WORKING DRAFT
Last Updated: 11/21/24

# Putting Police Body-Worn Camera Footage to Work: A Civil Liberties Evaluation of Truleo's AI Analytics Platform

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## INTRODUCTION

Although body-worn cameras ("BWCs") have been in use by police officers for over two decades, it was not until Michael Brown was killed in Ferguson, Missouri in 2014, and the ensuing protests, that they became a fixture of American policing.[1] That year, the Obama administration began promoting BWCs for their potential to enhance trust and accountability in law enforcement, and by the following year, the Department of Justice had awarded over $23 million in grants to support their adoption.[2] Since that time, the federal government has spent hundreds of millions in taxpayer funds, and induced states and localities to invest hundreds of millions more, toward the purchase and use of this technology.[3]

With these incentives, BWCs have been adopted far and wide among U.S. policing agencies. From 2016 to 2022, the number of local police departments that used body worn cameras increased by 43%.[4] By 2020, every policing agency serving a population of at least one-million residents used body cameras.[5] As of 2020, 79% of all local police officers worked in departments that used BWCs.[6] Use of cameras is accelerating among sheriffs and federal law enforcement agencies,[7] strongly suggesting that the rate of BWC usage will only continue to increase.

These thousands upon thousands of cameras record unimaginable quantities of video. The Los Angeles Police Department, for example, collects 14,000 BWC clips per day.[8] In 2022, the Dallas Police Department collected 6,000 daily.[9] Evidence.com, a platform widely used by policing agencies across the country to store BWC footage, hosts over 100 petabytes of body-worn camera footage—more than 5,000 years of HD video.[10]

Despite their explosive growth and the incredible amount of personal data they capture, the use of BWCs is significantly underregulated by law. Rather than operating pursuant to clear rules enacted by state or local policymakers, police often are permitted to make a range of choices that determine the impact of the technology on police-community interactions. Too often, the choices made are fundamentally at odds with the original purpose of the technology—to improve outcomes for members of the public interacting with the police and to provide transparency and accountability when things went wrong.[11]

A few examples to help illustrate this point: ***First***, police decide when to activate the cameras. Some agencies give individual officers wide discretion to determine when to do so, resulting in fewer activations and greater levels of force used.[12] ***Second***, few legislatures mandate a process and timeframe for release of BWC footage following significant incidents and other events of public importance, leaving it to the policing agency to decide.[13] Many agencies, in turn, have not implemented a policy on the matter or simply leave the decision to

the discretion of leadership.[14] As a result, although there are occasions when policing agencies promptly release footage after significant incidents of public importance,[15] the footage often is withheld from the public when it matters most.[16] ***Third***, police executives decide if and whether to have supervisors review BWC footage in order to improve officer performance—some do, requiring a review of one or two videos per officer, per quarter; others, relenting to union pressure, do not require any review.[17] ***Fourth*,** because rules regarding BWCs have been largely left to police, law enforcement has transformed BWCs into a criminal investigative tool—one that raises serious potential privacy concerns.[18] With recent technological advances, police now have the option, often unregulated by law, to add AI analytics capabilities, such as real-time search, facial recognition, and license-plate recognition.[19]

In our view, this situation is untenable. Rather than leaving it to law enforcement to determine how to use the technology, it should be policymakers, in consultation with their communities, that set BWC camera policies.

In this report, we focus on an imminent change to BWC technology, one made possible by recent advances in artificial intelligence: the automation and expansion of the review of BWC footage. We view this change as monumental, and one that has the potential to magnify existing concerns with how BWCs are used, or return the technology to their purpose as a tool for training and improving police transparency and accountability.

Today, beyond criminal investigations and select high-profile or potentially problematic incidents (e.g., serious uses of force), most BWC footage never is reviewed. This includes the vast majority of interactions between officers and members of the public. The reason for this is at least partially logistical: Manual review of camera footage is incredibly labor-intensive, so reviewing even a substantial fraction of an agency's footage is a practical impossibility.[20] This starkly limits the utility of BWCs as a tool to improving the quality of policing.

To meet this gap, vendors have begun to devise ways to automate the review of BWC footage. One of those vendors—and the subject of this report—is Truleo, which has devised a way to use artificial intelligence to turn the audio from BWC footage into a tool for evaluating police performance.[21] Another company is Polis, which describes itself as using both natural language processing and computer vision to analyze police-community interactions from body-worn camera footage.[22] Yet another is JusticeText, which uses natural language processing to automatically generate searchable, annotated transcripts of police-citizen encounters from BWC (without labeling conduct), and has targeted its product to public defenders and other defense attorneys.[23] These novel technologies promise to fundamentally shift the way BWC footage is reviewed, but with this novelty comes many unknowns.

