

Complete Guide



The intelligence-led agency: The value of AI in public safety

Discover how modern AI bridges the human capital crisis and data deluge in public safety, unifying mission-critical data across the incident lifecycle to restore time.

Executive summary

Modern public safety is facing a perfect storm. Agencies are only operating at 91% of their authorized staffing levels. These acute workforce shortages are colliding with an unprecedented influx of digital data. This imbalance has intensified, if not created, a human capital crisis. Personnel are increasingly tethered to their keyboards, dedicating up to 40% of their time to administrative tasks.

Amid these growing challenges, public safety has heralded the emergence of the latest Artificial Intelligence (AI). Yet, the transition to an intelligence-led agency, the aim of which is to augment human judgment, not replace it, requires more than digitization.

Consequently, this guide provides a roadmap for the strategic integration of AI in public safety, to create a unified thread of intelligence throughout the entire incident lifecycle. By transforming siloed data – from 9-1-1 audio and CAD logs to radio traffic and body camera footage – into a coherent operational picture, agencies can overcome adoption hurdles like bias and privacy. Through data sovereignty, glass-box accountability and resilient infrastructure, this framework empowers agencies to refocus their most valuable resource, their people, back on the communities they serve.





A new era of public safety challenges

Today's public safety agencies face a perfect storm. Workforce shortages have worsened. Data demands keep dispatchers, first responders, officers, evidence technicians and investigators glued to their screens and desks. These factors point to a serious human capital crisis for public safety in the United States.

The staffing crisis

According to the Police Executive Research Forum (PERF), today's total sworn personnel is more than 5.2% lower than pre-2020 levels, despite recent hiring increases.

All realms of public safety feel these shortages. For example, 82% of 9-1-1 call centers are understaffed, according to the National Emergency Number Association (NENA).

Fewer staff means more overtime. Sworn officers often spend 12 to 16 hours on shift to meet their minimum patrol requirements. The impact on well-being and budgets:

- **Declining well-being:** 74% of 9-1-1 call centers report burnout, according to NENA. A nationwide survey finds that 20% of 9-1-1 workers say overtime drives them to quit their jobs.

The "What Cops Want in 2024: The State of Officer Wellness" survey discovered that mental health affects 83% of officers' work. 61% of officers call out "long or irregular work hours" as their key work-related stressor. 60% point to "understaffing and balancing work-life demands."

- **Ballooning budgets:** The Center for Public Safety Management found that overtime costs jumped 35% in 2025.

Command staffs have had to dissolve specialized units like Narcotics and Cold Case. Shortages forced more than two-thirds of agencies to cut or drop specialized services, according to the International Association of Chiefs of Police (IACP).

Organized crime has not missed a beat, though. They use the latest technologies to avoid law enforcement and lower interception risk. Digital tools have sparked three new types of organized crime:

- **Cyber-dependent organized crimes:** High-tech organized crime carried out using computers, networks or other communication technologies.
- **Cyber-enabled organized crimes:** Traditional crimes that have grown in scale because of computers, networks and other technology.
- **Cyber-assisted organized crimes:** Preexisting criminal operations now supported by technology.

A looming retirement wave in law enforcement suggests further challenges ahead. An estimated 9% of sworn personnel will reach retirement eligibility by the end of 2026.

This projected reduction comes without a significant increase in recruits. In fact, the opposite is true. Law enforcement agencies are experiencing a drop in recruits. PERF established that numbers are down by 27% to 60%.



The data deluge

Data is now key to public safety. But its influx has exacerbated the staffing crisis.

Public safety agencies have embraced digital technologies. These tools boost real-time collaboration between teams and departments. As a result, forces now sit on scads of digital data.

The resulting qualitative and quantitative information provides clear advantages. But too many sources of it make reviewing body camera footage, CAD system data and other forms of digital evidence difficult.

As Freedom of Information Act (FOIA) requests surge, rising citizen demands for more transparency further complicate the issue.

Fragmented data infrastructures do not help. Many agencies still rely on legacy CAD, evidence and records management systems (RMS). Yet, these systems do not communicate with each other without prompting.

