

Moving Beyond LIMS for Forensic Investigation

ACCELERATE FORENSIC INVESTIGATIONS. SEAMLESSLY.



BEYOND THE LAB

The scientific work related to solving criminal cases is not confined to the lab; it begins at the crime scene and extends through the investigative process to the courtroom and beyond.

Science and crime fighting have been inexorably linked for more than 18 centuries, since the Chinese physician and judge, Song Ci, applied his advanced techniques to solve crimes in Hunan Province. Today in crime laboratories, scientists and technicians assist police departments and prosecutors by using a wide range of disciplines, including almost every field of the physical, life, and computer sciences.

For example, while a toxicologist might be working to identify a complex designer drug used in a date-rape case, a bio-technician might be trying to identify a murderer by amplifying DNA collected at a crime scene, and a forensic analyst might be searching for evidence in a computer hard drive. Whatever their role, crime lab personnel have come to rely heavily on laboratory information management systems (LIMS) to manage the tracking of samples and related data throughout their laboratory life cycle. Today, nearly every forensic laboratory has some automated means for managing a range of data and reports.

But the scientific work related to solving criminal cases is not confined to the lab; it begins at a crime scene and extends—sometimes for years—through the investigative process to the courtroom, and beyond. Increasingly, since the rise of DNA evidence as a key determinant of guilt or innocence, the scientific chain of evidentiary custody can extend for decades in cold cases. Along with novel approaches to solving crimes has come an expanded LIMS: **the forensic information management system (FIMS)**, which has evolved over the past two decades to handle the specific needs of the forensic laboratory and all the various components of law enforcement who depend on the lab.

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The Evolution of FIMS

Whatever type of crime has been committed, and however the investigation proceeds, everyone involved—from the time police arrive on the crime scene to the day of either conviction or exoneration of the suspect(s)—can benefit from a FIMS to maintain an unassailable electronic chain of evidence custody.

Some organizations begin entering information to an electronic system from the moment it is collected. The point of collection may begin with a full crime scene investigation or a simple traffic stop. In either case, the same basic information will be collected, but a crime scene unit will collect even more information. Additional

information may include how the scene was processed; for example, techniques used to develop latent prints. The detective may also wish to collect information about the weather or how the scene was preserved. In both cases the evidence collected will be documented and the chain of custody must start immediately.

Inside the crime lab, latent print examiners need the ability to easily see comparisons between persons involved and impressions, and may also need blind verification of their result and a mechanism to document and manage discrepancies in results. DNA examiners want to ensure their FIMS can work with liquid handlers, export, and import quantification and typing data, perform calculations, manage master mixes, and be able to generate a profile data file that can be uploaded to the FBI's Combined DNA Index System (CODIS). DNA, firearms, and latent print examiners all benefit from the ability of a FIMS to send exhibits into a queue to track which needs to be searched in the relevant database.

Protecting the Chain of Custody

Evidence is crucial to a case, regardless of the type or severity of a crime. At each step in the process—as police specialists collect evidence and the judiciary begins to present its case against a suspected perpetrator—it is fundamental that evidence be handled correctly and the chain of custody maintained rigorously. This includes person to person transfers as well as transfers to and from secure locations.

CRIME SCENE

The data journey begins with a crime. From DNA samples and phone records to law enforcement interviews, chain of custody, and more, all relevant data must be collected, entered in real time, and managed as the case develops.

PROPERTY MANAGEMENT

Evidence is maintained in a controlled environment, with monitored access to protect the chain of custody. Disposition requests, evidence viewings, and more must be tracked.

LAB ANALYSIS

Forensic laboratory examiners—in a variety of specialties—analyze the evidence, compare it against known databases (e.g., the Combined DNA Index System CODIS), the Automated Fingerprint Identification System [AFIS], and the National Integrated Ballistic Information Network [NIBIN]) and other case-related information, and report their findings. They need quality assurance features to support ISO 17025 compliance.

