to authorized users.

It is important to note that an information-sharing platform is more than a webpage or an intranet site. It is not a few authorized personnel distributing information to the masses via email. Team members in a series of emails are a form of information silo that can only be accessed by specifically included recipients. Unless all of the emails are archived, the information distributed in emails is lost once the participants of the emails leave the project. Information-sharing platforms improve upon this communication breakdown by giving current and future team members the ability to evaluate historic communication. This enhanced capability creates a knowledge center where previous observations,

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inquiries and general communication are continually updated with future insight. Additionally, other law enforcement personnel can be given access and relevant connections can be identified. It is important to preserve communication so the information can be evaluated and applied in the future or toward other projects.

Information-sharing platforms are not one directional but instead focus on the multi-directional transfer of knowledge. It is a wide-spread collaboration tool in which law enforcement personnel participate in the sharing of vital information thus facilitating both learning and teaching. Information in this regard is everything from a sentence exchanged between two team members to large data sets shared to all users. Information-sharing platforms are communication and source data in one.

If information is not shared, its importance and usefulness will not be known.

**Purpose of Information-sharing Platforms**

There is a widespread need for a mechanism to collect, organize, and centralize the vast amount of data generated by modern law enforcement agencies. Given this growing demand, as well as the need of personnel to interact with the data and collaborate with one another, the number of applications for information sharing is nearly endless. The information shared in these applications can be official documents or unofficial communication that does not meet the criteria of official documentation. While the content can include many aspects of tactical, investigative, strategic, or administrative purposes, it must be relevant to the goals of the users. Having a variety of content from all team members will facilitate collaboration and increase teamwork. Information-sharing platforms have four main benefits:

- **Content**: Information-sharing platforms act as a place to both share and discover content. The content may include everything from official reports to unofficial comments and ideas. Modern platforms can accommodate a wide-variety of multimedia data including: pictures, videos, illustrations, geospatial content and links to internal and external websites. Integration with existing systems is also possible. The platform can allow access to the records management system (RMS), computer-aided dispatch (CAD), booking system, and any other network resource. Information-sharing platforms may also serve as a portal to external law enforcement-sensitive data sources. A platform with exceptional connectivity often includes external portals that allow access to court system records, state parole and probation data, pawnshop records, and a variety of other governmental and public data. This type of connectivity is often established over a secured socket layer (SSL) or through a virtual private network (VPN) and requires a carefully planned security and maintenance protocol.

- **Discovery**: Information-sharing platforms can be designed to host dynamic user-generated content, such as a wiki-style website or a collection of living documents. This includes technology such as socially interactive blogs and user forums. Blogs and forums allow participants to create threads of information for specific topics or events. This technology is particularly useful for users to discuss and glean insight regarding

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ongoing criminal trends. Some platforms integrate open-source content, such as traditional news feeds and commercial social media content. Information-sharing platforms can operate as a “one stop shop” for users. Developers can categorize each page with keywords, allowing users to search across all resources for content containing those keywords.

Communication

Information-sharing platforms can serve as a channel for official and unofficial communication. A flexible system will facilitate top-down, bottom-up, and lateral communication. At a basic level, information-sharing platforms accommodate a paperless organization by providing an electronic document library. This traditionally includes hosting organizational directives such as policies, procedures, and employee contact information. The platform can display and disseminate BOLO’s and bulletins with suspect descriptions and crime patterns. Platforms often serve as a repository for intelligence briefings and requests for information with the added benefit of recording any reaction to these distributions. Team members can quickly share completed tasks with the next shift or other team members so the focus can be on the tasks left to be completed. Research and ideas regarding tactical and strategic objectives can be shared and discussed amongst the project team members. The communication can also be categorized by project, division, date, task, goal, location, or activity for future analyses.

