



WHITE PAPER

Harnessing AI:

Preventing Oversight of
Crucial Evidence



There is a noticeable surge in discussions surrounding artificial intelligence (AI), creating a sense of almost overwhelming attention. However, what triggered this sudden spike in interest? After all, AI isn't a novel concept; many law enforcement agencies have been employing AI in various capacities for several years.

As artificial intelligence becomes more integrated into the latest technologies, law enforcement teams are questioning the impact AI will have on agency operations. They seek guidance on how to optimize productivity and expedite case resolutions. In this whitepaper, we examine why AI is relevant in digital investigations, tackle ethical concerns and propose potential solutions amid this evolving landscape.

Why is AI relevant in digital investigations?

According to Cellebrite's 2024 Industry Trends Survey, 67% of investigators say they lack the proper tools to review data quickly and efficiently, meaning critical evidence can slip through the cracks. AI holds significant relevance in digital investigations due to several key factors:

- **Data Analysis Efficiency:** In digital investigations, enormous volumes of data must be processed and analyzed. The survey further revealed more than a third of investigators mark the extraction report with a highlighter. AI can swiftly sift through this data, identifying patterns, anomalies, and relevant information far quicker than manual human efforts. It can handle diverse data types, including text, images, videos, and more, streamlining the investigative process.
- **Automation and Acceleration:** AI technologies can automate repetitive tasks in digital investigations, such as sorting through data, extracting relevant information and consolidating information from multiple devices. By automating these processes, AI accelerates the pace of investigations helping you generate leads from multiple devices, saving time and resources.
- **Enhanced Forensic Analysis:** AI-powered tools aid in forensic analysis by rapidly examining digital evidence, detecting alterations or meta data within files such as time stamps and reconstructing events. This assists forensic experts in piecing together the timeline of events or reconstructing digital incidents.



OVER 33%

of Investigators still rely on printed extraction reports marked with highlighters.

Printed reports hinder collaboration and impede contextual correlation to events.

AI-enabled results can enhanced insights and efficiency.



- **Enhanced Forensic Analysis:** AI-powered tools aid in forensic analysis by rapidly examining digital evidence, detecting alterations or hidden information within files and reconstructing events. This assists forensic experts in piecing together the timeline of events or reconstructing digital incidents.

Navigating Responsible Integration of AI

Artificial intelligence represents a transformative force that has the potential to reshape our societal and professional landscapes, particularly in law enforcement and digital intelligence fields. Its capabilities are poised to challenge and revolutionize established norms for years to come.

However, despite its remarkable potential, AI is not exempt from risks. While it excels in various tasks, it also grapples with numerous shortcomings. As companies strive to integrate this technology into their solutions, it is imperative to adopt an inclusive and intentional approach. Mere delivery of AI's technological prowess isn't sufficient; rather, there must be a concerted effort to prioritize responsible innovation. This involves guiding the utilization of this transformative technology, ensuring its application in law enforcement and digital intelligence is both safe and ethical.

We need to equip our organizations with the necessary tools to develop and use these AI technologies responsibly, ensuring accuracy, safety and ethicality in its deployment. This proactive approach will facilitate a balanced and judicious integration of AI into the fabric of our work and society.

Our Methodology: Harnessing Machine Learning and Advanced Language Models

At Cellebrite, our methodology differs significantly from employing AI for direct decision-making purposes. Instead, we leverage AI to efficiently manage extensive datasets, expediting the path to crucial evidence. Through Cellebrite Pathfinder, our responsible utilization of AI aims to empower investigators and analysts. This strategic approach results in accelerated workflows, expedited analysis and data-driven insights that aid in generating investigative leads.

By enabling informed decisions rooted in AI-generated insights, rather than relying solely on automated recommendations, our conscientious deployment of AI algorithms fosters an impartial method of data analysis. This approach not only helps overcome resource limitations, it also mitigates potential biases or subjective viewpoints, ensuring a more objective data analysis.

