WHOOSTER™

Whitepaper

Time is Your Enemy

Solving Crime and Saving Time Using Real-Time Data

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Executive Summary

Law enforcement is no stranger to the pressure to do more with less. Originating dually in public discourse and private litigation, the expectation - and in some cases, requirement - that law enforcement agencies at every level of government improve the accessibility and delivery of their services while simultaneously reducing costs and liabilities is pervasive. Given recent years' tumultuous events and divisive political environment, it is no wonder this pressure shows no sign of abating. How, though, are agencies supposed to navigate and, indeed, satisfy these ostensibly dichotomous demands?

Skeptical as some may be that services can be improved while spending less, there is one area in which law enforcement agencies can readily achieve this: their use of **big data**.

According to Gartner, big data is *high-volume, high-velocity, and/or high-variety information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision-making, and process automation.*[1]

For law enforcement professionals, big data encompasses not only the massive federal, state, and local datasets on crime rates, recidivism, victim surveys, and other topics managed by the Bureau for Justice Statistics (https://bjs.ojp.gov/). Big data is also comprised of supplemental sources of both public and private data, such as social media user data and record digitization outputs.

These supplemental data sources are increasing as the world becomes ever more interconnected. Yet, it is apparent that law enforcement needs to catch up to other industries in using big data to its advantage.

In this whitepaper, we examine not only hitherto inaccessible data sources as they may now be accessed and analyzed, but we also look at seven of the most impactful areas of application for this data:

- Crime Prevention
- Criminal Identification
- Criminal Reporting
- Response Planning
- Operational Efficiencies
- Litigation Reduction
- Officer Safety, Health, and Wellbeing

In exploring these areas, we make the case that law enforcement agencies should not only be conscious of the many **benefits of big data** in their investigations and operations, but that they should be **actively seeking private sector partners** that can enhance their access to and uses of such data.

1 Gartner. (n.d.). Big Data. https://www.gartner.com/en/information-technology/glossary/big-data

A Closer Look at Law Enforcement Data

With today's digital technologies, law enforcement professionals have unprecedented access to a broad spectrum of historical and real-time public and private data sources. Analyzed in isolation or collectively, these datasets illuminate circumstances and connections that, until now, have been largely unknown or inaccessible to most departments.

Traditionally, law enforcement has relied on government-collected data on core criminal justice topics such as corrections, courts, crime, the federal justice system, forensic sciences, law enforcement, recidivism and reentry, tribal crime and justice, and victims of crime.

Supplemental data sources are, however, widely available through industry partners, yet thus far need to be more utilized. Examples of such supplemental datasets include:

Person
Records pertaining to a person's name, address, contact information, professional associations, and other personal data.

Social Media
Data on how users create, view, and interact with public and private content on sites like Facebook, Twitter, and Instagram.

Phone
Information sent and received via a cellular connection on a phone, tablet, or other cellular-enabled devices.

Court
Case files and all accompanying docket sheets, documentation, and minutes from court filings and proceedings.

Real Estate
Public and private data on property, boundaries, valuations, transactions, insurances, and other real estate matters.

Criminal
A history of a person's criminal justice interactions, including warnings, arrests, charges, convictions, and incarcerations.

Assets
Accounts of all cash, cash equivalents, investment, bonds, annuities, land, buildings, collectibles, and other personal or business assets.

International
Files on international and transnational activity, travel, transactions, assets, communications, residencies, and other matters.

Motor Vehicle
Tracing of vehicle titular matters, including ownership, transfer, destruction, abandonment, and location via plate recognition.

Licenses
Lists of licenses and permits associated with a person's identity, such as business, medical, driving, and firearms licenses.

Medical
Datasets on medical sanctions, provider licensure, controlled substances practitioners, and the National Provider Identity Registry.