Collaboration

These platforms can facilitate employees working together towards a common goal. Collaboration can be focused on a single document or can be conversation-centric around a project, problem, or other relevant topic. The purpose of the collaboration can be an investigation, taskforce, multi-jurisdiction event, and any other short-term or long-term project. Situation reports and status updates can be given on a task or project. The platform page can be dedicated to a concept, task, or goal and can be assigned accordingly. The page can be a discussion of ideas, reaction to events, and analysis of information. The audience for the page at minimum is two people but can include entire user groups. The intended participants of the page must meet the goals of the task, project, and team while each platform page provides users with information that is relevant to the work tasks.

The purpose of information-sharing platforms is to share information, but the data must be relevant. The pages in the platform must be organized and restricted to the goal of the page. Each page is multi-directional, so anyone who observes the page can contribute to the page by adding messages to it. Each page must also have an intended audience and purpose that match the collaborative goals of the team members. To maximize effectiveness, all pages of an information-sharing platform must have a goal for content, communication, collaboration, and activity.

Discovery

Information-sharing platforms may include advanced information discovery (search and surfacing) features that prioritize only relevance content based on a user’s context. A user’s context may include assigned locations (zone, district, division etc.), current location, content of interest, time of date etc.
Automated discovery greatly reduces information overload and ensures information is communicated to the right person, at the right place, at the right time.

**Integration Considerations for Information-sharing Platforms**

Given the impact on personnel, projects, and workflow, there are special considerations when implementing an information-sharing platform. As with any new technology, the organization’s legal department, information technology (IT) staff, and user groups need to be consulted. These entities will advise on any and all limitations and obstacles to the information-sharing platform. These limitations and obstacles will be unique to every department (see Appendix D for the recommended Project Management Steps for Integration and Appendix E for an Information-sharing Platform Flowchart).

**Development Considerations**

IT considerations are the foundation of information-sharing platform development and implementation. Some departments may choose to build the platform in-house from the ground-up. These departments can choose to customize all aspects of the platform. This method requires agencies to utilize technology staff with the ability to leverage networking, web development and database design technology. Tools and languages used for in-house development can include, but are not limited to: high level languages such as php, asp.net, java and web technologies such as html/css/javascript and xml/json. While in-house development can be a daunting task, there are many benefits to this approach. In-house source code development allows for the most flexibility and customization at the initial launch of the platform and during the future evolution of the system.

Others might instead choose to install a content management system (CMS) that will serve as a technological framework allowing them to build a web-based, information-sharing platform from a variety of templates. Examples include Microsoft SharePoint, Joomla, Drupal, and WordPress. A CMS is a compromise between complete ground-up development and an off-the-shelf solution. This approach allows organizations to make an array of changes as their needs evolve while cutting down on the initial development and overhead costs associated with custom software development.

Still other departments may choose to install an off-the-shelf, information-sharing platform. This software will have a complete interface and setup similar to an off-the-shelf RMS or CAD system purchased from a vendor. Information-sharing systems such as N-Gage (built on the JIVE social business software platform), Socialtext, and nTerop are specifically designed for law enforcement information sharing. Others, such as SharePoint, are industry agnostic but provide a wide-range of functionality useful to law enforcement agencies. These systems may still need customization to meet specific departmental needs and may have ongoing maintenance, hosting, and licensing costs.

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5 There are thousands of CMSs that cover a wide range of potential uses. Although there is no complete list of content management systems, the comparisons provided at: [www.cmsmatrix.org](http://www.cmsmatrix.org) may be a useful first step in identifying an optimal CMS.
6 N-Gage was formerly known as CopBook.
7 [http://www.socialtext.com/](http://www.socialtext.com/)
8 [http://nteropcorp.com/](http://nteropcorp.com/)
In addition, there are free and secure web portals, typically developed by State and Federal agencies, which allow for team members to collaborate via an online forum with no need to install or configure servers or applications. These products are often limited in customization, but do allow for secure data access, forum discussions, and document libraries. Examples of this type of portal include the FBI’s Law Enforcement Online program (LEO - www.fbi.gov/about-us/cjis/leo), NCIS’s Law Enforcement Information Exchange (Linx - www.ncis.navy.mil/PI/LEIE/Pages/default.aspx), MAGLOCLEN’s Regional Information Sharing System (RISS - www.riss.net), and the Department of Homeland Security’s Homeland Security Information Network (HSIN - www.dhs.gov/hsin-cs).