To begin to answer some of the important questions about this type of technology, our team of researchers conducted a civil rights and civil liberties evaluation of Truleo.[24] We describe our process in more detail below.[25] This report is a summary of our evaluation of Truleo, but also generalizes past Truleo to the larger field of BWC technology. In this report, we describe a variety of strengths of, and potential concerns with, Truleo's platform. We also offer recommendations and additional commentary about the broader state of BWC technology—comments that we hope policymakers, technology vendors, and the broader community will incorporate into their future decision-making.

Our goal was not to speak for the agencies using Truleo nor their communities. Those voices, especially communities of color particularly impacted by both violence and policing, must be the ones ultimately to weigh in on the right use of public resources when it comes to policing technology. Our hope, rather, is that our evaluation can help interested stakeholders, and any other jurisdiction considering Truleo, come to a fully informed decision as to whether to use products like Truleo, and how to regulate them if they do so.

**This report offers four top-line conclusions, elaborated on below:**

(1) **First, BWC footage is the largest collection of data on policing in existence, yet it has been woefully underutilized as a tool for evaluating and improving policing, thus leaving much of the value of our nation's investment in BWCs untapped.** BWC footage can serve to make policing more accountable in specific cases, certainly. But the data also is a public resource that has the capacity to shed light on important issues regarding public safety and policing. It can serve as a window into the challenges police officers face daily and what situations might be suited for a non-police response; as a training resource for police and alternative responders both; as a rich source of information for community oversight, independent auditors, or other government agencies attempting to evaluate a policing agency's practices or compliance with law; and as a resource for academic study in disciplines ranging from cognitive and organizational psychology to sociology and criminology. The possibilities are myriad. We discuss some of these possibilities in Part IV below.

(2) **Second, because BWC footage is woefully underutilized, there is great potential in technologies, like Truleo, that can rebalance the scales by automating the review of this footage.** Truleo's approach to doing so has been commendable in important ways. For example, the company has designed its platform to mitigate the chance it will stray toward investigative or surveillance uses. And the company has taken steps to protect the privacy of community members who may be captured by

BWCs. These are essential concerns with any technology relating to BWCs.

(3) **Third, although we see great potential in a platform like Truleo's, we worry that its full potential will never be achieved so long as police retain sole control of BWC footage.** Because police are Truleo's current market, the platform's design and messaging decisions must cater to police. The only way to shift this market reality is for jurisdictions to treat BWC footage as a public good, not solely as the property of police. This shift would have real implications for policing, for vendors like Truleo, and for the public at large.

(4) **Fourth, legislators should take steps to ensure that access to BWC footage is "democratized," which is to say the footage would be made more widely available to others who could make sound use of the data in service of the public interest.** Through legislative action, policymakers could make BWC more widely available—to community-based organization, to oversight entities, to independent auditors, to academic researchers. All of this would require sensitivity to privacy concerns, including importantly the officers whose daily work is captured on the video, but we suggest answers to these challenges.

This report evaluates and contextualizes Truleo, and the public use of BWC footage, in four Parts.

**Part One** describes Truleo's platform—it begins with a discussion of the difficulty of manual review of BWC footage, and then turns to a description of Truleo's technology and some of the company's practices and policies. This Part also describes how the platform is (and could be) used by policing agencies.

**Part Two** explores potential risks, including risks the company has taken steps to mitigate and risks outside of the company's control. In this Part we also describe, and lament, a market reality: that policing agencies control BWC footage and decide whether to adopt a platform like Truleo.

**Part Three** is directed to legislators and policymakers considering adopting Truleo or other technologies that automate BWC review. This Part takes no position on the utility of these tools but rather offers recommendations for avoiding ethical pitfalls. We consider these recommendations of particular importance given that most of these choices are not governed by existing law. Unless policymakers act, the public will be cut out of critical decisions.

**Part Four** speaks to our society's larger reliance on BWCs. Truleo has implemented

numerous safeguards on its platform that focus its technology on improving policing rather than conducting criminal investigations. But there is no guarantee that other vendors will follow suit. Rather than rely solely on police departments to define the future of automated BWC review, this Part argues that we should reimagine our approach to BWC footage, giving policymakers and their communities a key role in deciding when and how BWC footage is used. This will help ensure that technologies like Truleo's continued to be used to serve the larger public interest.

## PART I: BACKGROUND & DESCRIPTION OF TRULEO

This Part gives an overview of how BWC footage traditionally is reviewed by policing agencies, and how Truleo seeks to upend that status quo.

