

Regional Information Management and Sharing for Crime Analysis

The recent growth in regional information sharing and analysis can be attributed to an increased focus on counterterrorism and advancements in information technology. Police agencies have recognized that successful efforts to reduce crime will require the analysis of data beyond their jurisdictional borders. Police agencies are sharing information with neighboring police agencies at various levels of government, as well as with correctional, social service, and educational institutions. Fusion centers and other types of analytical centers have facilitated multijurisdictional collaboration (Santos, 2016). The objective of this section is to provide a pathway and resources for agencies seeking to implement a regional crime analysis initiative by applying lessons learned in the past decades.

Regional crime analysis is a **developmental** and **organizational** process that begins with increasing the analytical capacity of participating agencies. Individual agencies must resolve internal information sharing, technological, and analytical barriers before contributing to a regional effort. As an agency develops the requisite level of analytical capacity, it becomes capable of contributing to the process of creating knowledge and actionable intelligence with other regional partners.

Well-developed agencies are necessary but not sufficient for a successful regional effort. An organizing body must be formed to coordinate the regional partnership. Regional crime analysis centers manage and share information between agencies, participate in demonstration projects, and structure training programs to produce regional-level knowledge used for situational awareness and evidence-based strategies. Developed and organized regional partners discuss trends and patterns at regular meetings, share data and analytical products, and implement strategies to solve common regional problems.

Regional data sharing goes beyond simply sharing access to the same databases, e-mailing a crime analysis bulletin, or participating in a task-force meeting. Agencies must share common data sources for a successful regional effort. Shared data from multiple agencies generates regional analytical products used to inform policing operations. Ideally, data from multiple agencies are accessible in the relational databases of a regional center, and partners can easily enter and query data. Going one step farther, information may be shared between regional centers to develop knowledge and intelligence products.

Although local agencies may routinely share information or intelligence bulletins with other local agencies, this is not the same as participating in a fully integrated regional information management and sharing system. An understanding of the Intelligence Hierarchy (also known as the DIKI or wisdom hierarchy) is necessary to appreciate what analytical products can be developed and how shared (Zins, 2007; Rowley 2007).

The first level of the Intelligence Hierarchy is **data**. Data are facts or events uncovered by research; for example, a spreadsheet listing of burglaries in the past month. **Information** is developed when relationships are found in the data (this might be a cause-and-effect relationship, but not necessarily). In information systems parlance, a relational database makes information from the data contained within it. For example, the type of burglary is related to the time of day

(commercial burglaries at night and residential in the day). Levels one and two of the hierarchy, data and information, are based on observation of past events and experience. Levels three and four, however, seek to understand patterns that will reduce uncertainty and provide a degree of predictability. The **knowledge** and **intelligence** levels focus on understanding future events and action. Knowledge is the accumulation of information for a particular purpose. In crime analysis, knowledge is produced through situational awareness products that assist analysts in understanding the criminal environment; for example, crime maps indicating burglary by type. At the intelligence level, intelligence products are a call to specific action. An understanding of the location, time, and demographics related to burglary focus patrol and crime-prevention tactics.

The hierarchy flows from past experience to action, from facts and events to understanding of general principles, and from researching to doing. At the regional level, the hierarchy begins with integrating data from multiple agencies and finding relationships and patterns (information). The organizing structure of a regional center allows information sharing between agencies to form a body of regional knowledge that may highlight trends and establish priorities. Ultimately, regional data and information will produce actionable intelligence that informs regional policing operations and assists multijurisdictional investigations.

Model for Regional Crime Analysis

Before discussing a model for regional crime analysis, we must have a common understanding of terms. At its broadest, the concept of **region** may include large portions of states, entire states, or multistate areas. A narrower definition may focus on **regional centers**. Regional centers are composed of a hosting agency (such as a large municipality, a sheriff's office, or a fusion center) surrounded by partner agencies. The hosting agency usually contributes physical space to a regional center, coordinates information sharing technology and protocols, hosts regional meetings, and generally acts as the hub of the multiagency partnership. Information travels to the hosting agency from partner agencies, is processed, and then is returned to partner agencies in the form of regional analytical products. Or, partner agencies may access integrated databases that reside at the hosting agency.

A region, in the broadest sense, may encompass several centers. For example, the Northern Ohio Violent Crime Consortium (NOVCC) region is the Federal Northern District of Ohio, consisting of several major metropolitan centers including Cleveland, Toledo, Lorain/Elyria, Youngstown, Akron/Canton, and Mansfield. NOVCC is chaired by the U.S. Attorney for the Northern District, who acts as a regional coordinator. Each city in NOVCC is the central agency in a developing regional center. In other regional models, it is the state that coordinates and funds regional crime analysis centers. For example, New York and Florida have established several crime analysis centers governed at the state level. Finally, fusion centers (and other types of intelligence partnerships) act as hosting agencies within some regions and as partner agencies in others, depending on what type of analysis they conduct and the extent of their analytical capacity.