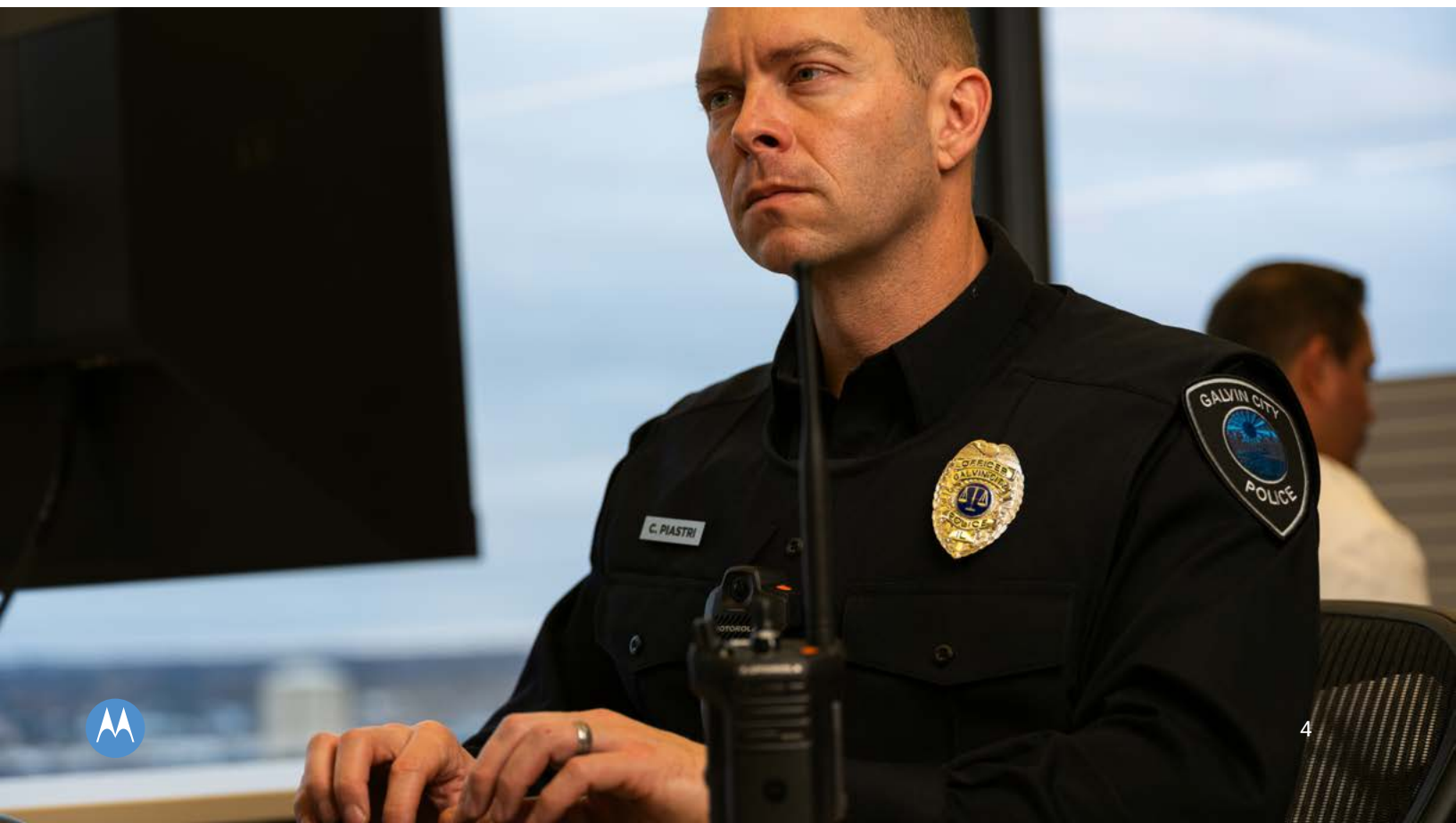
Digitizing records has not been a universal remedy. In many cases, it has simply moved the silos from paper folders to disconnected servers. Without interoperability, officers struggle to run multi-keyword searches across systems. They must often use their memories or make phone calls.