This Part is largely descriptive, while later Parts reflect our views. Section A explains why, despite the tremendous potential of BWCs as an accountability tool, the vast majority of day-to-day police encounters never are reviewed. Section B provides additional details about our evaluation of Truleo, including the sources of information we reviewed. Section C describes how Truleo's technology works—in other words, how Truleo uses AI technology to analyze an agency's BWC footage automatically, facilitating review at levels previously unattainable. Finally, Section D discusses the various ways this capability can be used—from addressing misconduct and enhancing police training to monitoring officer wellness.

### A. Traditional BWC Footage Review

To understand Truleo's potential value, one must first understand how body-worn camera footage is analyzed today. As one might expect, agencies routinely use BWC footage to review critical incidents—uses of force, in-custody deaths, pursuits resulting in injury.[26] When members of the public register a formal complaint, BWC footage is likely to be reviewed by personnel from an agency's internal accountability system or, in some jurisdictions, an external oversight body.[27] Interactions that result in an arrest and prosecution are likely to be reviewed by a prosecutor, and perhaps a defense attorney.[28] But these highly visible interactions are the exception.

Most of the interactions police have on a daily basis never come to the attention of outside parties, and as a result, most BWC footage is never reviewed. Policing agencies are aware of this shortcoming and some, at least in larger policing agencies, have sought to implement systems of random review of BWC footage. Most of these measures are voluntary; few legislatively mandated.[29] The most common model is to require supervisors to select, at random, a few videos from each of the officers under their command to determine whether officers are complying with agency policies and procedures.[30] A 2023 review of the BWC policies found that only 57% specified how frequently supervisors are required to audit BWC recordings, with half of those specifying quarterly reviews.[31]

Even if conducted properly, however, random review is just a drop in the bucket.[32] Major police departments generate millions of videos a year.[33] Evidence.com, a platform widely used to store body-worn camera footage, maintains the equivalent of more than 5,000 years of high-definition video.[34] Yet, less than one percent of body-worn camera footage ever

is reviewed.[35]

Truleo, and other BWC analytics platforms, were founded on the premise that the right technology could help fill this gap, upending how BWC footage is reviewed. In theory, this technology has the potential to unlock insights from the troves of BWC footage that policing agencies collect, but never review. For example, policing agencies could use the technology to collect data on what sorts of encounters their officers face as well as what enforcement actions they take in response. Similarly, external actors could use the platform to evaluate the policing agencies practices and policing, including whether the agency is implementing with new laws or trainings, the terms of a consent decree, and much more. We say more about these possibilities and others below in Part IV.

### B. This Evaluation

To shed light on some of the important ethical questions raised by technologies that automate BWC review, our team of researchers began a civil liberties and ethics evaluation of Truleo in January 2024. This evaluation, like the efficacy evaluations discussed below, was supported with grant funding from Arnold Ventures, which describes itself as "a philanthropy dedicated to improving the lives of all Americans through evidence-based policy solutions that maximize opportunity and minimize injustice."[36]

Our evaluation included an extensive review of the following sources: publicly available information about the company (such as its website, press releases, official government filings, statements on social media), internal policies and practices (such as descriptions of AI models and their training data, customer training decks, marketing materials), and numerous interviews with company personnel and customers. We also spoke with a range of experts, from those well versed in BWC technology, to civil liberties advocates, to community-based police reformers.[37]

During the course of our evaluation, we provided the company with a set of short- and long-term recommendations. Some of those recommendations resulted in concrete changes in Truleo's product. Others did not, but Truleo's responses contributed to our understanding of how complex some of these issues can be. We note many of these recommendations throughout this report.

Simultaneous to our civil liberties evaluation, two teams of social science researchers—one led by Geoffrey Alpert and Ian Adams, at the University of South Carolina,[38] and another led by Michael White of Arizona State University and Aili Malm of California State University, Long Beach[39]—are studying Truleo's impact on the police departments using the technology.

As we explain above, this report is a summary of our evaluation of Truleo, but also generalizes past Truleo to the larger field of BWC technology. In this report, we describe a variety of strengths and potential concerns with Truleo's platform. We also offer recommendations and additional commentary about the broader state of BWC technology, comments that we hope policymakers, technology vendors, and the broader community will incorporate into their future decision-making.

### C. What Truleo Does

Truleo offers an AI-powered software platform to policing agencies that partially automates the process of reviewing body-worn camera footage. For roughly $20 to $50 per officer, per month, the platform automatically transcribes the audio of body-worn camera footage and analyzes what has been said by officers and citizens.[40] Based on this analysis, Truleo labels noteworthy events and highlights select events for supervisor review.