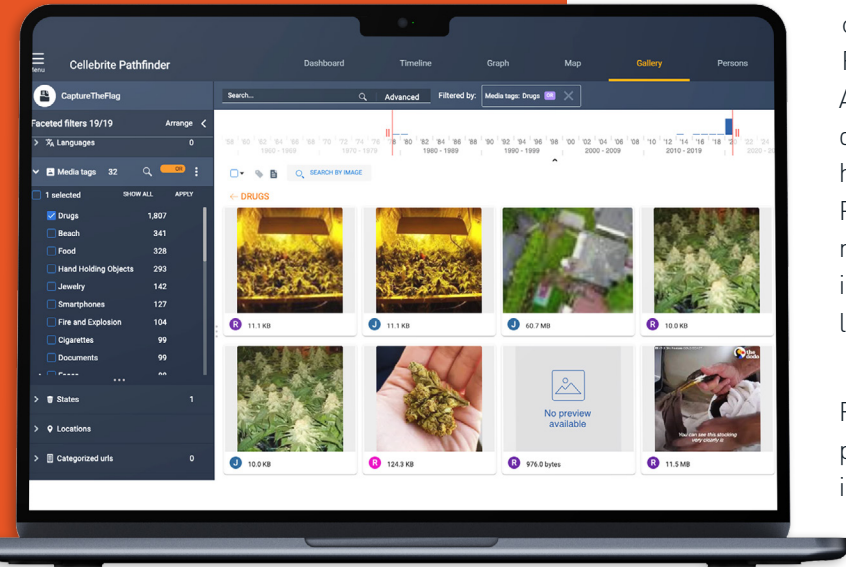
Let's examine a few features:

Searching and Categorizing Images

Pathfinder excels in accurately identifying specific objects within a vast array of pictures, expediting the search for critical evidence.

This capability saves invaluable time by swiftly identifying the crucial elements you seek, eliminating the need for manual sifting through numerous photos extracted from mobile devices, a process that might allow one to inadvertently overlook pertinent information.





Pathfinder efficiently surfaces all relevant images containing the specified object within mere minutes. For example, a prominent law enforcement agency in Australia urgently required a specific item linked to a drug trafficking gang. Time was of the essence as they held some gang members at the border. Leveraging Pathfinder, they swiftly identified this object across multiple devices—some belonging to previously incriminated members. Consequently, this discovery led to the arrest of the criminals at the border.

Furthermore, within Pathfinder, artificial intelligence plays a pivotal role in categorizing all extracted images into predefined classifications, such as those depicting drugs, weapons and child sexual abuse material. The unique capability to ad-hoc train a new AI model empowers users to do so themselves with just a few

examples, swiftly reacting to user needs. This functionality facilitates the prompt identification and categorization of photos of interest, streamlining the investigative process.

Optical Character Recognition (OCR)

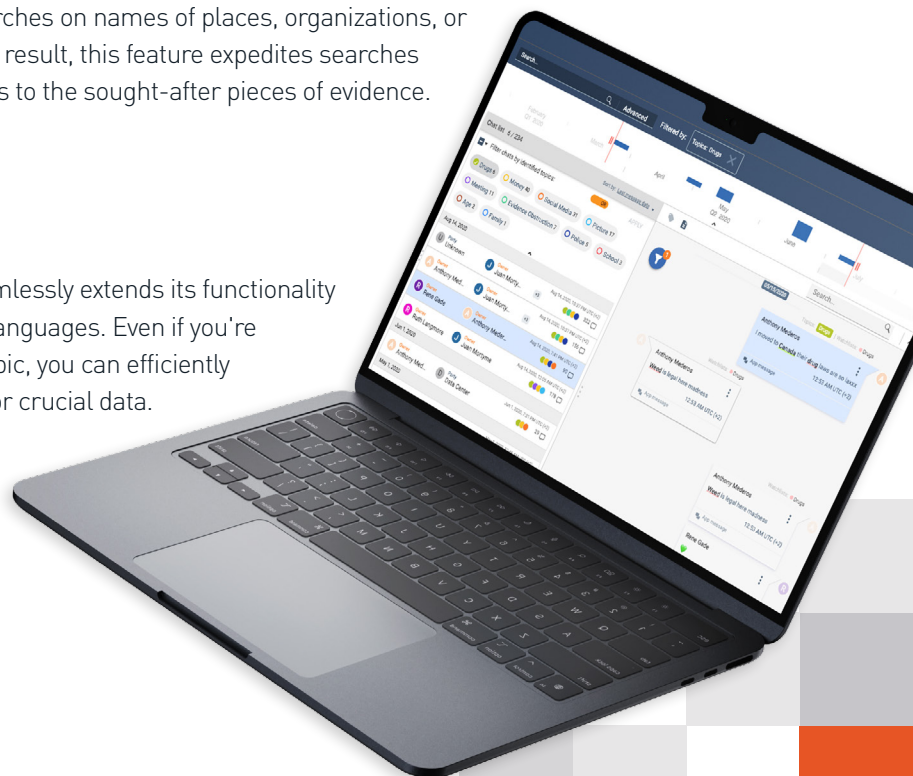
Pathfinder incorporates AI-powered Optical Character Recognition (OCR), empowering investigators and analysts to rapidly scan and convert text from images or documents into digital formats. The review of extensive image collections can be a formidable task, especially when dealing with embedded text, significantly increasing the effort and time required for investigators.