It should be noted that municipal agencies, intelligence centers, and homeland security fusion centers may emphasize different types of analysis within a common region. Overspecialization or a strict focus on only one type of analysis may produce barriers to integrated policing. Municipal agencies have traditionally focused on tactical crime analysis, strategic crime analysis, and criminal intelligence. Fusion and intelligence centers place an emphasis on intelligence analysis

and threat assessment focusing on homeland security issues including acts of terrorism. (see Department of Homeland Security—Fusion Center Performance Program <https://www.dhs.gov/fusion-center-performance-program-fcpp#>). Although fusion centers are transitioning from models focused exclusively on terrorism to the all-crimes model, intelligence analysis remains the primary type of crime analysis conducted by these agencies. Despite their focus on intelligence analysis, fusion centers have been criticized for failing to produce actionable intelligence. This is not surprising, since most fusion centers lack the capacity to integrate databases from local agencies. Instead, fusion centers rely on sharing information from state and federal agencies or distributing locally produced bulletins from partner agencies. In short, fusion centers collect and distribute information relevant to local agencies but do not produce regional analytical products derived from integrated multijurisdictional databases. Despite their limitations, fusion centers are meaningful contributors to the intelligence hierarchy in a region. In addition to being a contributing partner, an existing fusion center may be used to develop a more integrated regional crime analysis center.

It may be difficult to distinguish a regional center from the broader region. The distinction should be made, however, as multiple regional centers may exist in one region (such as a federal district, as is the case with NOVCC, or the entire state, as is the case with the New York centers). To maximize the utility of regional crime analysis, ultimately regional centers should share data, information, knowledge, and intelligence (DIKI) with each other. The linking of regional centers throughout a state or multistate region is the ultimate evolution of regional crime analysis and a necessary outcome for the eventual realization of national crime analysis.

In sum, the regional data sharing process begins with the development of analytical capacity in the host and partner agencies. Once the DIKI process is established in partner agencies, regional centers must be established to organize the regional effort. The regional center's host agency coordinates the integration of data from partner agencies and the production of regional analytical products. Ultimately, multiple regional centers within the broader region will have the capacity to share DIKI.

Guidelines for Regional Crime Analysis

The following guidelines were derived from the experience of developing a regional crime analysis model in northern Ohio for the past ten years. This experience included research on existing and past regional crime analysis models, including site visits.

Guideline One—Establish Strong Regional Leadership for Crime Analysis

The governing body of the region will define its structure, including the development of regional centers. The leaders of regional centers must have the interpersonal and organizational skills to build information sharing partnerships with neighboring agencies, both within their centers and with regional coordinators. For example, NOVCC was chaired by the U.S. Attorney for the Northern District. The consortium of eight northern Ohio municipal agencies with state and federal partners has been together for ten years because of committed leadership from the U.S. Attorney's Office and municipal agencies. Strong leadership facilitated the growth of central agencies. Strong central agencies then take the lead in developing regional centers with partner agencies. It is difficult to develop and maintain a crime analysis effort, both locally and regionally,

without strong leadership. Leadership is needed to break through information sharing barriers, both within and between police agencies.

Case Study—Kansas City, Missouri

In 1999, ten counties in the Kansas City Missouri metropolitan area undertook an effort to create a regional data sharing and mapping system (International Association of Crime Analysts, 2016). The 90-agency initiative started strong but eventually lost focus. The initiative ended in 2005, constrained by a lack of funding, changes in personnel, and a system that was not user friendly. Valuable lessons may be learned from the Kansas City initiative. First, begin a regional initiative with a reasonable number of partners. A demonstration project that illustrates the value of regional information sharing among a small group of partners is advisable. In Kansas City, it was too ambitious to involve 90 agencies at once. Second, a regional effort must have a governing body. No one was ultimately responsible for coordinating efforts in Kansas City. A lack of regional governance makes it difficult to focus on common regional priorities. In addition, sustainable regional efforts require stable leadership and established protocols to weather changes in personnel, funding, etc. Third, sustainable regional efforts require consistent funding sources. Fourth, regional information sharing systems should be created with input from end users and be user friendly or they risk being rarely used. Finally, challenges with incompatible records management systems (RMS) must be overcome for any regional effort to succeed (International Association of Crime Analysts, 2016).

Guideline Two—Coordinate With or Establish Regional Crime Analysis Professional Associations and Universities

Professional associations such as the International Association of Crime Analysts (IACA) can be invaluable in developing analytical capacity and procuring training in a region. For example, IACA provides resources for developing a crime analysis, training, and a forum for discussion with other crime analysts. There are several regional crime analysis professional associations, such as the Mid-America Regional Crime Analysis Network and the Northwest Regional Crime Analyst Network (NORCAN). For example, NORCAN is a network of law enforcement crime analysts, intelligence analysts, private-sector analysts, commissioned officers, and those interested in crime analysis. NORCAN consists of members from Washington, Oregon, Idaho, Colorado, and Canada. NORCAN's goal is to be a resource to local crime analysts and help members through information sharing and by providing assistance and training.

Some states have their own associations. For example, the California Crime and Intelligence Analysts Association (CCIAA) consists of six regional associations that span the state, representing local, state, and federal law enforcement agencies with more than 400 members. CCIAA's purpose is to promote the exchange of crime and intelligence information and encourage professional development in the analysis field. Each regional association provides training and resource opportunities throughout the year. A full list of regional crime analysis professional associations can be found at <http://www.iaca.net/resources.asp?Cat=Regional%20Association>.