Business
Company-related information such as official filings, customer lists, financial accounts, website traffic, and regulatory violations

The markedly improved rates at which data can now be obtained and verified - especially when paired with advanced artificial intelligence (AI) technologies that help in identifying patterns and links between datasets - contribute significantly to the desiloing of investigative and operational processes.

What is more, the availability of such data in integrated data platforms and services rids law enforcement of the financial and functional burden of disparate standalone sources and systems.

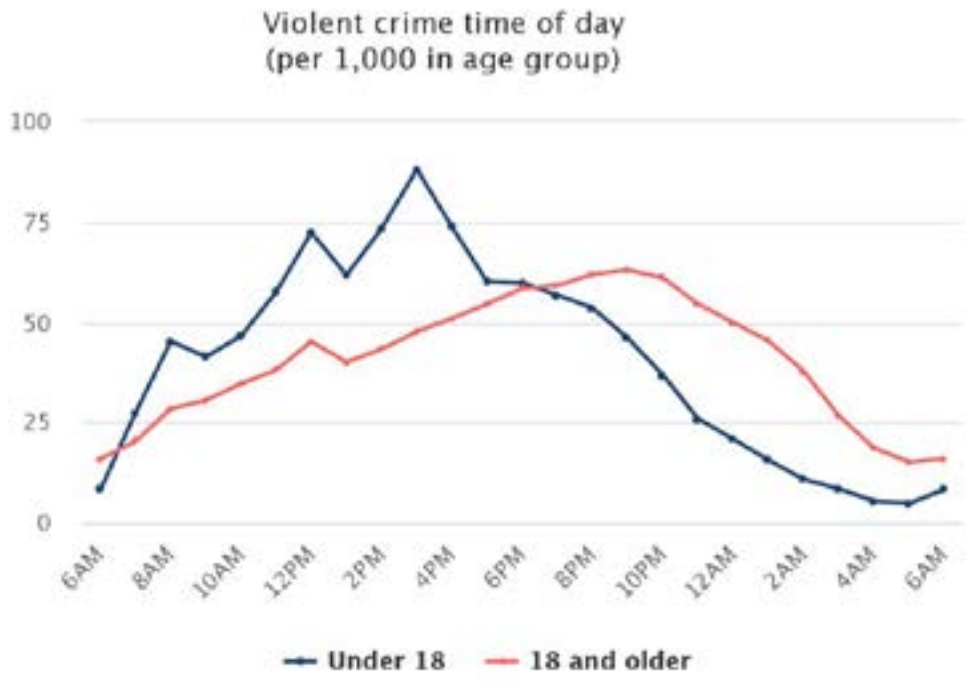
With such advancements in software abundant, technology is now widely regarded as a **force multiplier for law enforcement**, positively impacting internal and external activities across countless fields of application.

Technology as a Force Multiplier

The applications of big data in law enforcement are numerous and wide-ranging, impacting all those who work in and benefit from law enforcement activities.

One hallmark of contemporary law enforcement is the shift towards policing methodologies that are proactive rather than reactive. In this regard, big data plays an important role in bringing to the fore patterns and anomalies that might indicate a greater likelihood of criminal activity occurring.

It is because of data gleaned from agencies in 45 states and the District of Columbia, for example, that police departments know which times of the day to increase police presence to combat violent crime (where 'violent crimes' include murder, violent sexual assault, robbery, aggravated assault, simple assault, and kidnapping). According to a 2019 study by the Federal Bureau of Investigation (FBI), youth perpetration of violent crime peaks at 3 pm, while adult perpetration of the same spikes at 9 pm.



Source: OJJDP Statistical Briefing Book. Online. Available: https://www.ojjdp.gov/ojstatbb/offenders/qa03401.asp?qaDate=2019.

By scheduling more officer patrols around those times, agencies not only increase their ability to prevent violent crime, but they avoid wasting resources by deploying officers at quieter times of the day.