MEDICAL EXAMINER

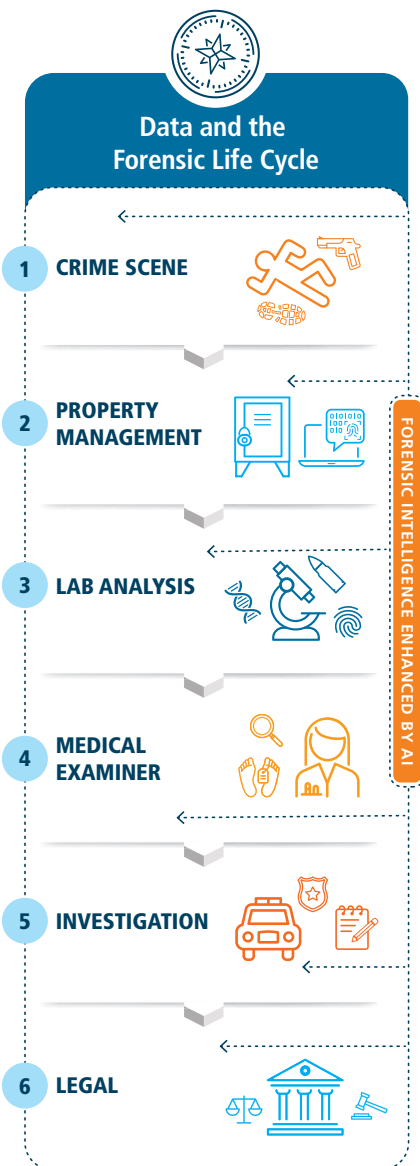
Medical examiners and forensic pathologists add to the data volume with their examinations of human remains and findings on the cause of death.

INVESTIGATION

Investigative leads generate all sorts of records: detective notes, witness statements, social media accounts, and more. This data becomes part of the forensic record.

LEGAL

The data that started with a crime flows all the way through to legal proceedings. Is there enough evidence to charge a suspect? Does the evidence support conviction or exonerate a person of interest? Attorneys and other legal personnel need access to status updates and reports.



The Problem with Point Solutions

While not every law enforcement agency has a lab of their own, almost every one of them has a property warehouse and must meet the need to ensure the chain of custody is irrefutable and that any item can be located at a moment's notice.

Toward the end of the criminal investigation/prosecution process there's also a need to facilitate various types of disposition activities such as destruction, donations, conversion to police use, return to owner, and auctioning. Disposition is very important because storage facilities can fill up quickly and finding new facilities that meet the criteria for housing evidence can be costly and time consuming. Ideally, the system will have the ability to help manage the disposition process by automatically notifying and seeking approval from detectives when cases are closed, or statute of limitations have expired.

While a number of solutions have been developed to address the challenges at each stage of the process, what's been lacking is an integrated system that runs seamlessly on any web browser and meets the HTML5 standard that will soon be required by law enforcement agencies in the US.

Increasingly, as highlighted in a recent [Deloitte report on the future of policing](#), "innovation tends to work best when all these forms come together to enable police and law enforcement agencies to have greater insight and impact than ever before. The innovations that are shaping the future of law enforcement begin with emerging technologies that support new concepts of operations...."

GREATER INSIGHT. GREATER IMPACT.

"The innovations that are shaping the future of law enforcement begin with emerging technologies that support new concepts of operations...."

— *Deloitte, The Future of Policing*

Faster Results—From Crime Scene to Courtroom

To meet the growing need for law enforcement agencies and related others to have access to an integrated FIMS that can scale with them into the future, LabVantage has developed Forensic Navigator—a comprehensive platform that encompasses the entire forensic life cycle, moving easily from crime scene at the start to courtroom at the end.

Technologically advanced, Forensic Navigator runs natively on the latest HTML5 standard and ties your investigative workflows together, leveraging forensic intelligence and predictive analytics through optional artificial intelligence (AI) capability.

Unlike point solutions that some law enforcement agencies have cobbled together to provide some semblance of continuity throughout the investigative process, Forensic Navigator offers a rich suite of benefits that combine to deliver faster investigations at a lower cost.

Among the powerful differentiators included are:

- A single, integrated platform
- Forensic intelligence (software offers better insights from investigative data and is enhanced by predictive analysis through AI capabilities)
- Supports ISO 17025- and CALEA compliance
- Encompasses the entire forensic life cycle
- Provides a go-live plan
- Best-in-class cybersecurity protection



- Browser agnostic
- Web portal for submitters and legal staff
- Automatically runs on HTML5 and other required industry technologies
- Configurable platform eliminates customization
- Flexibility to use as SaaS
- Developed by a trusted provider with decades of experience in technology solutions

From Collection to Science

LabVantage's Forensic Navigator gives you the tools and integrated platform to move from forensic data collection to forensic data science.