Regional crime analysis efforts may be facilitated by establishing researcher-practitioner partnerships. Universities in the region may be available to offer or host training, provide technical

assistance, supply student interns, conduct evaluations, organize demonstration projects, and, in some cases, assist with analysis. A research partner also may assist in developing evidence-based practices. Finally, many grant opportunities require the involvement of a research partner.

Case Study—Portland Police Bureau and Portland State University Crime Analysis Team <https://www.pdx.edu/crime-data/crime-analysis-team>

The Crime Analysis team is a collaboration between the Criminal Justice Policy and Research Institute (CJPRI) and the Portland Police Bureau (PPB). Participants include faculty advisers, students from criminology and criminal justice, and crime analysts from PPB. The specific goals of this collaboration include the following:

- Conduct comprehensive analyses of crime problems in Portland, focusing on temporal and geographic variation.
- Disseminate analytic findings to local law enforcement and the general public through an engaging website.
- Identify resources and strategies that may be useful to law enforcement, businesses, and citizens for preventing/addressing the local crime problems analyzed above.

Guideline Three—Develop Basic Analytical Capacity in Regional Centers

Partner agencies in a regional center must develop analytical capacity to produce and share crime analysis documents. The process of building analytical capacity in a region usually begins with the hosting agency in a regional center. Regional centers are designated on the basis of crime statistics. Hosting agencies at the heart of each regional center are often larger organizations with more capability to sustain a crime analysis program (and attract funding to support the program). Partner agencies, however, may have uneven levels of preparation in crime analysis or none at all. All partners in a regional center must have the basic capacity to produce and share analytical products.

Regional centers should engage in a common and sustainable training program to bring each partner to the necessary level of analytical capacity (see the section on training). A regional training program will encourage the sharing of information and best practices. Technical assistance and training may be provided to the regional center by area universities or professional associations.

Guideline Four—Seek Funding to Conduct Training and Demonstration Projects

It will take time to develop regional partnerships and analytical capacity. Partners are required to contribute time and resources to the regional initiative. The benefits of a regional partnership may not be readily apparent to potential partners, who may be reticent to join the regional center when faced with local priorities and demands on resources. Often, it is not practical to implement a crime analysis program at the agency level without demonstrating utility or return on investment. Demonstration projects implement a program or strategy on a small scale (a particular district, neighborhood, or unit). Successful demonstration projects illustrate the utility of the demonstrated program or strategy and facilitate buy-in by line and command staff.

Multijurisdictional initiatives have a higher probability of receiving grants to fund demonstration projects. Coupled with relevant training, the demonstration projects assist agencies in developing strategic and intelligence methods of analysis. Agencies may then share the outcomes of their demonstration projects and lessons learned. The process of sharing the outcomes of demonstration projects builds communication linkages between agencies. A series of demonstration projects may form the foundation for an enterprisewide initiative, establish that the partnership is worthy of funding, and demonstrate return on investment.

Guideline Five—Develop Regional Centers by Linking Partner Agencies

As partner agencies in a regional center develop the requisite level of analytical capacity for regional crime analysis, a protocol for producing and sharing regional analytical products must be established. This may include mapping the regional center, producing a memorandum of understanding (MOU) for partners, developing standing operating procedures (SOPs) within partner agencies, and establishing a governing board.

In developing centers, a visual map or flowchart including the hosting agency and partners (existing and potential) can be produced to coordinate information flow, communication, and expansion of the center. In addition to illustrating partner agencies and potential partner agencies for the regional center, the map may note each agency's analytical capacity or special characteristics (task forces, specialized units). Finally, the map will assist in obtaining consistent information and communication technology used to link partner agencies. The mapping process will be discussed in more detail in Guideline Seven.

An MOU should be written to formalize the relationship between regional center partners and establish commitment to the initiative. The MOU will specify partner roles and expectations as participants in the regional center. The state of New York uses an MOU to establish its regional crime analysis centers. Regional participants may wish to write a policy and SOPs for participating in a regional center. This additional policy and these SOPs may be an addendum to existing orders regarding crime analysis and data-driven strategies. A governing board consisting of representatives from each partner agency should be convened to coordinate the activities of the regional center.

For example, after years of training and demonstration projects, NOVCC central agencies were prepared to develop regional centers. NOVCC expanded training and demonstration projects to jurisdictions surrounding the central agencies. The NOVCC agencies engaged in a mapping process to understand which nearby agencies would agree to partner in a regional center. Once the potential regional center was mapped, the search for a unifying regional information system was undertaken.

In New York State, each regional crime analysis center has a formal MOU linking partner agencies, as well as a governing board. This is the case for other regional information sharing initiatives that include fusion centers. See an example of an MOU currently in use by the Austin Regional Intelligence Center (ARIC).