To do this, Truleo first connects with an agency's digital evidence management system, which stores body-worn camera footage. Using a natural language processing model, Truleo extracts the audio from these files automatically. Truleo analyzes only the audio data from body-worn camera footage—unlike Polis, it does not analyze video data.[41]

Next, Truleo transcribes the audio and separates it into "chunks," with only one speaker in each chunk.[42] This process is known as "speaker diarization."[43]

Then, Truleo determines which "chunk" of audio belongs to the officer and which to the individual with whom the officer is interacting. Truleo does this by analyzing transcribed audio and metadata from body-worn camera videos.[44] The company notes that its officer "separation model" can identify officers *within* the Truleo platform, but not cannot be exported or used outside of it.[45] In other words, this process does not create a biometric voiceprint that could be used in other, unrelated contexts (for example, to identify an unknown individual in a voice recording).

Truleo then attempts to categorize certain events or speech patterns in the video being analyzed. To do this, Truleo's large language model identifies key words and phrases, and assigns labels. In Truleo's system, there are two types of labels: (A) automatic – ones that do not require a human to pre-approve the label;[46] and (B) pending – ones that require a human to confirm the label. We begin by describing the automatic labels, and then turn to Truleo's two pending labels: officer's discussion of force and impolite language.

Truleo's platform automatically assigns the following labels based solely on the officer's language:

- **Introduction:** An officer introducing himself / herself.
- **Explanation:** An officer provides reasons for taking actions.
- **Traffic Stop Reason:** An officer providing a reason for a traffic stop.
- **Business Card:** An officer offering a business card to a person.
- **De-Escalation Attempt:** Commands or persuasive language given by an officer in an attempt to de-escalate an interaction with a non-compliant person.

Truleo's platform automatically assigns the following labels based solely on the community member's language:

- **Upset Person:** A person who directs profanity or insults at an officer.
- **Noncompliant Person:** A person who refuses to comply with officer commands.
- **Community Gratitude:** Expressions of gratitude from a person towards an officer.

Truleo's platform automatically assigns the following labels based on any language by any speaker (either officers or members of the public):

- **Person In Crisis:** A person whose mental health symptoms or level of distress have exceeded the person's internal ability to manage their behavior or emotion.
- **Domestic Violence:** Abusive behavior in any personal relationship to gain power or control.
- **Terry Stop:** A stop conducted by an officer where the person is not free to leave.
- **Traffic Stop:** A temporary detention of the driver of a vehicle and its occupants to investigate a possible crime or violation.
- **Search:** The act of an officer searching a person or their belongings.
- **Pursuit:** Officer(s) chase a person(s) in car or on foot in order to detain or arrest.
- **Arrest:** The act of taking a person into custody.
- **Personal Data:** Redaction of a person's personal identifiable information.
- **Muted:** Segments of video that are muted.
- **Translated Spanish**.

Based on these labels, Truleo's platform will automatically generate labels that single out positive performances by police officers in two circumstances:

- First, when an officer refrains from using insults, threats, profanity, and force, and

uses at least twenty-five words to explain the officer's actions (for example, the reason for a traffic stop), Truleo flags the interaction as **"high professionalism."** Optionally, agencies can configure Truleo to require that officers also provide an introduction or business card to qualify for this label.

- Second, when an officer refrains from insults, threats, profanity, and force in an encounter with a noncompliant person, Truleo labels the interaction **"high composure."**

According to Truleo's data, only **5**% of interactions qualify as "high professionalism," and **1**% of interactions qualify as "high composure." When an officer has one of these events, the video is added to their supervisor's "highlight" queue. Periodic emails sent to supervisors also identify the highest performing officers.

At the opposite end of the spectrum, for potentially negative interactions, Truleo's system generates a "pending" queue of thirty-second video clips for a supervisor to review.[47] These potentially negative events are detected by Truleo, but the system requires that a human (a supervisor at the agency) verify the label for it to appear in the user interface. At present the pending labels, which flag interactions that supervisors might want to examine more closely, are:

- **Discussion of Force:** Discussion of physical effort to compel compliance with a non-compliant person. (Note that the label focuses on *discussion* because Truleo's labels are based the transcript. Supervisors, in turn, verify the label before it is deemed a use of force.)

- **Impolite Language:** Directed profanity and insults (such as racial slurs) directed at a person or about a person.

