

IBM Smarter Cities Public Safety—Law Enforcement



Dedicated to protecting citizens and property, many law enforcement agencies are finding it more and more difficult to ensure public safety. Police departments face increasing demand for services and a broadening set of responsibilities. Shrinking budgets mean that police departments are often asked to address these challenges with limited resources.

Law enforcement agencies need new, smarter solutions. They need ways to harness information to better understand problems, develop better ways to deliver services, respond faster to threats and streamline the investigation and prosecution of cases.

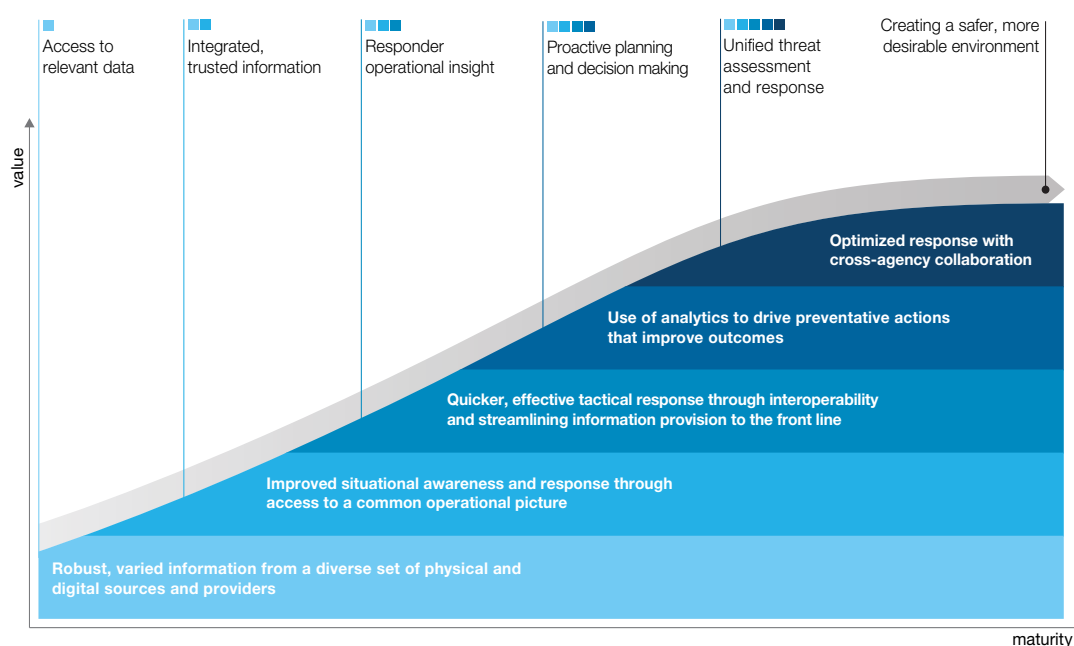
IBM® Smarter Cities® Law Enforcement solutions incorporate a range of best-of-breed technologies from IBM and IBM Business Partners to address critical law enforcement challenges. These solutions can help agencies collect, integrate, analyze, visualize and distribute information to officers anywhere—in operations centers, investigative offices, on patrol or at a scene—while sharing information with other organizations.

Data visualization, real-time collaboration and analytics capabilities can help agencies monitor city areas, predict and respond more effectively to crimes, streamline case management and collaborate in the management of major



events and emergencies. By implementing IBM Smarter Cities Law Enforcement solutions, cities can realize immediate benefits while supporting a longer-term public safety transformation from a reactive approach to a proactive, predictive approach that helps create a safer, more desirable environment for citizens.

By developing key competencies agencies can create a safer, more desirable environment for citizens and the community.



Source: IBM Center for Applied Insights and the IBM Global Government Industry team analysis. ibm.com/smarterplanet/us/en/public_safety/article/value_quantification_tool_public_safety.html

Figure 1: As cities add competencies, they can deliver a more effective and agile response to public safety and security threats.