Interlocal Cooperation Agreement for the Austin Regional Intelligence Center (ARIC) www.ci.austin.tx.us/police/downloads/aric_general_interlocal_with_council_changes_060910.pdf

Finally, partner agencies in a regional center must establish a protocol for sharing data, information, knowledge, and intelligence. The sharing of information and intelligence may be done through the use of e-mail, messaging, and regular meetings. The sharing of data, however, requires partner agencies to link to or create common databases. This process will be discussed in Guideline Eight.

Guideline Six—Integrate Intelligence Analysis With Other Forms of Crime Analysis

Agencies in a regional partnership might have different definitions of crime analysis. Each agency will likely specialize in one or two types of analysis to the exclusion of others. Multiple types of crime analysis might be conducted within the same agency. For example, street narcotics units might conduct criminal intelligence analysis that is separate from the tactical or strategic analysis being done in the same agency's crime analysis unit. Specialized units may be reticent to share criminal intelligence to avoid threats to operational security. The analytical function within agencies and regions must be integrated in terms of crime analysis type and parochial pools of information minimized. In short, the highly guarded intelligence derived from specialized units is often the most valuable to a regional initiative. Reducing barriers to the integration of criminal intelligence with other forms of analysis will create more effective analytical products.

NOVCC developed a partnership with the Northeast Ohio Regional Fusion Center (NEORFC) to integrate crime and intelligence analysis. Historically, fusion centers and intelligence centers focused exclusively on one type of crime analysis: criminal intelligence analysis. The focus of fusion centers and intelligence centers was further distilled into homeland security issues, early centers having a single-hazard focus on terrorism. Fusion centers have evolved from analyzing a single hazard to an all-crimes model. In doing so, the NEORFC wished to integrate tactical and strategic crime analysis methods into its operations. Both fusion centers and intelligence centers can be significant coordinating forces in a regional crime analysis effort. The NEORFC relied heavily on existing models in its development. The model most heavily drawn from was the Boston Regional Intelligence Center (BRIC).

Case Study—Boston Regional Intelligence Center

The mission of the Boston Regional Intelligence Center (BRIC) is to reduce crime and prevent acts of terrorism throughout the Metropolitan Boston Homeland Security Region (MBHSR) by serving as the central point for the collection, synthesis, analysis, and dissemination of strategic and tactical intelligence to law enforcement, intelligence, first-responder, and private sector partners and to assist the federal government as a partner for national security. The BRIC was established in 2005 to coordinate efforts of the nine communities in the Boston Urban Area Security Initiative (UASI)—in their work to reduce crime and prevent terrorism. Since its inception, the BRIC has become the regional center for public and private stakeholders in and around Boston for the collection and analysis of intelligence information and the investigation of homeland security-related criminal activities. The Boston Police Department, through its Bureau of Intelligence and Analysis,

is the managing authority (central agency) of the Boston Regional Intelligence Center. The BRIC has collocated its analytical and investigative staff in a shared workspace. Critical liaison personnel such as representatives from the Massachusetts State Police, Boston Emergency Medical Services, Boston Fire Department, Department of Homeland Security Office of Intelligence & Analysis, and Federal Bureau of Investigations Boston Field Office are also assigned to the center. The BRIC partners with local law enforcement agencies, other first responders, and the private sector operating throughout the nine participating municipalities; federal law enforcement and intelligence partners; and other state and major urban area fusion centers to prioritize, collect, analyze, produce and disseminate actionable intelligence—often in real time—with the goal of reducing criminal activity and preventing terrorism. The Bureau of Intelligence and Analysis manages the overarching process of coordinating the flow of information across all bureaus of the department and across all levels and sectors of government and private industry. Bureau efforts support risk-based, information-driven decision making and address immediate and/or threat-related circumstances and events by producing real-time, actionable intelligence products.

A major lesson learned for NOVCC is that the perspective of fusion center directors with regard to the relationship of crime and intelligence analysis is very important. It is important for fusion center directors to adopt the all-crimes model and recognize that intelligence analysis can be complemented by other forms of crime analysis. There have been several directors of the NEORFC during NOVCC's existence. Directors who were open to an all-crimes model and a broad analytical approach were most likely to succeed in integrating their operation with agencies in the region. Directors who enforced a strict distinction between crime analysis and intelligence analysis, or who focused exclusively on the homeland security role of fusion centers, were less likely to integrate with regional initiatives or partner effectively with local agencies.

Guideline Seven—Use Concept Maps and Logic Models to Organize a Region

Regions should create information sharing concepts or flow maps of horizontal and vertical communication linkages to organize the data-information-knowledge-intelligence (DIKI) process and maximize the use of available resources. The concept mapping process coordinates the flow of DIKI between partner agencies and facilitates the production of regional analytical products in a regional center. Additional mapping is necessary to connect regional centers. Mapping provides an illustration of what partner agencies in a regional center can contribute, how the partner agency communicates with the center, whether particular agencies have specialized DIKI or capabilities, and how to eliminate ad hoc, confusing, and redundant communication. In short, the flow of data, information, knowledge, and intelligence from partner agencies is made explicit for efficient processing into regional products. Specialized pools of information, such as the tracking of individuals with monitors from probation or parole agencies, are made available at the regional level and may be shared by partners. Once linkages are established within the regional center, linkages to other centers must be established.