The flood of digital data explains the heavy workloads for officers and dispatchers. Findings from IACP and PERF show that administrative tasks take up 21% to 50% of an officer's time. This includes report writing, evidence logging and data entry.

Report writing alone keeps officers and dispatchers away from higher-value tasks. It also saps morale, contributing to high rates of attrition. Research indicates that 80% of large U.S. police agencies saw more resignations and retirements from 2020 to 2022.

As a result, public safety agencies have embraced AI to better serve their communities while tackling growing challenges in resilience and efficiency. A 2024 U.S. public safety trends survey by Propeller Insights found that 70% of respondents said AI made them more efficient. Appetite for further adoption was also high.

But concerns have also surfaced about potential misuse. Open questions remain about how to operationalize AI to empower personnel to make smarter decisions, save time and drive safer outcomes. Indeed, many organizations still encounter significant hurdles, be they accuracy, bias or privacy, when attempting to scale their AI initiatives.





Core technologies for public safety

GenAI is now mainstream. However, AI has a long history in public safety. This goes back to the development of facial recognition technology (FRT).

Modern FRT uses deep convolutional neural networks. These networks map a face image to an identity or to a database entry. FRT, like fingerprint analysis, helps identify unknown perpetrators. It uses still images or video footage for forensic purposes.

Advances in machine learning (ML) have made these capabilities possible. Machine learning is one of the two AI subfields most relevant to public safety. The second, which could cause greater disruption still, is genAI.

Generative AI (genAI)

GenAI is a significant evolution in machine learning. It includes systems that make realistic content, such as text, images, audio, video and code, by learning the underlying patterns of massive data sets.

This tectonic shift emerged from the introduction of the transformer architecture in 2017.

Traditional models process data linearly. Transformers use self-attention mechanisms to analyze entire sequences at once. These feature processing mechanisms allow the data input into the model to interact with itself. This process then allows the model to dynamically weigh the relevance of different elements. The result is a more nuanced understanding of intent and complex contextual relationships.

The scalable architecture enables advanced situational awareness across media formats. In public safety, this scalability lets a single model reason across various inputs. It can read a CAD log, listen to 9-1-1 audio and watch body camera footage all at once. This creates a unified thread of intelligence that does far more than retrieve data.

Machine learning

Machine learning is a type of artificial intelligence. It lets computers learn from examples instead of relying on explicit, line-by-line programming.

Machine learning contrasts with traditional computing. In traditional computing, humans create a program that gives the machine detailed steps to complete a task.

A powerful tool, machine learning trains algorithms to improve task performance using data analysis. This capability has brought machine learning to the attention of public safety agencies.

Machine learning now plays a key role in public safety. It helps with predictive analysis and resource optimization. Law enforcement agencies can use ML algorithms to predict where crimes might occur then proactively deploy resources.



Visual intelligence

Automated scene and image description



Data extraction

Automatic identification of keywords and entities



Narrative generation

Intelligent summarization for report drafting



Audio synthesis

Live transcription and translation



Intuitive interaction

Hands-free natural language commands



Across the incident lifecycle: AI use cases in public safety

A unified thread of intelligence has been missing in public safety. Large Language Models (LLMs) are popular genAI tools for transcribing audio and field notes. Still, their real value to an intelligence-led agency is in merging different data streams. This creates a clear and unified operational picture.

AI helps close intelligence gaps, especially during incident handoff. This lightens the heavy burden personnel face during the entire lifecycle of an incident. From the first 9-1-1 call to final case closure, the AI-enabled intelligence thread connects through five main capabilities:

1. Visual intelligence

Turning visual media into searchable database

Scene and image description allows an agency to transform visual evidence, like body camera footage or crime scene photos, into clear and detailed text. The process turns visual media into a searchable database. For instance, AI can generate automated, timestamped captions for scene events, without a human having to watch and tag a video by hand.

AI can also summarize whole sequences of events into a paragraph. This helps investigators search through thousands of hours of video using simple queries.