**Accessibility**

Access to the information-sharing platform is another IT consideration. Law enforcement personnel outside of the department may need to have access to the platform. By design, the platform may have a regional scope and hence must allow for multi-jurisdictional access. Another IT consideration for accessibility is mobile data connections. Will the platform be available in the police cars or on smart phones? Providing mobile access will make sharing information on the platform easier, and this will increase the willingness to use the platform. User enrollment and management must also be specified early in development. Many enterprise level systems have the capability to integrate with Active Directory™, a useful feature if the agency’s existing domain is Windows-based. Ensuring user activity is being tracked in a log file can help identify abuse after the fact, but a procedure must also be developed and enforced to ensure that appropriate access is granted to new employees and that access is revoked for employees separating from the organization.

A final IT consideration is the hosting of the information-sharing platform. With a variety of methods for handling hosting, consideration must be paid to the numbers of potential users and potential concurrent users, bandwidth/Internet speeds, and the amount of data that may need to be stored. It may be necessary to store data on a private network (e.g. intranet) in order to comply with regulations or policies regarding data storage. Cloud, or hybrid cloud, based solutions offer some attractive advantages. Cloud-based, hosted data centers such as Microsoft Azure and Rackspace can offer faster processing of large datasets, potential cost reductions in initial and ongoing maintenance, and near 100% up-time with minimal, if any, required staff time. Nevertheless, the use of cloud storage for law enforcement purposes is still in its infancy, and early adopters must carefully consider the potential threats to security, whether real or simply perceived.

**Executive Considerations**

Policies and procedures are critical for the effective adoption of information-sharing platforms. Leadership must first determine the scope of the information-sharing platform and the conditions under which access should be granted. Policies may be relatively permissive (e.g. allowing sworn, civilian, and volunteers) or may be relatively restrictive (e.g. only sworn officers from specific units). Although leadership should not be expected to provide detailed technical specifications, they should assist in determining what capabilities will be available in the platform. Is the goal to create a one-stop shop?

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9 Note that permissions may be role based in some systems.
In addition, policies outlining appropriate conduct for the platform must be developed. A clear policy on what is appropriate to share and the method of sharing that information is necessary. It may also be necessary to create a governing body to regulate the platform. This group can remove inappropriate and unnecessary content as well as suggest combining pages sharing similar information.

As a suggested policy, it is highly recommended that data never be entered twice. An efficient information-sharing platform should avoid data duplication by integrating official reports and platform pages. One option is to have official reports written first and a system that allows users to link reports as needed in the platform page. Another option is to use data-driven pages that are automatically constructed based on information in official reports. The goal should be to encourage platform users to write about information that cannot be found in another departmental system. The platform, in this regard, can be considered a catch-all for value-added content.

Legal Considerations

Legal considerations should be addressed early during the development of information-sharing platforms because of its impact on system design and policy development. Legal considerations may include: public discovery, types of data that can and cannot be included in the system, and data retention. One of the first legal questions that should be addressed involves access to system resources via public discovery. Is the information in the information-sharing platform active criminal intelligence? Can some or all pages be excluded from public discovery? Users of the platform must have confidence to use the system and have clear guidelines. Users will most likely shy away from sharing information if contents can be made public.

Another legal consideration is type of data included or excluded from the platform. Given the format of the platform, is there data or information that is illegal to share? There may also be questions regarding if the data is appropriate. Can the policies surrounding the information-sharing platform be similar to the policies already in place for department websites and email? Another legal consideration involves data retention and purging. By design, there should be a pre-determined data retention protocol that governs the length of time data is stored. There may be legal restrictions on deleting information from a platform.