Progressing toward Smarter Public Safety

For many cities, implementing IBM Smarter Public Safety® solutions will be a multiphased process. By gradually incorporating new competencies, cities can increase the value of information in combating crime (see Figure 1).

- Cities must establish access to relevant information from diverse sources and providers.
- They require integrated information and a trusted common operational picture that can enhance investigative capabilities, improve situational awareness and facilitate coordinated responses to incidents and emergencies.

- To accelerate tactical responses, they must streamline information access for the front line of law enforcement and emergency teams.
- Implementing analytics assists cities in identifying factors that support successful outcomes and assists in developing preventive tactics.

By optimizing responses and enhancing collaboration strategies, cities can achieve unified threat assessment and response.

IBM Smarter Cities Law Enforcement

IBM Smarter Cities Law Enforcement solutions can help cities respond to and prevent crimes by uncovering trends and pinpointing hotspots of criminal activity where additional resources can be deployed.

Intelligent Law Enforcement Center

Law enforcement agencies collect massive amounts of data, but often they lack the ability to manage that data and put it to use. They need ways to accurately identify people and discover the potentially complex relationships among numerous individuals and groups. They need to create a consistent, accurate and up-to-date repository of data on individuals, organized rings and the crimes they commit so they can identify trends, correctly allocate resources and develop strategies for disrupting and preventing criminal activity.

Cities require an intelligent law enforcement center that provides a single, integrated source for tremendous volumes of public safety data. Law enforcement agencies can bring together information from databases of citations and criminal bookings, field reporting systems, video surveillance systems, asset management systems, social media sources and more while connecting with regional or national data sources for additional information.

The intelligent law enforcement center can organize that information and generate insights that help agencies identify investigative leads and solve crimes. Law enforcement personnel can conduct powerful searches and visualize relationships among people, places and incidents. They can monitor incoming data and generate alerts for suspicious activities. In addition, they can deliver real-time information to police officers and investigators in the field by providing direct, secure information access from mobile devices.

An intelligent law enforcement center also enables agencies to share information with other organizations across jurisdictional boundaries. Sharing information plays an important role in combating crime since some criminals move among cities, counties and regions.

By offering a single, accurate and up-to-date view of information integrated from multiple sources, an intelligent law enforcement center also gives law enforcement agencies a robust foundation for additional analytics solutions, enabling them to increase the value of information in fighting crime.

Real-Time Crime Center

Implementing a Real-Time Crime Center can help law enforcement agencies solve crimes and apprehend criminals by more effectively identifying individuals and discovering crime patterns in tremendous data volumes. A Real-Time Crime Center can augment an existing data warehouse by integrating information from emergency calls, reports from officers in the field and physical surveillance systems, providing real-time visibility into events and potential criminal activity.

With a Real-Time Crime Center, agencies can use behavior models, analyses of the types of crime reported and information on the background of suspects to rapidly assess multiple hypotheses based on available evidence. Real-Time Crime Centers also support entity analytics solutions that allow investigators to perform searches based on individual names, phone numbers and addresses against millions of records and then create relationships. By using facial recognition solutions in conjunction with input from surveillance systems, investigators can submit case photos and videos for facial recognition and return a small list of potential suspects from databases filled with millions of existing pictures.

Real-Time Crime Centers provide planning tools that allow agencies to analyze historical work, set future objectives and metrics, and build execution plans. Agencies can use scorecards and dashboards to monitor and respond to key metrics, and generate reports and analyses highlighting issues that need to be addressed or resolved quickly.

Predictive and Preventive Policing

IBM Smarter Cities Law Enforcement solutions can help law enforcement agencies develop predictive and preventive policing strategies that capitalize on information to anticipate and thwart criminal activity. Using predictive analytics solutions can help law enforcement agencies detect crime trends, identify geographic hotspots and predict the likelihood of crimes occurring in certain areas of a city. They also can find patterns and uncover relationships that signal the presence of gangs, terrorist actions or other organized crime activity.