Other examples of automated scene and image description applications in public safety include:

- **Automated counting of people and objects:** Rapidly estimating how many individuals are at a public gathering or identifying the density of a crowd to optimize resource deployment.
- **Compliance and safety checks:** Verify if people have weapons, wear mandated uniforms or engage in restricted activities.
- **Scene classification:** Use of generated text descriptions to help classify tasks, including spotting suspicious behavior or illegal activities.



2. Audio synthesis

Real-time clarity and translation

Audio transcription involves converting raw audio into high-fidelity text. This capability solves a cluster of hard problems like multiple speakers, overlapping dialogue, background noise and multilingual content.

That is why AI-enabled transcription is crucial. It converts spoken language from various sources, such as field interviews, 9-1-1 calls, radio traffic or recordings, into searchable, organized documents.

Audio transcription during 9-1-1 voice calls eliminates the need for dispatchers to take manual notes during high-stress conversations. They can focus on listening, assessing the situation and engaging with the caller. A searchable transcript is created and archived at the same time. This allows for immediate review, faster processing and accurate record-keeping.

Audio transcription of field-unit radio traffic converts fast-paced radio audio into clear, searchable and reviewable text logs, which allow dispatchers to visually track communications, confirm critical information and maintain accurate records of the entire incident.

Live translation helps agencies close communication gaps instantly, going beyond just transcription. Modern AI models can process audio in multiple languages. They provide a transcript and a translated output near-instantaneously.

Examples of transcription and translation applications in public safety include:

- **Evidence digitization:** Converting thousands of hours of footage, 9-1-1 calls and interviews into searchable text or transcripts. This enables keyword searches that speed up investigations and make audits easier.
- **Real-time crisis communications:** Using mobile AI tools to provide live translation during intake and field encounters. This helps dispatchers and officers give life-saving instructions and gather critical information from non-English speaking residents, all without having to wait for an interpreter.
- **Streamlined reporting:** Allowing officers to dictate field notes. These notes are then transcribed and formatted into professional, grammatically correct report drafts.





3. Data extraction

Accelerating evidence processing

AI models can automatically identify and tag specific entities, like suspect names, vehicle descriptions, addresses or weapon types, across fragmented datasets. This dual process is named entity recognition for text and object detection for visuals.

Information extraction is a high-value task for public safety. It involves the automatic extraction of specific data points in text, such as body camera transcripts. These data points can be pre-defined, like names or incident types. They can also be discovered dynamically to reveal hidden connections in an investigation.

The flip side of extraction is redaction. Evidence technicians face huge backlogs, because tracking and redacting faces, license plates, vehicles and other personally identifiable information (PII) is such a slow, manual process.

AI-powered redaction uses the same engine as extraction. It helps automatically identify and mask PII in transcripts and videos, streamlining compliance and preserving privacy.

Other examples of information extraction in public safety include:

- **Named entity recognition and linking:** Identifying names, dates and locations in reports. This helps to determine if different mentions of a person in various systems refer to the same individual.
- **Intelligence indicator extraction:** Unearthing phone numbers, affiliations (and/or digital aliases) and coded language from intercepted messages or social media to identify affiliations or spot new trends.



4. Intuitive interaction

Restoring “eyes-up” awareness

Generative AI goes beyond voice-to-text, though. It provides a Natural Language Interface (NLI) that allows personnel to interact with mission-critical devices, like radios, and data systems, such as CAD, RMS and digital device management, using everyday speech.

Officers can handle key radio tasks. They can change channels, adjust volume and start specific communications, all while staying focused on their surroundings. They can even update their status in CAD. This helps Dispatch keep real-time operational awareness during the incident response.

Yet, this is not mere voice command technology. Legacy systems often require a wake word, but genAI leverages the transformer’s unique ability to recognize intent. The system understands context and nuance better, providing a level of resilience necessary for maintaining “eyes-up” awareness in high-stakes environments.