Using these same methods, resources may also be rapidly deployed in response to fast-evolving threats, such as suspected school shootings and other terrorist events. Many such tragedies of recent years have been teased or otherwise hinted at via social media posts from would-be offenders, especially on networks like 4chan, 8chan, Discord, and Twitch that have greater privacy protections. Technology can power mass monitoring of this data, using AI and image recognition software to recognize threatening or suspicious text and image content and indicating to agencies when and where additional resources should be deployed.

Criminal Identification

The prevailing use of data in criminal identification is criminal profiling. While the practice of criminal profiling dates back to the investigation of the 'Jack the Ripper' murders in East London in the 1880s, modern-day profiling and academic interest therein have become prominent since the FBI's Behavioral Sciences Unit used applied criminological research to investigate serial criminal activities in the 1970s.

Criminal profilers use big data to generate criminal typologies or sets of characteristics and behaviors that are more likely to apply to a certain type of offender and thus might give the police a head start in investigations. In the American standard as expounded in a 1980 FBI study, these are either 'organized' or 'disorganized' criminals, from which many statistically likely conclusions may then be drawn.[2]

For example, an offender would be categorized as 'organized' in a murder where there was evidence of premeditation, such as restraints and weapons being used. In this case, it is highly likely that the offender is sociable, living with a partner, sexually competent, of high IQ, employed, and geographically mobile. Post offense, the offender is likely to return to the crime scene, offer information voluntarily to law enforcement, and respond well to direct inquiries in questioning. If a suspect arose that did not match these characteristics, it is statistically unlikely that they committed the crime and thus they could be deprioritized in investigations against other suspects who meet some or all of these attributes.

The benefits of data in criminal identification are not just limited to specialist units at the federal level, however. Local agencies can use similar principles to generate profiles and establish investigative priorities based on local demographics, crime statistics, and other pertinent metrics.

Criminal Reporting

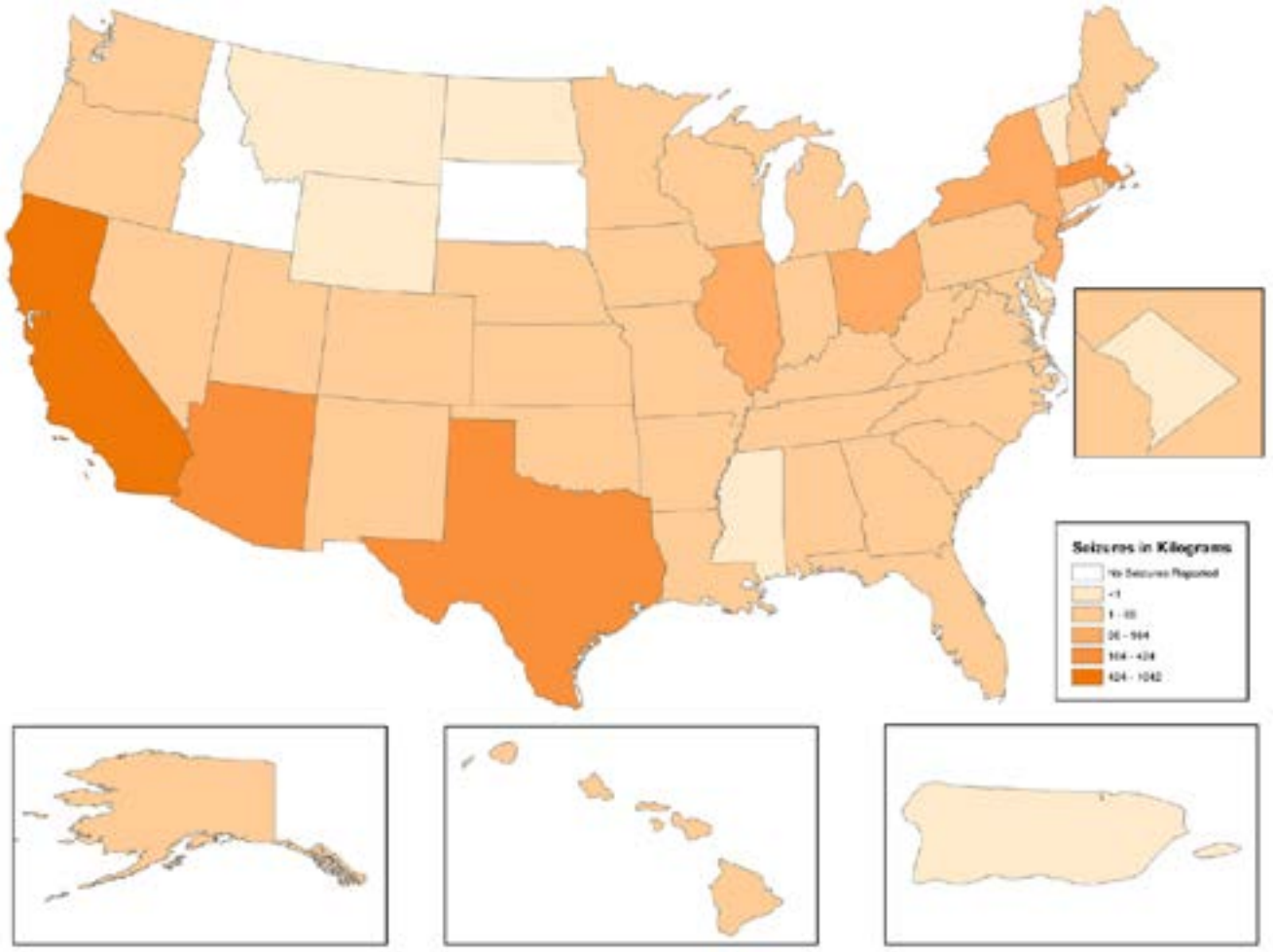
One unfortunate consequence of law enforcement's devolution to individual states is poor or non-existent communication and information sharing between agencies in different jurisdictions. With 93% of first responders stating that cross-agency communication is critical in managing crises, this is a problem that cannot in good conscience be ignored by agency leadership.[3]