Supervisors can verify or remove labels and decide if further action is necessary, such as corrective training. If the supervisor flags an event as requiring follow-up, the event is marked in the patrol officer's "assigned inbox." Over time, in response to customer feedback about the volume of video flagged, Truleo has sought to refine its criteria for flagging videos for supervisors to review. (For example, instances when an officer mutes their BWC no longer automatically requires supervisor review.) At present, average supervisor review time is less than thirty minutes per week.

This is a basic description of how Truleo operates at present, but one inescapable fact of note is that Truleo's platform is constantly evolving. For practicality, we evaluated the

platform as it existed in summer 2024. We have not, therefore, explored new capabilities, such as Truleo's AI-assisted report drafting feature.[48] We nonetheless note those capabilities when possible.

### D. How Truleo is Meant to be Used

Stakeholders at Truleo, as well as agency clients, have identified several uses for the platform.

First, Truleo can identify poor conduct on the part of officers, as part of an agency's risk management strategy and to enhance accountability and public trust. This appears to be the original stated purpose of the platform. In marketing materials accompanying the platform's launch in 2021, the company cited "renewed calls for police accountability and reform" and stated that "Truleo is fully focused on building trust within communities."[49] In the past, company personnel have suggested that a significant number of police-citizen encounters are problematic, and that Truleo can help identify and remedy this.[50] The company has put less emphasis on this use for the platform as of late, apparently in response to external pressures, particularly from police unions.

Second, Truleo can be used to surface positive interactions between officers and community members. According to marketing materials, the platform "highlights [officers'] best moments and gives credit" for good work.[51] Truleo can be used by agencies' public information officers to produce clips for "internal morale boosts and external public education."[52] At present, highlighting positive interactions appears to be Truleo's primary focus in marketing materials, as captured by the company's slogan: "Recognizing Police Professionalism."[53]

Third, Truleo can be used as a training and coaching tool, with a focus on promoting de-escalation and procedural justice in police-community interactions. Company personnel state that Truleo can help train officers on how to deescalate and incentivize them to take these actions in the field by creating live, real-world videos of best (and worst) practices.[54] In so doing, Truleo markets its product as one that can reduce non-compliance by members of the public, leading to better outcomes.[55]

There are additional uses related to those described above. Some police chiefs have reported using the platform to help monitor officer wellness.[56] And, related to the use of Truleo to boost morale, company executives highlighted that a primary goal is to address the problem of low officer retention rates.[57] Truleo's public materials also have emphasized the use of Truleo as a tool for police public information officers.[58]

## PART II: EVALUATING TRULEO ALONG CIVIL LIBERTIES DIMENSIONS

Alongside the research teams evaluating measurable outcomes in departments deploying Truleo, our role has been to evaluate Truleo's platform across various civil liberties and ethical dimensions. In other words, we asked questions about whether Truleo's design, policies, or practices achieve all that is possible in the way of positive benefits, risk undermining potential benefits, or create additional risks.

In this Part, we discuss three potential concerns: In Section A, we focus on the possibility that Truleo's platform might be used for surveillance or criminal investigations. We begin here because this is a leading criticism of BWCs—that the technology has strayed from improving outcomes for members of the public to fighting crime. In Section B, we discuss the possibility that policing agencies, by virtue of being the entire market for this platform, will cause Truleo's platform to stray from its potential to improve policing outcomes. In Section C, we discuss the possibility that Truleo's outputs might be misunderstood and misused—by police or by the public.

We discuss additional issues and best practices in Part III.

### A. Surveillance & Criminal Investigation

A paramount concern with platforms that transcribe and analyze BWC footage is that they will further the use of BWCs as a surveillance or criminal investigative tool. BWC footage contains tremendous amount of data on members of the public—the technology captures their movements, statements made to police, and conversations with one another, among other things. As such, BWCs themselves present serious privacy risks.[59] A platform that analyzes all BWC footage and makes it searchable could prove useful to investigators, but also would amplify these privacy risks.[60]

In our view, AI-powered BWC analytic platforms should be designed in a manner that steers the user away from criminal and investigative purposes, and instead focuses the tool on police training, accountability, and transparency—the original purposes of the technology. Our view does not preclude the use of BWC footage itself for investigative purposes—such as when BWC footage captures relevant evidence of a crime—but rather limits the use of AI to expand BWCs' surveillance and investigative reach.