As discussed above, regional mapping is usually begun by the hosting agency in a regional center at its inception. Partner agencies meet and document the level of analytical capacity and special contributions for each agency. A flowchart is created detailing information pathways, contact names, and numbers for each partner. Maps are dynamic and evolve as additional partners are

added (for example, correctional agencies, prosecutor's offices, private agencies, and agencies at other levels of government).

Horizontal communication linkages occur between entities on the same organizational level. In this case, horizontal communication would occur between partners in the regional center. In addition, DIKI and resources shared between regional centers is horizontal. Vertical communication occurs between different levels of an organization or government. DIKI sharing among local, state, and federal agencies is considered vertical communication. The private sector also might be included as a vertical communication and information sharing partner. Vertical communications both within and between regional centers should be mapped to establish the flow of information, specialized capabilities, and contact information for partners.

A regional training to produce communication and information linkage maps and provide various agencies with the opportunity to demonstrate available capabilities is advisable. Linkage maps of individual regional centers and the broader region should be reviewed and updated regularly by regional governing bodies. Regional meetings should be held routinely to discuss priorities, incorporate new partners and capabilities, and reinforce established communication and intelligence sharing pathways.

A logic model (also known as theory of change, program matrix, and logical framework) may be used to plan and implement a regional crime analysis initiative. Logic models are used by funders, evaluators, and managers to evaluate a program. They are a useful tool for program development and evaluation planning for several reasons:

- They serve as a format for clarifying what the program hopes to achieve.
- They are an effective way to monitor program activities.
- They can be used for either performance measurement or evaluation.
- They help programs stay on track as well as plan for the future.
- They are an excellent way to document what a program intends to do and what it is actually doing.

See the Bureau of Justice Assistance—Center for Research Partnerships and Program Evaluation for more information on logic models, <https://www.bja.gov/programs/crppe/index.html>.

Guideline Eight—Establish Regional Information Management and Sharing Systems

“Law enforcement needs a secure network for sharing criminal information and intelligence. It must be a national system of databases on crimes and suspects that would enable investigators to identify linkages between violent crimes in different jurisdiction (Murphy and Wexler et al., 2004, p. 75).”

Several information management systems exist or are under refinement. An entire report could be written on the strengths and weaknesses of available information systems. Many systems that may be adopted by a regional crime analysis initiative are proprietary and will not be discussed. Instead,

this report will provide an overview of some of the better-known criminal justice information systems. Faced with budgetary constraints, agencies should be careful not to create new systems that duplicate existing information management and sharing networks. Current systems that can be adapted to meet regional information management and sharing needs should be prioritized.

Regional Information Sharing System www.riss.net

The Regional Information Sharing System (RISS) has been in existence since 1972. In the 1990s, RISS implemented an automated communication network that allows investigators and analysts to submit, share, and retrieve information in a secure environment. RISSIntel is accessible via RISSNET and currently provides for the real-time, online federated search of more than 35 state and regional connected systems simultaneously without requiring the user to log on to individual systems. By leveraging RISSNET and RISSIntel, analytical centers can securely share intelligence data among themselves and other entities efficiently and effectively; analyze criminal and terrorism data across jurisdictional boundaries and agencies; and safeguard privacy, civil rights, and civil liberties.

RISSNET's communication backbone has been used to expand information-sharing options to various communities including community service, fire and EMS, public health, and emergency management, as well as traditional law enforcement agencies. The FBI's Law Enforcement Online (LEO) has established interconnectivity with RISSNET, which allows members from various communities to share information. RISS ATIX provides law enforcement, public safety, and critical infrastructure personnel—representing such entities as public utilities, schools, fire departments, and the chemical industry—with access to homeland security, disaster, and terrorist threat information, as well as secure communication capabilities. Hundreds of thousands of public safety professionals can access RISS ATIX, and the number of participants continues to grow. RISS ATIX participants choose a “community” group according to their responsibilities. The RISS ATIX resources contain specific information for each community. RISS ATIX community groups include local, county, state, and tribal levels of emergency management, law enforcement, and government, as well as water and power utilities, transportation, agriculture, chemical manufacturing, private security, environmental protection, banking and finance, and hospitality industries. New community groups are added to RISS ATIX as the service expands. <https://www.riss.net/resources/atix>

The National Criminal Intelligence Sharing Plan (NCISP) recommends that the RISS and LEO systems serve as the initial communications backbone for the implementation of a nationwide criminal intelligence sharing capability. NCISP contains model policies and standards for adapting existing crime analysis information management and sharing infrastructure across all levels of government. The plan includes the following components:

- Processes and mechanisms to promote intelligence-led policing
- Models for law enforcement intelligence systems
- Policies for protecting privacy and civil rights
- A secure technology architecture for sharing intelligence
- A national model for intelligence training
- An outreach plan for promoting timely and credible intelligence sharing
- A plan for leveraging existing intelligence systems and networks

More information may be found at the Bureau of Justice Assistance–Justice Information Sharing website, <https://www.it.ojp.gov/>.