A potential antidote to interagency communication bottlenecks is effective criminal reporting. Agencies at the federal, state, and local levels - as well as their international counterparts - have a compelling motivation to collaborate when reports from one jurisdiction could save considerable repetition in work and wasted resources in another.

2Hazelwood, R. R., & Douglas, J. E. (1980). The Lust Murderer. FBI Law Enforcement Bulletin. 18-22. https://www.ojp.gov/pdffiles1/Digitization/68689NCJRS.pdf
3 Verizon Frontline. (2021, November 4). Public Safety Communications Survey. https://www.verizon.com/about/sites/default/files/Public-Safety-Communications-Survey.pdf

In the smuggling of fentanyl, for example, drug seizures indicate that smuggling occurs across almost all state borders, eliciting responses from state and local task forces as well as federal units like the Drug Enforcement Agency (DEA).

To ensure a timely and effective response, agencies depend on reporting and communications that are backed by reliable and up-to-date data from a diverse range of verified sources.



DEA Fentanyl Seizures by State, 2019. Source: US Department of Justice National Drug Intelligence Center. (2021, March). National Drug Threat Assessment 2020. https://www.dea.gov/sites/default/files/2021-02/DIR-008-21%202020%20National%20Drug%20Threat%20Assessment_WEB.pdf

Response Planning

It is often said that the best predictor of the future is the past, and thus it is no surprise that big data has a critical role to play in planning responses to emergency and crisis events. Among the most impactful applications are:

Event Simulations

Big data enriches practice scenarios with realistic information that better prepares emergency responders for the likely situations they will face in any given crisis zone. Simulations can be tailored for different threats, locations, actors, and anticipated needs scenarios.

Social Data Mining

Satellite imagery is a primary imaging source used in crisis response, yet satellites provide only a vague picture of events. Information scraped from social media platforms is often much more illustrative of the situation on the ground, helping agencies plan responses and resource allocation according to demonstrated need.