Its instrument and system interfaces significantly reduce the amount of manual work needed –and consequently minimizes data entry errors, expedites completion time for data entry, and lowers the resource costs for both system users and administrators. Solve crimes faster and accelerate investigations by implementing a frictionless exchange of insights from one end of the law enforcement agency to the other.

Forensic Navigator can be used simultaneously in house, in the field, or elsewhere remotely, and can be configured as needed.

Unlike point solution systems, Forensic Navigator lets you put historic LIMS data to work for the benefit of your entire organization, helping to drive deeper statistical analysis, advanced insights, and dynamic intelligence.

Designed and tested to optimum cybersecurity standards, Forensic Navigator encrypts all data within cloud servers and VPN tunnels associated with cloud-hosted and SaaS-based deployments, so you can store all evidentiary information safely in one place or solution.

A Single Platform That Does It All

LabVantage's Forensic Navigator helps law enforcement of all sizes accelerate the investigative process globally to improve the delivery of justice for everyone. Our platform creates seamless information flows—from evidence collection, evidence storage, evidence analysis, and capturing and tracking leads, to lab testing, case compilation, and court proceedings—while supporting quality management and forensic intelligence through better investigative insights and AI capabilities.

Why purchase, deploy and connect, test, and learn multiple systems when one will do it all?

Forensic Navigator goes beyond the traditional laboratory LIMS. It enables law enforcement to enter data in real time, make examination requests, and check status from a secure web-based portal. Available AI provides the analytical layer needed to draw insight from the vast collection of forensic data.

WEB PORTAL

Essential for efficient evidence handling, a browser-agnostic web portal enables law enforcement officers to request services for the evidence items and see the lab's response to the service request. It also allows officers to follow the status of the evidence as it moves through the testing process.

The portal can also be used to communicate about investigative leads such as CODIS/NIBIN/AFIS hits and to provide instructions to property management personnel about disposition decisions.

In addition, the portal serves the extremely important function of tracking sexual assault kits from the hospital or sexual assault treatment center through testing with updates provided to survivors.

A SINGLE PLATFORM

Why purchase, deploy and connect, test, and learn multiple systems when one will do it all?

No matter your role in the forensic life cycle, Forensic Navigator provides the tools and access you need to stay informed and make critical decisions.

Trust Forensic Navigator from LabVantage for rapid resolution to the case—and confidence in the investigative result.

It's the one solution for forensic intelligence from the crime scene to legal proceedings, accelerating the investigative process by streamlining, connecting, and analyzing all aspects of a criminal case.

TO LEARN MORE about accelerating your forensic investigations and ensuring the integrity of your evidence handling and analysis, visit labvantage.com/forensic or contact us today.



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ABOUT LABVANTAGE SOLUTIONS

A recognized leader in enterprise laboratory software solutions, LabVantage Solutions dedicates itself to improving customer outcomes by transforming data into knowledge. The LabVantage informatics platform is highly configurable, integrated across a common architecture, and 100% browser-based to support hundreds of concurrent users. Deployed on-premise, via the cloud, or SaaS, it seamlessly interfaces with instruments and other enterprise systems – enabling true digital transformation. The platform consists of the most modern laboratory information management system (LIMS) available, integrated electronic laboratory notebook (ELN), laboratory execution system (LES), scientific data management system (SDMS), and our advanced analytics solution (LabVantage Analytics); and for healthcare settings, a laboratory information system (LIS). We support more than 1500 global customer sites in the life sciences, pharmaceutical, medical device, biobank, food & beverage, consumer packaged goods, oil & gas, genetics/diagnostics, and healthcare industries. Headquartered in Somerset, NJ., with global offices, LabVantage has, for four decades, offered its comprehensive portfolio of products and services to enable customers to innovate faster in the R&D cycle, improve manufactured product quality, achieve accurate record-keeping, and comply with regulatory requirements. For more information, visit labvantage.com.

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