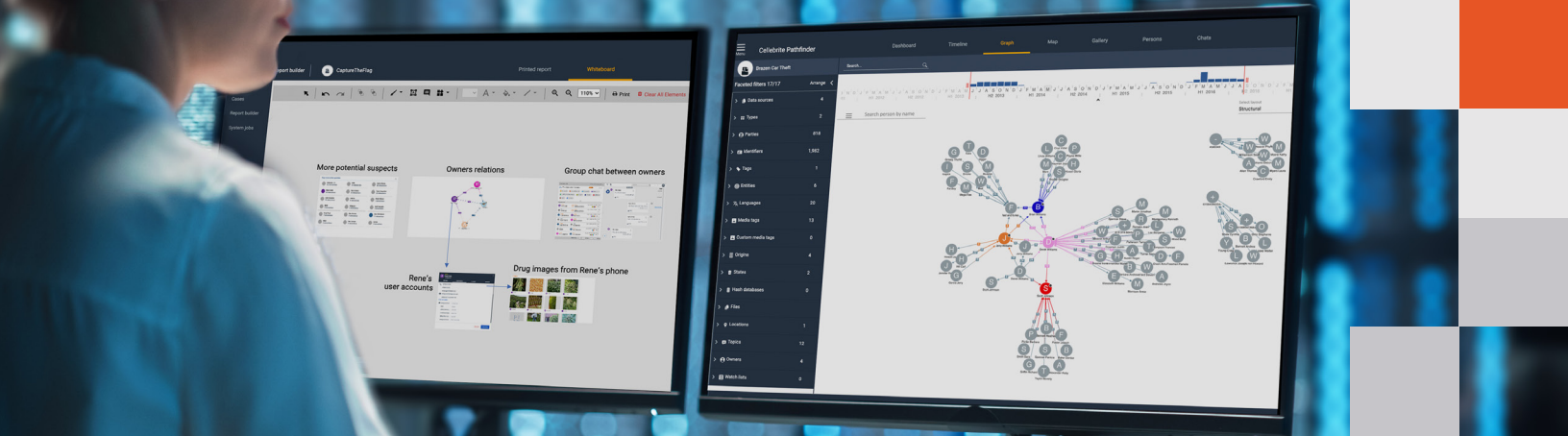
By leveraging OCR, precision in extracting and understanding text is enhanced, making the data more searchable. This allows for textual searches on names of places, organizations, or license plate numbers on a suspect's phone. As a result, this feature expedites searches within all transcribed text, enabling quicker access to the sought-after pieces of evidence.

Topic Detection

Building on its image capabilities, Pathfinder seamlessly extends its functionality to identify critical textual topics, even in different languages. Even if you're unfamiliar with the language but recognize the topic, you can efficiently leverage linguistics to focus solely on suspicious or crucial data.

This AI-powered feature adeptly recognizes slang and terminologies commonly associated with criminal activities, such as drug or human trafficking.





Data Aggregation and Visual Representation

In investigations, having a comprehensive understanding is paramount. Missing any evidence or connections between suspects can be detrimental. Pathfinder addresses this by assembling inclusive dashboards. It aggregates data from various origins and presents it visually, providing investigators and analysts with a complete overview of the available information.

Comprehensive Reporting

Once you have come to your conclusions, and you have the right course of events, now it's time to move the investigation forward and get a conviction. Pathfinder's AI quickly consolidates all information relevant to a case, making it easy to create shareable and comprehensive reports for faster collaboration with all stakeholders and create a compelling and strong case narrative.



one large U.S. law enforcement agency reports **an 80% savings** in work hours

AI as a Co-Pilot

Pathfinder was developed to expedite the discovery of critical evidence for investigators. The escalating volume of data extracted from digital devices each year makes manual review exceedingly intricate.

Hence, this digital investigative solution harnesses AI to navigate a vast expanse of data, expediting access to pertinent investigative materials—an essential advantage, especially considering the constraints on time and resources every agency faces.

While AI algorithms in Pathfinder provide methods to filter and review data, they cannot replace the role of human investigators or analysts who possess domain knowledge, critical thinking skills and intuition necessary for thorough investigations.



Empowering Investigators: AI as Supportive Ally in Justice

Investigators remain the primary drivers and decision-makers in investigations, yet aided by AI as a supportive assistant, professionals can become that much more efficient. Cellebrite Pathfinder's AI capabilities enhance efficiency in data analysis, expediting the path to actionable insights.

This empowerment allows investigators the flexibility to concentrate on pivotal tasks—converting leads into evidence, constructing compelling narratives for court proceedings, solving cases and ultimately expediting the delivery of justice.