Contact Tracing

Reuniting families is a core challenge post disaster that is exacerbated by document destruction. Drawing on public information online, big data can step in and provide accurate contact details for extensive networks of individuals at rapid speed.

Needs Assessments

Resources are limited in disaster response, which makes it imperative that available goods and services are used as efficiently as possible. Big data assists by providing accurate data on physical damage, economic losses, and anticipated recovery needs based on area demographics and impact reports.

Operational Efficiencies

Agencies across the country are deploying data technologies to improve operational efficiency within their departments. The benefits of this are multifaceted, with two major advantages including:

- **Dynamic resource allocation.** In Illinois, Strategic Decision Support Centers (SDSCs) fuse geographic-specific real-time data from multiple sources to generate accurate situation reports and deploy policing resources accordingly. On one occasion, officers were able to confiscate an illegal firearm from a known gang member in Chicago within 15 minutes of him posting, 'Just rode past the police, 40 in my hand. Come and get me.' online by fusing social media data, identity information, and license plate and vehicle registration data.[4]

- **Rapid location of individuals.** When detectives in Virginia ran out of suspects for an armed bank robbery in Midlothian in May 2019, they obtained a geofence warrant that required Alphabet Inc. - the parent company of Google - to return a list of Android devices that were within 300 meters of the bank at the time of the alleged crime. A list of 19 devices with subsequent location data was returned, which officers then narrowed down to a single suspect based on known movements after the robbery. In taking this approach, officers were not only able to identify the alleged perpetrator, but they saved considerable time and resources in doing so. [5]

4 Police Executive Research Forum. (2018, January). The Changing Nature of Crime And Criminal Investigations. https://www.policeforum.org/assets/ChangingNatureofCrime.pdf
5 Bambauer, J. (2022, March 28). Letting police access Google location data can help solve crimes. The Washington Post. https://www.washingtonpost.com/outlook/2022/03/28/geofence-warrant-constitution-fourth-amendment/

Legal and Insurance Cost Reduction

The **doctrine of qualified immunity** protects police officers from a vast number of lawsuits and claims, but there nonetheless remain numerous causes of action that may result in public and private actors bringing cases against law enforcement. The **cumulative cost of legal claims alone is staggering**: over $3.2 billion was spent to settle 7,600 claims against officers at 25 of the nation's largest police and sheriff's departments within the past decade, according to the Washington Post. [6]

Unfortunately, instances of law enforcement recklessness, negligence, and misconduct are not uncommon. In 2019, for example, officers in Chicago raided the wrong house in a weapons investigation and were ultimately sued for handcuffing the young female homeowner naked to a chair while she frantically tried to explain to them that they were at the wrong address.[7] In a finding for the homeowner, the resultant settlement cost the City of Chicago over $2.9 million. Simply put, the effective use of data sourcing, fusion, and analytics technology would have **prevented this mistake** from happening, as information on the warrant could have been cross-referenced with identity, address, weapons license, and other pertinent information to corroborate the target address.

With big data improving the delivery of law enforcement services in many key respects and the majority of Americans being in favor of extending civilians' rights to sue the police for misconduct[8], the litigative and financial implications of improved data usage could be enormous.

6 Alexander, K.L. et al. (2022, March 9). The hidden billion-dollar cost of repeated police misconduct. The Washington Post. https://www.washingtonpost.com/investigations/interactive/2022/police-misconduct-repeated-settlements/

7 McCaulley, E. (2021, December 2). Police Handcuffed Her, Naked, in Her Home. Will She Ever See Justice? The New York Times. https://www.nytimes.com/2021/12/02/opinion/anjanette-young-police-justice.html

8 Doherty, C. et al. (2020, July 9). Majority of Public Favors Giving Civilians the Power to Sue Police Officers for Misconduct. Pew Research Center. https://www.pewresearch.org/politics/2020/07/09/majority-of-public-favors-giving-civilians-the-power-to-sue-police-officers-for-misconduct/

Officer Safety, Health, and Wellbeing

In addition to protecting officers in the field through real-time tactical intelligence and enhanced training, data sourcing, fusion, and analysis play an important role in reducing excessive overtime, which has several negative impacts on officers' safety, health, and wellbeing.