FBI—Violent Criminal Apprehension Program (VICAP): <https://www.fbi.gov/wanted/vicap>

The Violent Criminal Apprehension Program (VICAP) is a nationwide data information system designed to collect and analyze crimes of violence (specifically, murder and sexual assault). VICAP’s mission is to facilitate communication, cooperation, and coordination among law enforcement agencies and support their efforts to investigate, identify, track, apprehend, and prosecute violent serial offenders. VICAP has been criticized as not being user friendly. Since reporting forms are different from those used by local agencies, investigators must complete an additional set of reports (a 20- to 60-minute commitment). Initially, local and state agencies were unable to query the national database directly. Instead, agencies sent requests for information to the FBI. Finally, there was lag time between when crimes were committed and when information was entered into VICAP.

Some of the criticisms of VICAP were resolved when the system became web-based on Law Enforcement Online (LEO). However, the VICAP experience provides lessons that can inform regional data management and sharing. First, it is important to build bridges between various information systems to reduce duplication of effort. Investigators and analysts prefer to enter all case information at one time. Local and state agencies are reticent to participate in shared databases when additional reporting is involved. Next, personnel should be available to maintain the information system. For example, “contact officers” in the United Kingdom are responsible for collecting and entering raw information into information systems. Hiring additional personnel for information system maintenance and data entry requires funding. Only a handful of states have legislation requiring mandatory reporting to national databases within 30 days. Additional legislation would increase participation in national databases such as VICAP, NGI, CODIS, and NIBIN. Until funding, legislative, and interoperability issues are resolved, existing regional and national information sharing and management systems will not realize their potential.

Other National Databases:

ATF—National Integrated Ballistics Information Network (NIBIN)

<https://www.atf.gov/firearms/national-integrated-ballistic-information-network-nibin>

DHS—Homeland Security Information Network (HSIN)

<https://www.dhs.gov/homeland-security-information-network-hsin>

FBI—Next Generation Identification (NGI)

<https://www.fbi.gov/services/cjis/fingerprints-and-other-biometrics/ngi>

FBI—Combined DNA Index System (CODIS)

<https://www.fbi.gov/services/laboratory/biometric-analysis/codis>

Notable State and Local Criminal Justice Information Sharing Initiatives:

Chicago Police Department's CLEAR program

<http://home.chicagopolice.org/online-services/i-clear-application-for-law-enforcement/>

Members of the Chicago Police Department developed a technology integration application called Citizen and Law Enforcement Analysis and Reporting (CLEAR). CLEAR provides information about criminal offenders in Chicago and Cook County and makes this data available throughout Illinois and neighboring states.

State of Pennsylvania—Justice Network (JNET)

<http://www.pajnet.pa.gov/Pages/default.aspx>

JNET is the primary public safety and criminal justice information management and sharing system in Pennsylvania. JNET provides an integrated online environment for authorized users to access public safety and criminal justice information. Information comes from various municipal, county, state, and federal agencies. One-time data entry has improved participation of agencies' data accuracy throughout the state criminal justice system. Information entered into a records management system at the onset of an investigation follows an offender's progression through the system.

Los Angeles Regional Criminal Information Clearinghouse (LA CLEAR)

<https://laclea.org>

The Los Angeles Regional Criminal Information Clearinghouse (LA CLEAR) is a joint-agency, investigative intelligence, support initiative task force formed in partnership among the Los Angeles County Chief's Association, the Los Angeles County Sheriff's Department, and the California Department of Justice, Division of Law Enforcement. Since its inception in 1994, LA CLEAR has grown to become a nationally recognized premier intelligence support center (ISC). LA CLEAR's mission is to produce and provide intelligence products, enhanced information sharing, and advanced systems technology to federal, state, and local law enforcement agencies. LA CLEAR represents a unified effort to develop an innovative and progressive information management system in support of law enforcement operations not only in Los Angeles County, but in the entire Los Angeles High Intensity Drug Trafficking (LA-HIDTA) region, which encompasses Los Angeles, Orange, Riverside, and San Bernardino Counties. LA CLEAR uses advanced technologies coupled with skilled professionals to maximize the ability of law enforcement's counter-drug, gang, terrorism, and Part I felony crime enforcement efforts to manage and share critical information. Specialties: criminal intelligence, event deconfliction, crime analysis, law enforcement training, and law enforcement.

Austin Regional Intelligence Center

www.austintexas.gov/departments/austin-regional-intelligence-center

The Austin Regional Intelligence Center (ARIC) is a U.S. Department of Homeland Security recognized fusion center, a collaborative effort of public safety agencies in Travis, Williamson, and Hays Counties. The center, which is managed by the Austin Police Department, has been in operation since December 15, 2010, with a mission to protect the

public by providing a centralized, comprehensive, multiagency criminal information and intelligence-sharing network that enhances the operational effectiveness and efficiency of the law enforcement and public safety agencies involved and by maximizing the region's ability to detect, prevent, apprehend, and respond to criminal and terrorist activity.

Case Study—Minnesota's CriMNet Program

In 2001, the Minnesota legislature enacted legislation creating the CriMNet program office to coordinate criminal justice information system integration issues. After more than 15 years and \$100 million in investment, the state of Minnesota has improved system integration and efficacy. Still a work in progress, the system took far longer than was originally anticipated because of funding, leadership, and participation issues. The lessons learned in Minnesota can inform other regional efforts in information management and sharing.