This is one area in which Truleo's design choices are particularly noteworthy. We see very limited risk that Truleo's platform will be used for criminal investigations or co-opted in other ways that risk the privacy of members of the public.[61] Even prior to our evaluation,

Truleo incorporated privacy-protective measures, such as its focus on analyzing text (not video) and redacting PII by default. (Other vendors do not.[62]) During this evaluation, Truleo took additional steps that made it far less likely that the platform could be used as a surveillance or investigative tool. For example, Truleo now no longer permits customers to disable PII redaction—in other words, PII redaction is automatic and occurs prior to transcript storage, which ensures it cannot be reversed. Further, Truleo no longer allows global search across BWC transcripts.[63] (Again, other vendors do not.[64]) Nor does Truleo output transcripts to administrative logs, disabling any ability for an officer to use admin log searches as an end-run around the global search prohibition. Additionally, in an update made during this assessment, all within-transcript searches run on the Truleo platform are logged and automatically added to administrative logs.

These policy and design choices greatly curtail the possibility that police will use Truleo's product to be used for surveillance or investigative purposes.

### B. Police as the Customer

Rather than build their platform for surveillance or criminal investigations, Truleo has built its platform to improve policing and outcomes for members of the public. This is a laudable goal, one that reorients BWCs toward their original purpose of using BWC to improve the quality of police services delivered to the public.

One potential concern, however, is that this potential benefit to the public will be tempered by the fact that, at the moment, Truleo's only purchasers are the police themselves.

At present, the decision to acquire and deploy Truleo rests with the policing agency. More specifically, it is the head of the policing agency—the chief or sheriff— that decides whether to acquire Truleo and how to use it. Even in jurisdictions in which police executives need city council approval for expenditures, the purchase is police driven.[65] Police executives, in turn, need the buy-in of rank-and-file officers, so they will be influenced by how officers view the platform. Also potentially relevant are the views of police unions and labor associations. Because these associations are concerned primarily with their officers, and not with the greater public, they have on occasion opposed measures designed to impose greater police accountability and transparency via BWCs.[66] Unsurprisingly, therefore, even over Truleo's short history, police labor organizations have chafed at Truleo's potential to identify inappropriate officer conduct. For example, the Seattle Police Department canceled its contract with Truleo under union pressure after the software surfaced video of an officer and union leader disparaging a deadly crash victim.[67] (Today, this decision to cancel the contract is being re-examined.[68]) A similar story appears to have played out with the Vallejo Police

Department, which, according to Truleo leadership, canceled its Truleo contract after the software surfaced unprofessional officer behavior.[69]

This reality—that police chiefs, officers, and labor associations are the primarily influences on whether or not to use Truleo—means that Truleo must cater to a police audience rather than the broader public.[70] And Truleo's product and messaging has shifted over time to minimize pushback from line officers and labor associations. For example, at one time, the company provided explicit notifications to supervisors that identified officers with the greatest rates of potentially negative interactions. Today, however, in part because of union pushback from a few of Truleo's early customers, Truleo no longer provides such automatic notifications. Supervisors still can mine the platform to uncover similar information, but it is not presented to them directly. Another example of how the customer has influenced the product: Truleo's software automatically identifies videos displaying "high professionalism" and "high composure" without human review, but videos displaying "below standard" officer conduct are not automatically identified and instead require human verification for that label to attach.[71]

Market realities also have influenced Truleo's messaging: Early versions of the product's marketing and product design emphasized the product's ability to "identify instances of positive and negative interactions" and "flag problem officers."[72] But Truleo's current messaging often emphasizes potential benefits to police recruitment and morale rather than accountability for poor performance.[73] As just one example, Truleo's website homepage tagline in 2021 was "truth builds trust."[74] Today, that tagline has been replaced by "recognizing police professionalism."[75]

In our conversations, Truleo made the point that there has been no fundamental change in its product strategy. As the company put it to us: "Our brand centers around police professionalism: measuring it, recognizing it, improving it, celebrating it."[76] It acknowledged, however, a shift in messaging "to ensure that the aspects of Truleo that can highlight officers' good track record are front and center."

It is hardly surprising that Truleo focuses on a police (and police union) audience rather than a broader community audience. These are the market conditions in which Truleo operates. As a practical matter, Truleo—like other startups—must cater to the market that exists. Failure to do so will mean the end of the company. And the next company to take its place will not make the same mistake.[77]

At the same time, it must be recognized that many of the changes that make the platform more palatable to police may help change policing on the ground. There is

tremendous value in identifying positive officer interactions. Positive interactions can be an ideal source of training, for example. And there is an abundance of social science literature that demonstrates the benefits of positive reinforcement on behavior change.[78] If modifying its approach to emphasize Truleo's ability to surface positive behaviors results in more police buy-in for its platform, then maybe Truleo's choices end up serving the public by facilitating systematic review of BWC footage rather than the status quo.