In California, for example, the Berkeley Police Department has come under fire for failing to adhere to city overtime policies, with criticisms centering on the department's miscalculation of overtime requirements and inability to track when officers are picking up extra shifts. One officer was even found to have worked 47 days without a single day off.[9] The impact of loose regulation of open beats on officers is highly concerning:

- Long work hours have negative effects on sleep, increase the likelihood of on-duty fatigue, and impair performance. [10]
- Fatigue and long hours that reduce sleep opportunities can lead to absenteeism as a self-management strategy.[11]
- Working overtime increases the chances that an officer will be involved in a use-of-force incident the following week by 2.7%, and increases the odds of ethics violations by 3.1%.[12]

The National Institute of Justice has also reported that overtime fatigue leads to considerable mental and physical health issues, including increased mood swings, impaired judgment, decreased adaptability, heightened sense of threat, exacerbated anxiety or depression development of mental illness, reduction in hand-eye coordination, weight gain or loss, pain, relaxation problems, gastrointestinal problems, and damage to the cardiovascular system.[13]

9 Raguso, E. (2022, March 4). Open patrol beats are the biggest driver of police officer overtime, audit finds. Berkeleyside. https://www.berkeleyside.org/2022/03/04/berkeley-police-overtime-patrol-vacancies-protests-security-work-apple-store
10 Riedy, S.M., et al. (2021). Shift work and overtime across a career in law enforcement: a 15-year study. Policing: An International Journal, 44(2), 200-212. https://doi.org/10.1108/PIJPSM-08-2020-0134
11 Riedy, S.M., et al. (2020). Fatigue and short-term unplanned absences among police officers. Policing: An International Journal, 43(3), 483-494. https://doi.org/10.1108/PIJPSM-10-2019-0165
12 Maciag, M. (2017, September 26). The Alarming Consequences of Police Working Overtime. Governing. https://www.governing.com/archive/gov-police-officers-overworked-cops.html
13 National Institute of Justice. (2012, July 31). Officer Work Hours, Stress and Fatigue. https://nij.ojp.gov/topics/articles/officer-work-hours-stress-and-fatigue

Advanced Data, Fusion, and Analytics with Whooster

As a global leader in data provision, fusion, and analytics, we at Whooster understand deeply the effects that accurate and reliable data (or lack thereof) has on law enforcement agencies, those who work within them, and those who are impacted by them.

To ensure that agencies have the best data available to them, we are continually developing new technologies that push the boundaries of data sourcing, fusion, and analysis. What is more, we are motivated by our track record in delivering meaningful results for our law enforcement clients.

Whooster Delivers Real Results

In just two searches of our database, a client was able to locate a woman and her child who had been missing for over 27 years. This brought life-changing emotional relief to the family and widespread praise and positive press for the investigating agency.

Comprehensive Data Solutions

Whooster provides comprehensive law enforcement data solutions that bring deep context to any situation, investigation, or operation. With historical and real-time data from public and private sources, the depth and breadth of our data sources are unparalleled.

- Person Data
- Criminal Records
- Medical Data
- Social Media Data
- Asset Data
- International Data
- Phone Data
- Real Estate Records
- Motor Vehicle Data
- Court Records
- License Data
- Business Data
- Dark Web Data
- Proprietary Data

Actionable Intelligence for Law Enforcement Agencies

At Whooster, we know that every minute counts when an investigation goes live and persons of interest need to be located. Our solutions can be used to track down suspects, accomplices, witnesses (including uncooperative ones), and even loosely-identified bystanders. Whomever you need to find, and no matter where they are, we have the technology to help you find them.