Examples of voice-driven intelligence include:

- **Conversational database queries:** Empowering personnel to query large internal and external data repositories, like license plate databases, criminal records and historical incident reports. Responders can use plain language instead of typing manually. This helps to streamline field investigations and leads to safer, more informed decisions during encounters.
- **Voice-to-report automation:** Enabling officers to dictate field notes in real time. AI can then classify, extract details and format these observations into a draft narrative.
- **Hands-free evidence logging:** Allowing personnel to verbally “bookmark” critical moments in a live stream. AI uses these tags to create timestamped event logs for quick follow-up.



5. Narrative generation

Breaking the keyboard tether

Intelligent summarization moves from documentation (mere transcription) to insight. It condenses massive amounts of data - from hours of audio to hundreds of pages of case files - into need-to-know facts or actionable briefs.

This process of distillation serves a vital role in the intelligence lifecycle. It helps keep important leads from getting lost in a deluge of text. This way, decision-makers can grasp the bottom line of an incident in seconds.

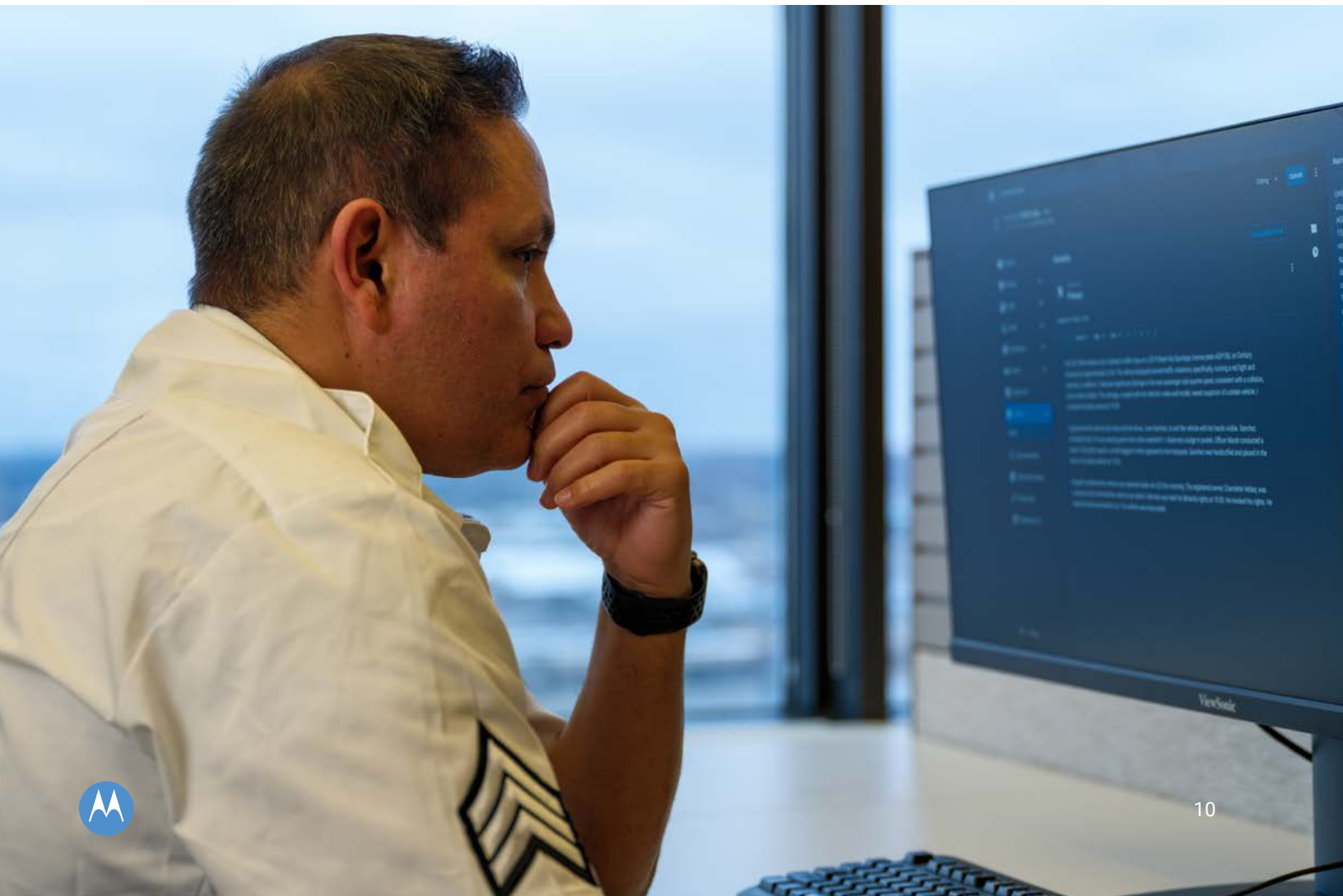
Summarization looks at the input to distill information. In contrast, narrative generation emphasizes the output. The latter takes the same raw data points and turns them into formal, structured formats. Legally defensible, these formats are ready for officer validation or further feedback.