With new insights, law enforcement agencies can implement strategies to dismantle environments that are conducive to crime and share information among other agencies that can assist with the location and prosecution of criminals. At the same time, agencies can use analytics insights to optimize the allocation of their resources so they have the personnel ready to prevent crimes and catch criminals.

These solutions also enable agencies to capture statistics about recidivism. Agencies can evaluate current recidivism reduction programs and predict which criminals might respond best to a specific program. By matching criminals with the right program, agencies can help reduce the likelihood that the individual will commit another crime.

Creating safer neighborhoods in Atlanta

To support the Project Safe Neighborhoods federal initiative, which aims to reduce gun-related crime, the Atlanta Police Department (APD) needed new ways to use the tremendous volume of information in Georgia's criminal history repository. The state keeps data on all arrests from the past decade, but officers did not have effective ways to access or use that information.

With help from a public policy research firm, the APD deployed a predictive analytics solution that sorted and ranked all files in the repository based on the number and seriousness of violent offenses. It also identified the most violent and high-risk offenders in Atlanta.

The APD created a watch list of the 500 most dangerous criminals and distributed the list to other agencies to focus efforts on preventing these individuals from committing additional crimes. Over the course of a year, Atlanta's Project Safe Neighborhoods reported a 40 percent reduction in firearm-related homicides and a 23 percent reduction in fatal homicides. With new insights into the location of crimes and criminals, the APD also optimized officer deployment into dangerous areas while increasing officer safety by informing patrol officers about the presence of dangerous individuals.

“IBM predictive analytics technology provides us with valuable insight into offender data, which helps us to predict who may reoffend and enables us to advise on preventative measures before a prisoner’s release date.”

— Spokesperson, Ministry of Justice, United Kingdom

Emergency, Crisis and Event Management

From terrorist attacks and riots to parades and athletic events, crisis situations and large-scale events often require law enforcement agencies to collaborate with emergency management personnel, helping to shield individuals from harm, protect property, subdue criminals and maintain order. Police officers need ways to access the latest information and coordinate efforts with emergency responders during these tense and fast-changing situations.

The IBM Intelligent Operations Center integrates data visualization, event tracking, resource tracking, real-time collaboration and deep analytics capabilities into a single, comprehensive solution that can help emergency management teams and law enforcement agencies respond to a full range of emergency situations. Multiple city agencies can access a single, up-to-date source of accurate information and tap into a full range of capabilities from a central location.

Dashboard functionality gives decision makers a real-time, unified view of operations so personnel can assess what is needed and what resources are available. Cities can rapidly share information across agency lines to accelerate problem response and improve coordination of efforts. Because small problems can sometimes escalate into large-scale crises, the solution is designed to scale up rapidly. With visibility into key performance indicators (KPIs) and trends, the solution also can help fine-tune current resource usage and support forward-looking planning activities.

Video Surveillance and Analytics

Video surveillance systems are playing an increasingly important role in public safety. Cities are installing more video systems in strategic locations to provide real-time feeds that can alert police to trouble and collect evidentiary-quality content to later identify and prosecute criminals. Regardless of the number of cameras, relying on humans alone to view and analyze the information captured will be inefficient and ineffective.

Cities need ways to increase the value of video content by using new technologies to automatically analyze information, identify threats and provide real-time alerts to the right personnel.

IBM offers comprehensive video analytics solutions that enable law enforcement agencies to capture, analyze and search large volumes of video content from across a city. To help identify and quickly respond to potential problems, these solutions allow efficient real-time video analysis and produce real-time alerts. Video information can be processed and analyzed without human intervention, enabling cities to cost-effectively monitor numerous locations around the clock.

To bolster preparedness for future threats, video analytics capabilities can convert field-of-view data into a common format that can be analyzed along with a range of other data. Enhanced forensic capabilities allow unique indexing and attribute-based search of previous video events. Operators can rapidly search millions of archived records, view summaries and identify patterns or image types to support investigations and improve law enforcement planning.