One could imagine, however, that under a different regime—one in which police alone did not control the use of BWC footage—Truleo's platform might look different in ways that benefit the public. One example is transparency. We take the view that information about how policing occurs in a community should be shared with that community.[79] After all, police "work for the public[, and in] a democratic system, the members of the public—the electorate—are their bosses. And the bosses have a right to know what is going on."[80] If the public made choices about how to use BWCs and Truleo, one could imagine the development of a Truleo "transparency portal"—a webpage that shows the public how the product operates and what data it is generating about their department.

In today's market, however, in which police choose when and how to make their data public, Truleo could not reasonably mandate such a feature to its agency clients.[81] As we discuss in greater length in Part IV, the public can and should assert greater control over its data in the future.

### C. Potential for Misnomers

The final issue of potential concern we discuss in this Part is the possibility that Truleo's outputs—the interactions it flags as positive and negative—are inaccurate and not used as intended. There are two relevant questions here: First, whether and how well Truleo's labels measure what they purport to measure—essentially a question of construct validity.[82] Second, whether what Truleo measures will be understood properly by police and the public. We consider each question in turn.

To make these issues more concrete, take, for example, the concept of evaluating police "professionalism," which is at the heart of Truleo's platform.[83] Truleo's platform applies the label "High Professionalism" to interactions in which officers provide over 25 words of explanation for their actions and refrain from threatening force, using force, and impolite language.[84] In developing this label definition, Truleo has taken some steps to validate it. For example, Truleo relied on research on procedural justice in which explanation is a key component.[85] (Though the company acknowledges explanation is only one component of procedural justice among several, it was selected because it was the most plausible to measure

effectively from audio transcripts alone.) The company also has conducted small case studies of a couple agencies using Truleo that confirm that officers who received the highly professional label also had lower rates of members of the public failing to comply with the officer's instructions.[86]

But there also are obvious limitations to defining professionalism using such narrow criteria. It is certainly true that police interactions in which the officer fails to explain their actions or in which the officers use profanity and threats of force are not the gold standard. But fair and professional encounters with police require more.[87] The procedural justice literature, for example, cites four essential components: "citizen participation (or voice), fairness and neutrality, dignity and respect, and trustworthy motives."[88] So to deem an encounter "procedurally just," one would expect to see additional qualities such as giving citizens an opportunity to express their views during an encounter and ensuring citizens feel heard.[89] And these metrics only measure professionalism in terms of procedures. "Professionalism" has other aspects as well.

It is not difficult to imagine a traffic stop, for example, in which officers use polite words, provide an explanation, and refrain from force and profanity, but that nonetheless is motivated by suspicious reasons or leaves the citizen feeling not respected. Take, for example, the traffic stop of Orlando State Attorney Aramis Ayala in 2017.[90] The officer who pulled over State Attorney Ayala, who is Black, explained that he made the stop after running her license plate (of a government issued vehicle) and receiving no result. The officer adds: "Also, the windows are really dark. I don't have a tint measurer, but that's another reason for the stop." The officer's demeanor during the stop was not disrespectful, suggesting that the interaction may well receive a "Highly Professional" label under Truleo's model. But is this type of policing we want?[91] As Charles Epp and fellow authors observe, "the claim that people will view police stops as legitimate if the officers are polite and respectful has allowed the widespread stopping of racial minorities to fester."[92] For many African Americans, it does not matter how polite the police officer was during a police stop: "Politeness could not convert an otherwise offensive police stop into a legitimate one."[93]

Of course, it is important to remember that Truleo's labels are not the last word. The fact that its model labels an interaction "Highly Professional" is not meant to be a final conclusion, but merely a sorting mechanism for supervisors to more quickly assess the troves of BWC footage at their disposal. Upon reviewing an encounter labeled Highly Professional, a supervisor is free to override and adjust that label assignment based on the supervisor's review of the actual BWC footage (which Truleo's platform makes readily available).

But this brings us to our second issue: how will the people who interact with Truleo

understand and make use of its output? We imagine Truleo's labels—particularly positive ones like "Highly Professional"—are quite sticky, which is to say once some conduct is labeled highly professional the chance is it will be recognized as such. It is made even stickier by Truleo's product choice to generate automatically the Highly Professional label without requiring human verification. It strikes us as unlikely that supervisors routinely review and downgrade these labels. And the flip side likely is also true—that given a supervisor's time constraints, they are unlikely to review interactions not labeled "Highly Professional" to upgrade them. As a result, we expect that Truleo's estimates of professionalism will carry substantial weight.