These systems transform raw evidence, like body camera audio, CAD notes and radio transcriptions, into draft reports that resemble traditional police narratives. AI identifies and

sorts key details, such as subject descriptions, chronologies and incident context. This helps organize the report to meet agency standards. However, the human officer always validates the final text.

Key applications of these twin technologies include:

- **Shift briefings:** Automatically summarizing shift reports to get oncoming officers up to speed quickly.
- **Evidence-grounded reporting:** Creating report drafts directly from body camera audio. This keeps the narrative grounded in real-time evidence instead of relying on memory.
- **Strategic case triage:** Using summarized intelligence briefs to help investigators quickly prioritize high-threat cases. This also helps identify patterns across multiple jurisdictions.





Blockers to AI adoption in public safety

AI can revolutionize public safety. It automates the most labor-intensive tasks and delivers the right information when and where personnel need it most. However, integrating AI into the daily workflows of agencies can create new challenges and complexities. Without a clear action plan, public safety faces five main barriers to effective AI adoption:

- **Accuracy:** AI-generated reporting has faced scrutiny. Some tools “hallucinate” made-up information, which produces misleading or false outputs. These cases highlight a fundamental reality about the technology: the quality of AI output depends on grounding. Grounding means anchoring AI responses to a specific, multi-source dataset.

To reduce hallucination risk, agencies need to go beyond single-source inputs. They should look for models based on multi-source verification. By integrating 9-1-1 audio, CAD data and radio traffic into a unified stream, AI remains anchored to a broader set of facts, helping to ensure greater completeness, accuracy and evidentiary trust.

- **Legal scrutiny:** Public safety agencies have always exercised caution when adopting new technologies. AI systems are no different. Indeed, AI-supported decisions are subject to judicial review. Legislation like California’s SB 524 (enacted 2026) now requires officers to disclose when they use AI tools to write reports. Officers must also keep an “audit trail” of the original draft and identify source footage or audio.

To prevent noncompliance, every AI-assisted decision needs clear “glass-box” logic traces and audit logs. These will link the output back to its specific source, helping to ensure that reports are defensible in the courts of law and public opinion.

- **Bias:** Another concern is the potential for perpetuating biases found in historical data. To prevent this, agencies must prioritize AI models that use diverse, high-fidelity datasets. They must also implement human-in-the-loop checkpoints.

To this end, agencies should adopt “good friction” in AI strategy, setting up checkpoints that need human input. Taken from a Harvard Business Review article, [“Why AI Customer Journeys Need More Friction,”](#) good friction creates more opportunities for users to make decisions and understand the implications. It often leads to moments of reflection and validation.

- **Accountability:** To prevent overreliance, humans must remain the ultimate authorities. All AI-generated drafts need a human sign-off. This affirms that a person, not an algorithm, is responsible for the final result.
- **Data privacy:** For public safety, privacy is non-negotiable. Agencies handle the most sensitive data, including criminal records, victim information and details of ongoing investigations. The exposure of that data to external systems is a critical concern.

And so, successful AI adoption requires a strict data sovereignty framework. That framework includes CJIS-compliant environments. Agencies must also have written guarantees that their data will never be used to train public or third-party models.





