

REPORT

Capturing Data-Driven Insights to Shape Tomorrow's Law Enforcement



Data-Driven Law Enforcement

With today's steadily proliferating supply of data and advanced technologies to tap into it, law enforcement agencies are poised to transform criminal justice processes.

Law enforcement professionals can harness the power of data analytics to make sense of this wealth of data and reveal deeper insights into their field's most pressing issues, such as:

- The relationship between criminal propensity and opportunity.
- Recidivism among the recently incarcerated.
- The effectiveness of community-based policing in achieving the required goals.
- Bias in legacy data.
- Officer health and wellness.

The sheer volume of data available through local, state, and federal agencies, social media, and other dynamic sources presents both opportunities and challenges. For example, a single FBI investigation gathered a staggering six petabytes of data in just one year. However, the agency has achieved a 98-percent reduction in manual work for analysts and a 70-percent cost reduction by implementing initiatives to streamline data¹. Additional programs, such as the FBI's joint effort with the Department of Justice's Bureau of Justice Statistics to [overhaul](#) the National Incident-Based Reporting System (NIBRS), mark tremendous progress in taming the thickets of law enforcement data for advanced analytics applications. Other progressive initiatives have included the National Institute of Justice's (NIJ) [support](#) for research to develop AI systems that enhance law enforcement efforts in public safety video and image analysis, DNA analysis, gunshot detection, and crime forecasting.

98%

reduction in
manual work
for analysts

70%

cost reduction

[Source](#)

¹ Deloitte Insights <https://www2.deloitte.com/us/en/insights/industry/public-sector/law-enforcement-investigative-analytics.html/#endnote-20>

Data Science Analytical Capabilities

Data Society is well versed in creating the tools and analytical capabilities that power faster, more accurate data analysis. This expertise is instrumental in supporting the emerging priorities of law enforcement agencies and the communities they serve, such as effective policing that meets the expectations of citizens, public leaders, the legal system, and society as a whole. We equip organizations with the tools and techniques that they need to leverage abundant data efficiently and effectively, including:

- [Image recognition](#) for public safety.
- Data mining for crime forecasting and [predictive policing](#).
- [Visual analytics](#) for scene understanding and to detect crimes in progress.
- Data integration and natural language processing to [track](#) drug trafficking trends.
- Data-enabled surveillance to analyze and track individuals or groups of interest, such as suspects or potential terrorist cells.
- Data analysis using a wide variety of programming languages and analytical environments.
- [Social media monitoring](#) using data science to analyze social media for criminal activity, such as gang activity, cyberbullying, or threats of violence.
- [Data-driven resource management](#) to help law enforcement agencies optimize the deployment of resources, such as patrol officers and vehicles, to improve efficiency and reduce crime.

While such data science applications offer law enforcement agencies novel opportunities to improve public safety, investigative efforts, and justice outcomes, they also raise [concerns](#) about ethical issues, including bias. However, skillful data governance and management supported by data science training across departments and MLOps that facilitate model transparency can mitigate these risks. Thus equipped, the law enforcement community can implement powerful data science solutions without compromising equity and fairness in crime investigation, prevention, and prosecution.



Data Science Training for Responsive and Responsible Law Enforcement Tools

Specialized data science skills and organization-wide data literacy can empower law enforcement agencies to utilize their growing data resources effectively, ethically, and responsibly. Teams with relevant data science skills empower themselves with the best practices for performing critical functions such as:

- Collecting and processing structured and unstructured data from diverse sources.
- Automating manual processes.
- Training models with attention to potential bias in the historical data.
- Developing algorithms that offer transparency, explainability, and accountability.
- Reporting data-driven insights accurately and compellingly.

Training that prepares teams to harness data for more effective, efficient, and responsible law enforcement efforts spans subjects ranging from foundational to advanced, including:

- **Fundamentals of Data Literacy.**
- **Data Visualization Design and Storytelling.**
- **Foundations of Big Data.**
- **Data Wrangling in R.**
- **Advanced Clustering in R.**
- **Applications of AI for Anomaly Detection.**
- **Advanced Deep Learning for Object Detection.**
- **Sentiment Analysis in NLP.**
- **Convolutional Neural Networks for Image Recognition.**
- **Fundamentals of Deep Learning for Multiple GPUs.**
- **MLOps CI/CL Theory.**

The use of data science in law enforcement is a both young and complex topic. Just as data science has transformed other industries and government functions, its use to enhance the effectiveness of on-the-ground policing and improve the health and wellness of our police forces is evolving quickly and already proving to be transformational. It is also vital that any data-driven decision-making respects individual rights and civil liberties and follows data governance policies. Data Society has the expertise, tools, and techniques to help law enforcement communities at the federal, state, and local level find their way to this better state.

Learn more about how Data Society's analytical teams, custom-designed solutions, and training can help law enforcement agencies harness data's power to deliver improved processes, mission support, and measurable results.