See Minnesota's Path to Integration (A history of CriMNet):

<https://dps.mn.gov/divisions/bca/boards-committees/cjji-advisory-group/Documents/Path-to-Integration.pdf>

<https://dps.mn.gov/divisions/bca/boards-committees/cjji-advisory-group/Pages/governing-bodies.aspx>

Case Study—Florida Department of Law Enforcement

Florida links regional centers using a state-level intelligence agency and regional liaison systems. The Office of Statewide Intelligence (OSI) was created by the Florida Department of Law Enforcement (FDLE) in 1996, specifically to address the need for a preemptive strategy to combat the state's varied criminal elements and trends. Information and intelligence from OSI helps ensure that FDLE's investigative resources are directed toward emerging crime threats and those with the most potential impact to Florida.

OSI plays a primary role in the planning and direction, analysis, reporting, and evaluation of FDLE intelligence products. OSI is the core of the Florida Fusion Center, which functions as the state hub for local, state, and federal intelligence exchange on all crimes. OSI helps support other programs within FDLE by coordinating and unifying intelligence processes for the department.

Regional intelligence agents (RIAs) are assigned as intelligence liaisons from the region to the Florida Fusion Center (FFC) and OSI. These special agents are responsible for maintaining awareness of crimes/crime trends in all focus areas within their respective regions:

1. Pensacola Region
2. Tallahassee Region
3. Jacksonville Region
4. Tampa Bay Region
5. Orlando Region
6. Fort Myers Region
7. Miami Region

OSI compiles quarterly assessments of crime information from the seven FDLE regions. These assessments are sent back to the field for use in determining the crime issues and deployment of resources for FDLE statewide. The FFC is inclusive of and a component within OSI, located in Tallahassee, Florida. The FFC consists of FDLE members, as well as federal agencies and state and multidisciplinary partners, and includes outreach to private sector entities. The FFC serves as the state node and provides connectivity and intelligence sharing among the regional fusion centers.

Case Study—Washington, DC, Sniper Case

The absence of effective data sharing networks becomes apparent during complex multijurisdictional investigations. Murphy and Wexler et al. (2004) note that the information management challenges during the 2002 Washington, DC, sniper case were unprecedented. The 14 shootings (including 10 fatalities) comprise one of the largest multijurisdictional cases in U.S. history. The task force established to deal with the shootings established an analytic center to better manage data. The analytic center for the Washington, DC, sniper case established the following work process:

- *Data input*—Data were entered into the information system from the initial shootings and telephone tips (the information system used was Case Explorer).
- *Hit identification and review*—Software generates matches based on search criteria that are reviewed by analysts.
- *Investigative file development*—Valid hits are sent to a group of analysts who prepare background information for an investigator's file.
- *Investigative file review and assignment*—The analytic center supervisor reviews the investigator's file and assigns it for analytic follow-up.
- *Database integration*—The analytic center imports data from a variety of information systems and frequently updates the Case Explorer system.
- *Investigative hits*—The analytic center modifies hit parameters to narrow the scope of the investigation. Two data points instead of one would be necessary to constitute an investigative hit. For example, a person living in the area who owns a white van AND is the registered owner of a .223 rifle would constitute a hit.

Important lessons learned from the Washington, DC, case regarding effective information management systems (Murphy and Wexler et al., 2004, p. 74) are as follows:

- The system should serve as a repository for all tips, leads, and other information.
- The system should be compatible with systems in other agencies.
- The system should be web-based and accessible to authorized agencies.
- The system should feed multiple information systems based on one-time data entry.
- The system should perform sophisticated data analysis, including cross-checking and soundexing.
- The system should provide tasks for investigators to consider.

As illustrated, various state and federal information management and sharing systems have existed for years (RISS, VICAP). Few, however, can link regional centers with single data entry and query

access to all available databases in a region (systems in Minnesota and Pennsylvania are evolving exceptions). New York State has accomplished this task with its statewide crime analysis centers (CACs).

Case Study—New York Regional Crime Analysis Centers

The New York Division of Criminal Justice Services has established seven regional CACs. The centers are a state and local government collaborative project. Each participant signs a formal information sharing agreement to participate in a CAC. Centers are multijurisdictional and located in areas based on their total Part I crime numbers, as well as their high rates of violent and firearm-related violent crime. Each center provides a centrally located unit to conduct in-depth analysis of all county crime incident data to support informed decisions in the areas of strategic planning and tactical deployment.

The CACs provide on-site training, guidance, and assistance in developing effective intelligence-led crime reduction strategies and for improving local crime analysis capabilities. The centers are composed of law enforcement personnel and crime analysts from federal, state, county, and local agencies. The goal of the centers is to share information and provide law enforcement with accurate and timely data, which they can then use to identify patterns, deploy resources, and reduce crime throughout the state.