Critically, Whooster acts as a trusted link between agencies, permitting any authorized party at any stage of an investigation to get a full picture of available information and generate actionable intelligence that can be deployed by agents in the field in real time, even in multi-agency exercises that typically suffer from siloed data.

Over the last decade, we have served tens of thousands of individuals and today are bringing fresh and reliable data to over 6,000 users across 475 federal, state, and local agencies (and counting).

> *"As a private company, Whooster is in a unique position in being able to contribute both to the public's safety, and to the safety of those whose job it is to protect us. We take our responsibilities very seriously, and we are proud to be spearheading the development of advanced AI technologies that help our agencies to be better equipped to deal with the complexities of today's public safety threats."*
>
> *Richard Spradley, Founder and Chief Executive Officer at Whooster*

About Whooster

We published this white paper to help law enforcement agencies understand the importance of adopting big data in their investigations and operations. For more information on the benefits of advanced data technologies and to see firsthand how our investigative intelligence solutions could drive enhanced decision-making in your agency, get in touch with our team of experts by emailing solutions@whooster.com or calling us at +1 (512) 419-4200.

References

Alexander, K.L. et al. (2022, March 9). The hidden billion-dollar cost of repeated police misconduct. The Washington Post. https://www.washingtonpost.com/investigations/interactive/2022/police-misconduct-repeated-settlements/

Bambauer, J. (2022, March 28). Letting police access Google location data can help solve crimes. The Washington Post. https://www.washingtonpost.com/outlook/2022/03/28/geofence-warrant-constitution-fourth-amendment/

Doherty, C. et al. (2020, July 9). Majority of Public Favors Giving Civilians the Power to Sue Police Officers for Misconduct. Pew Research Center. https://www.pewresearch.org/politics/2020/07/09/majority-of-public-favors-giving-civilians-the-power-to-sue-police-officers-for-misconduct/

Gartner. (n.d.). Big Data. https://www.gartner.com/en/information-technology/glossary/big-data

Hazelwood, R. R., & Douglas, J. E. (1980). The Lust Murderer. FBI Law Enforcement Bulletin. 18-22. https://www.ojp.gov/pdffiles1/Digitization/68689NCJRS.pdf

Police Executive Research Forum. (2018, January). The Changing Nature of Crime And Criminal Investigations. https://www.policeforum.org/assets/ChangingNatureofCrime.pdf

Raguso, E. (2022, March 4). Open patrol beats are the biggest driver of police officer overtime, audit finds. Berkeleyside. https://www.berkeleyside.org/2022/03/04/berkeley-police-overtime-patrol-vacancies-protests-security-work-apple-store

Riedy, S.M., et al. (2021). Shift work and overtime across a career in law enforcement: a 15-year study. Policing: An International Journal, 44(2), 200-212. https://doi.org/10.1108/PIJPSM-08-2020-0134

Riedy, S.M., et al. (2020). Fatigue and short-term unplanned absences among police officers. Policing: An International Journal, 43(3), 483-494. https://doi.org/10.1108/PIJPSM-10-2019-0165

Maciag, M. (2017, September 26). The Alarming Consequences of Police Working Overtime. Governing. https://www.governing.com/archive/gov-police-officers-overworked-cops.html

National Institute of Justice. (2012, July 31). Officer Work Hours, Stress and Fatigue. https://nij.ojp.gov/topics/articles/officer-work-hours-stress-and-fatigue

McCaulley, E. (2021, December 2). Police Handcuffed Her, Naked, in Her Home. Will She Ever See Justice? The New York Times. https://www.nytimes.com/2021/12/02/opinion/anjanette-young-police-justice.html

Verizon Frontline. (2021, November 4). Public Safety Communications Survey. https://www.verizon.com/about/sites/default/files/Public-Safety-Communications-Survey.pdf

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