AI implementation roadmap

Overcoming these blockers requires a strategic approach to responsible AI implementation. Three key factors matter: data, people readiness and technology. An effective AI implementation strategy will touch all three.

Data

Data maturity is foundational. Public safety agencies handle diverse, sensitive data. But it is often fragmented across system silos.

The AI strategy must lead to the creation of a unified data layer. This not only involves centralizing data but also ensuring interoperability. That way various dispatch, response and review platforms can all talk to each other.

To achieve data sovereignty, agencies need guarantees. Their sensitive information must be stored securely in CJIS-compliant environments where it can be queried by AI models without leaving the agency's control.

People readiness

While some hesitation still follows AI in public safety, people readiness refers to the skills, mindset and cultural alignment required to adopt AI meaningfully.

To this end, agencies should establish AI literacy programs. These programs will help personnel better understand AI capabilities, human-in-the-loop checkpoints and other key considerations. Literacy programs should also focus on retention and wellness benefits, specifically replacing 40% of screentime with high-value field and dispatch work.

Other benefits to drive adoption include:

- Enhanced accuracy and awareness
- Bolstered field safety
- More transparent practices that foster greater public trust and safeguard reputations
- More time with loved ones

Technology

The technology factor encompasses the selection, integration and scalability of durable AI infrastructure. How to begin? For starters, AI infrastructure durability depends on a shift from siloed, bolt-on applications to integrated, natively embedded AI. By choosing platforms where AI is part of the foundational architecture, agencies achieve seamless data fluidity, enhanced usability and simplified deployments.

Beyond durability, agencies must also prioritize infrastructure redundancy. In an intelligence-led framework, AI should be built into the networks public safety already uses. These include mission-critical radio, broadband and Mobile Ad Hoc Networks (MANET). They also include Low Earth Orbit (LEO) satellite and Wi-Fi networks. Rather than sending data to a distant cloud server and having to wait for a response, this edge intelligence helps to ensure that actionable information remains available wherever personnel go, even in contested network areas.

The impact of AI varies significantly between an emergency communications center and a patrol car. So, public safety AI should not be one-size-fits-all.

Instead, AI must be designed around role-specific workflows across the incident lifecycle. These workflows must deeply understand the behavioral needs and operational environments of users. Only then can they deliver the right insight, at the exact moment it is needed without increasing cognitive load.



Role-based Assist Suites powered by Motorola Solutions

Leveraging our long history in human-centered design, Motorola Solutions has thoughtfully integrated AI technology in our ecosystem of safety and security solutions to accelerate public safety workflows precisely at the times when the process bogs down. From 9-1-1 intake to field operations, our new, role-based Assist Suites transform fragmented experiences throughout the incident lifecycle into decisive action – returning focus and time to the communities you serve.



Dispatcher Assist Suite

The Dispatcher Assist Suite is a call handling and dispatching solution for emergency communications centers. It packages essential call handling and dispatching software to enable more convenient purchasing, streamlined deployment and administration as well as a unified, AI-assisted telecommunicator workflow that accelerates call intake, improves resource allocation and strengthens coordination.

[Discover Dispatcher Assist](#)



Responder Assist Suite

The Responder Assist Suite is a frontline response and reporting solution for law enforcement agencies. It packages essential response and reporting software for the frontline to enable more convenient purchasing, streamlined deployment and administration as well as a unified, AI-assisted workflow that reduces response time, enhances decision-making and improves productivity.