Deploying more eyes on the scene

Chicago needed better ways to monitor activities, protect people and safeguard property at the city's downtown Navy Pier—a popular destination for entertainment, business and education. The Metropolitan Pier and Exposition Authority, which owns and operates the pier, worked with IBM to implement an advanced video monitoring network that incorporates high-resolution cameras, alarms and sensors with robust analytics capabilities. Cameras provide extended video coverage for the pier while integrated emergency call buttons trigger audio and video streams to the pier's command center, where managers can use advanced analytics capabilities to identify suspicious activities and alert security personnel or local law enforcement.

Streamlining case management in Finland

The city of Helsinki, Finland, needed more effective ways to investigate incidents and build cases while reducing complexity and eliminating unnecessary costs. To do so, the city needed to enhance communication among its 35 departments, improve decision making and reduce the reliance on paper processes.

The city implemented an IBM Case Manager solution to provide a consolidated, scalable and user-friendly case management platform that would better integrate information across government departments. The city reduced paper by 40 percent, saving EUR300,000 per year. It also reduced staff requirements and increased transparency by enabling all 35 city departments to use the same decision-making system.

Case Management

To enhance the efficiency and effectiveness of criminal investigations and prosecutions, law enforcement agencies and courts need new ways to manage their tremendous caseloads. Paper- and text-based files limit the kind of information that is stored and slow the transfer of case information among authorized parties.

IBM case management solutions capitalize on information technology to offer an entirely new approach to case management. This new approach could automatically create an electronic case file from the moment a 911 call is received or a police officer takes a report in the field. As the case progresses, police officers and investigators could incorporate information from a wide range of sources, from traditional text materials to audio and video content, and provide access to multiple teams. Once a criminal is arrested, the electronic file could be swiftly transferred to prosecutors, defense attorneys and court personnel, who can access all the information they need from a tablet or mobile device.

In addition to improving the efficiency of case management, these new solutions can provide a foundation for additional analytics solutions, which can find crime patterns and help organizations gain insights into the most effective means of investigation and prosecution.

Content Analytics

Online content such as social media can provide a wealth of information for fighting crime. For example, law enforcement agencies could identify threatening language used on blogs or other sites to help anticipate and prevent hate crimes, terrorist acts or threats against public figures. However, the tremendous volume and variety of data available through social media sites makes rapid, comprehensive analysis difficult or impossible with traditional business analytics systems.

Making a difference for law enforcement around the world

IBM content analytics solutions include cutting-edge capabilities, such as text analytics, natural language processing and search, that can help address a variety of law enforcement challenges.

- A global anti-terror agency is using IBM content analytics in a crime intelligence solution to plot social network diagrams so that personnel can visualize relationships and personally identifiable information that could be linked to criminal activity.
 - A European law enforcement agency used IBM content analytics as part of a major pedophile investigation. The agency applied these IBM technologies to a combination of web-based social network data and seized computer data to chart the relationships among members of the pedophile ring.
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IBM content analytics solutions can help turn these potentially overwhelming data sources into assets, allowing law enforcement agencies to efficiently analyze social media sites to help prevent and intercept crimes. Using natural-language processing and other statistical and machine-learning techniques, these solutions can extract facts, entities, concepts and objects from vast repositories of unstructured or textual information found in social media sites. Agencies can then integrate information extracted from other Internet sources about people, affiliations and locations to create intricate social network graphs and analyses.

Realizing the value of Smarter Law Enforcement

Cities need new, smarter ways to protect and serve their citizens. IBM Smarter Cities Law Enforcement solutions are designed to integrate and analyze information to help agencies predict and prevent crime, respond rapidly to incidents, coordinate efforts with other teams and improve the efficiency of case management.

By offering a full range of information management, collaboration, visualization and analytics capabilities, Smarter Cities Law Enforcement solutions can deliver immediate value and provide a foundation for adding further competencies over time. With these solutions, cities can build an intelligent infrastructure that helps improve operational efficiency and provides a safer, more desirable environment for citizens.

For more information

To learn more about IBM Smarter Cities Public Safety solutions, please contact your IBM representative or IBM Business Partner, or visit: ibm.com/smarterplanet/us/en/public_safety/ideas/



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