Summary

There are several technical and organizational issues that should be addressed before adopting an information-sharing platform. From a technical perspective, an agency should determine if existing platforms sufficiently address the organizational need or if custom development is needed. A reasonable but flexible policy governing the platform’s use should also be developed. If properly crafted, this policy can encourage innovative and useful discussion while preventing inappropriate conduct. Determining specific legal constraints, such as data retention requirements and public discovery applicability, should also be identified beforehand.

Information-sharing Platforms, with proper planning and policies, have the capacity to increase the development and sharing of information within, and between, organizations.
Relevant Literature


Appendix A. Example of an Information-sharing Platform: Fullerton (CA) Police Department.

The Fullerton (CA) Police Department has an information-sharing platform called 24/Seven System. The goal of the 24/Seven System is to share information and to collaborate in real-time or near real-time. All bulletins and information concerning sex offenders, warrants, homeless, and parolees are shared and discussed in this platform. The platform contains the official sex registry form developed by the State of California for offender registration. The platform allows for photos and videos to be attached as well as notifications when records are updated. Officers have mobile access to all administrative reference materials eliminating the need for hard-copy material. Any officer can create an entry to communicate with other officers on their current shift or future shifts. This communication is information that does not meet the criteria for an official report such as a suspicious activity report, field interview, or vehicle stop. Officers can post information and add to other postings so any type of project both large and small can be worked in partnership using this platform.

![24/Seven System Screenshot](image-url)
Appendix B. Example of an Information-sharing Platform: Law Enforcement Online

Law Enforcement Online (LEO) is a secure, Internet-based information sharing system for agencies around the world that are involved in law enforcement, first response, criminal justice, anti-terrorism, and intelligence. Members can access or share sensitive, unclassified information anytime and anywhere. Components of LEO include:

**Virtual Command Center (VCC)**
VCCs provide a real-time situational awareness tool that can assist law enforcement and other authorities during situations, such as special public events, warrant sweeps, investigations, and natural disasters.

**Law Enforcement Online Special Interest Groups (LEOSIGs)**
LEOSIGs allow members to participate in communities of specialized interest in order to securely share information and receive specialized training.

**Virtual Office**
A Virtual Office allows agencies to store and retrieve information needed on scene and access that information from any Internet connection, eliminating the need for an officer to travel to the physical office.

**External Data**
National Data Exchange (N-DEx); Joint Automated Booking System (JABS); Regional Information Sharing Systems (RISS) Network; National Gang Intelligence Center; Internet Crime Compliant Center (IC3)
Appendix C. Example of a Data-Sharing Platform: Dayton Police Department

The Dayton Police Department’s Executive Information System (EIS) is a web-based, data-sharing platform built on SharePoint by Optica Consulting. It collects and analyzes CAD, Crime, Field Interview and LPR data in near real-time and presents the data back for any officer to view. Officers can develop team sites to share information and documents easily while developing plans to address problem locations. If a pattern is identified in the crime map, the pattern can be entered into EIS and officer response can be tracked. Automated reports, like the 24 Hour Field Interview Report, can collect regional data and automatically send out a report every morning to a large collection of regional users. EIS was built to foster data sharing between local police departments and create a one-stop shop for all relevant information.
Appendix D. Project Management Steps for Information-sharing Platform Integration

1) Assemble a user group to evaluate potential information-sharing platforms and determine the amount of resources available for long term development. This may influence the decision to build a platform from the ground up, develop on top of a content management system or deploy a commercial off the shelf (COTS) product.

2) Complete a needs assessment matrix. Define what elements of an information-sharing platform are essential, desirable, or optional. Determine the level of integration with existing systems that will be required. The core needs from this step will be used to evaluate each platform to be reviewed. Each member of the user group will evaluate each system using the same criteria.

3) Research available options and evaluate the functionality of each system. Score each system according to the core needs identified in the needs assessment.

4) Determine which platform best meets the needs of the organization based on scores and feedback.

5) Procure or develop information-sharing platform.

6) Install, configure, and test system.

7) Create guideline document(s).

8) Inform potential users of the system and how it works.
Appendix E. Information-sharing Platform Flowchart