[Discover Responder Assist](#)

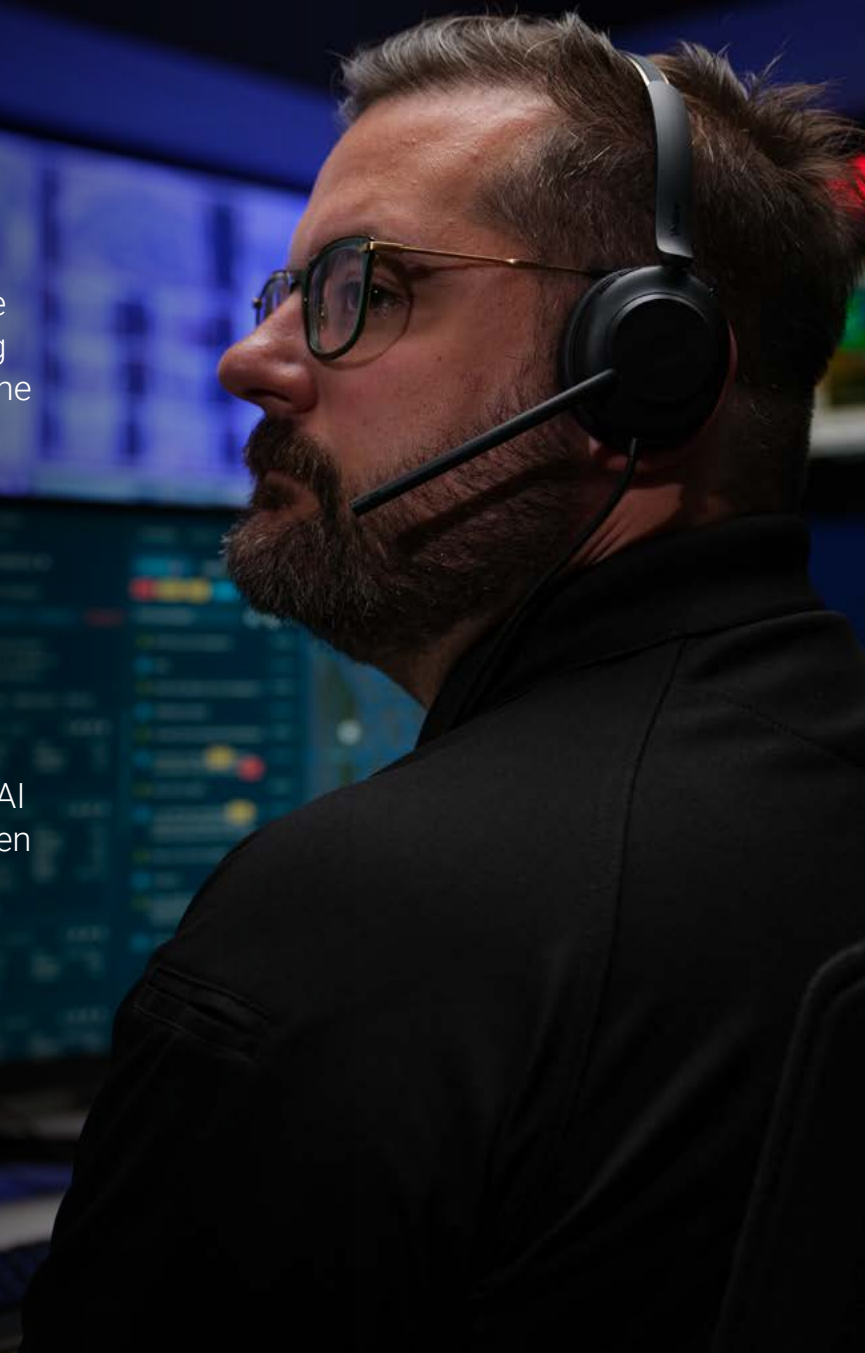


Conclusion

The transition to an intelligence-led agency means more than technology. It also represents the commitment to restoring the human element of public safety. By creating a unified thread of intelligence throughout the incident lifecycle, agencies can finally break the keyboard tether that has intensified the current human capital crisis.

This future relies on the strategic selection of embedded, resilient infrastructure and the implementation of responsible “glass-box” guardrails. Only through multi-source verification and human-in-the-loop accountability can agencies operationalize AI to enhance situational awareness, strengthen accuracy and preserve public trust.

An intelligence-led framework provides the operational resilience needed to navigate the modern data environment. In doing so, dispatchers, responders and investigators reclaim time for their loved ones and the communities they serve.



To explore how Motorola Solutions' AI-powered solutions can empower your public safety personnel, speak with one of our experts today.



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