The CACs started in 2007 with a \$5 million allocation from the New York Division of Justice Services. Project leads were identified, and the first two locations were selected. After selecting local boards of governance, project leads solicited local agencies for buy-in and developed a plan for each center. The CACs' board of directors includes the commissioner of DCJS, the chief of the city police department, the county sheriff, the District Attorney, the NYSP troop commander, and others as locally requested (probation director, suburban police chiefs). Daily operations are overseen by the director of CAC (DCJS). The board meets quarterly, with all important decisions made by consensus. The New York Regional Crime Analysis Centers shared the following lessons learned:

- The desire to share data is strong.
- The state can play an important sponsorship role in empowering and supporting the participants.
- Governance based on equality engenders trust and cooperation.
- Local governance means that the sponsor must be flexible.
- Any hardware solution must respect the embedded agency installation and agency IT team.
- Patience is a necessity. Every step forward involves multiple agencies, vendors, and distinct networks.
- Producing even small successes will refute sharing concerns and will open the door for greater cooperation.
- The technologies and solutions do not have to be complex and expensive to provide value.

The New York Regional Crime Analysis Centers employ a scalable and affordable information technology platform that provides single-query access to an extensive volume of crime and

intelligence data. The CACs data clarity platform allows the centers to share intelligence data statewide. Proven, commercial off-the-shelf (COTS) software was selected to ensure consistency, reliability, and maintainability while ensuring a cost-realistic deployment model. Consequently, New York State has the largest comprehensive public safety information sharing network in the nation, with the capability to provide single-query access to all sources.

Summary

Implementation of a regional information management and sharing system to facilitate crime analysis requires a significant investment in time and resources. The implementation process must be deliberate, enhancing analytic capacity in partners, mapping communication and information sharing linkages, procuring the appropriate information technology, establishing governing bodies, and writing MOUs and protocols. Ideally, regional crime analysis efforts will include legislation and funding to compel participation and provide the necessary support. At no other point in history have relatively inexpensive technologies and accessible expertise to use them been more readily available. The integration and use of criminal justice information management and sharing systems for regional (and ultimately national) crime analysis will inevitably come to pass. The question is at what pace and efficiency the integration will occur.

Resources:

BJA—Justice Information Sharing—Fusion Centers and Intelligence Sharing
<https://it.ojp.gov/initiatives/fusion-centers>

El Paso Intelligence Center (EPIC)
<https://www.epic.gov/>

Financial Crimes Investigation Network (FinCEN)
<https://www.fincen.gov/>

High Intensity Drug Trafficking Areas (HIDTA)
<https://www.dea.gov/ops/hidta.shtml>

Information Sharing Environment (ISE)
<https://www.ise.gov/>

INTERPOL
<https://www.interpol.int/>

National Association of Justice Information Systems (NAJIS)
<http://www.najis.org/about-najis>

National Criminal Intelligence Sharing Plan
<https://it.ojp.gov/1180>

National Criminal Justice Association Center for Planning (NCJP)
<http://www.ncjp.org/>

National Information Exchange Model (NIEM)
<https://www.niem.gov/>

National White Collar Crime Center (NWC3)
<https://www.nw3c.org/>

References:

Government Accountability Office (2010). “Information Sharing: DHS Could Better Define How It Plans to Meet Its State and Local Mission and Improve Performance Accountability.” Technical report, GAO-11-223.

Government Accountability Office (2011). “Information Sharing: Progress Made and Challenges Remaining In Sharing Terrorism-Related Information.” Technical report, GAO-12-144T.

Government Accountability Office (2012). “Information Sharing: DHS Has Demonstrated Leadership and Progress, But Additional Actions Could Help Sustain and Strengthen Efforts.” Technical report, GAO-12-809.

International Association of Chiefs of Police and United States of America (2008). *National Summit On Intelligence: Gathering, Sharing, Analysis, and Use After 9-11*.

International Association of Crime Analysts. (2016). *Fundamentals of Crime Analysis* (course manual). Overland Park, Kansas.

Jackson, Brian A. (2014). “How Do We Know What Information Sharing Is Really Worth?” Santa Monica, California: RAND Corporation.
http://www.rand.org/content/dam/rand/pubs/research_reports/RR300/RR380/RAND_RR380.pdf

Kovalchik, Stephanie A.; Herberman, Erinn; Mugg, Katie, and Brian A. Jackson, et al. (2016). “Developing Outcome Measures for Criminal Justice Information Sharing: A Study of a Multi-Jurisdictional Officer Notification System for Policing Sex Offenders in Southern California.” *American Journal of Criminal Justice*.

Murphy, Gerard R. and Chuck Wexler. (2004) “Managing a Multijurisdictional Case: Identifying the Lessons Learned from the Sniper Investigation.” Police Executive Research Forum. U.S. Department of Justice.

Rowley, Jennifer (2007). “The Wisdom Hierarchy: Representations of the DIKW Hierarchy.” *Journal of Information and Communication Science*. 33 (2): 163–180.

Santos, Rachel B. (2016). *Crime Analysis with Crime Mapping*. Thousand Oaks, California: Sage Publications.

Zins, Chaim (2007). “Conceptual Approaches for Defining Data, Information, and Knowledge.” *Journal of the American Society for Information Science and Technology*. 58 (4): 479–493.