The likely weight of Truleo's labels is a double-edged sword. On the one hand, if officers strive to improve their behavior to earn Truleo's labels—for example, by providing explanations and minimizing profane language—this strikes us as very positive. As explained to us by Truleo, even with the current definition of "High Professionalism," "the number of interactions labeled high professionalism across our departments on Truleo ranges from less than 1% to 7.5%." Across Truleo users, less than one third of officers have had a "highly professional" interaction on Truleo. These are startling figures, and if use of Truleo improves them, that is certainly worthwhile.

On the other hand, Truleo's customers may present their "professionalism" scores as scientific indications of the quality of their policing. For example, following a report and press release put out by Truleo based on an examination of data from the Patterson, New Jersey police department, a news outlet described a supposed "337% increase in officer professionalism."[94] In a case study of the Alameda Police Department, Truleo reported that "99% of interactions were at a standard or high professionalism level."[95] These figures are meaningful only if one truly understands Truleo's products and labels and their limitations; absent a deep understanding of what Truleo is—and is not—actually measuring, there is a potential for misnomer: that police or communities will make more of this data than warranted.

There is no foolproof answer to this potential for misnomer. But there are some steps vendors can take when developing labels that attempt to classify human behavior for which there is no single ground truth:

1. Labels should be as evidence-based and objective as possible.

2. Labels should be validated in development and in real-world contexts. For example, Truleo could validate its professionalism label by having supervisors and community members from representative agencies

manually score a statistically meaningful number of hours of video clips and then compare the supervisors' manual scores for escalation examples to Truleo's automated labels. (We are told that this is in progress as part of an independent evaluation led by Dr. Geoff Alpert.[96])

3. The label definition and evaluation steps should be transparent to users and the public. (Truleo, for example, includes label definitions on a public website.[97])

4. Users should be trained to understand that these labels are meant to surface potential behaviors, not make ultimate judgments or decisions on these behaviors that, for example, determine personnel actions.

5. User training should also include education on cognitive biases that can impact human review of AI output, such as automation bias, in which humans over-trust machine output.[98]

In short, there is tremendous potential in AI analysis of BWC footage. But particularly because the technology is nascent, vendors and customers should take great care to ensure that all involved, including the public, have a clear understanding of what these platforms do and their limitations.

## PART III: ADDITIONAL BEST PRACTICES

This Part offers our view on additional best practices regarding BWC analytic platforms. Some of the recommendations are specific to technology vendors, while others are directed to any community that is considering adopting Truleo or any AI-powered BWC analytics software.[99]

### A. BWC analytic platforms intended to evaluate or impact officer behavior should be independently tested as to any claimed benefits.

Any assessment of a technology to be purchased with public dollars must begin with an evaluation of the purported benefits. To do this, one must start by clearly defining the problem the technology purports to solve—that is, precisely how it purports to improve policing outcomes.[100] From that point, empirical testing is key—the question is whether there is independent evidence that the technology achieves the desired outcomes, and whether that testing was conducted under conditions sufficient to expect a similar outcome in real-world contexts.

In this case, Truleo has taken the important step of participating in multiple assessments of the impact of its technology.[101] The outcomes of these evaluations are critical. But as we explain above, the purported benefits of Truleo have evolved over time. Early conceptions of the product saw it as focused primarily on ferreting out inappropriate police behavior and highly professional interactions, which suggests metrics like public complaints and uses of force might be appropriate metrics to evaluate Truleo's impact. More recently, Truleo has begun advertising its benefits for police morale, recruitment, and retention. Evaluating these purported benefits would require a different set of metrics.

In short, jurisdictions considering adopting a platform such as Truleo should insist on rigorous evaluation of the vendor's claims before proceeding with procurement, carried out by an entity other than the vendor. And all vendors should take meaningful steps to facilitate such evaluation.

### B. BWC analytic platforms should not be acquired or used without democratic authorization, whether through an open procurement bid process or otherwise.

Before policing agencies purchase products that can have a substantial impact on the public, there should first be democratic authorization. Whether to deploy a tool that might

impact rights and public safety is a substantial policy question for the people's elected representatives to decide. At a minimum, there should be an opportunity for public input and debate before the agency moves forward. Yet, in practice, this does not always occur.[102] And when police obtain and use technology without permission or transparency, there can be backlash. This undermines public trust and sometimes ends up depriving police of a tool that but for the backlash might have furthered community safety.[103]

There is no good reason for police not to be transparent about the fact that they are using a BWC analytics tool. Technology vendors could play a role here as well. As a company, Truleo could, in theory, refuse to sell to any policing agency that fails to comply with this recommendation. We suggested as much to Truleo and although the company agreed with the principle, it was reluctant to impose obligations on its potential customers.

Again, it is easy to understand the market forces that push toward these positions. A vendor that insists on transparency and public accountability around the use of its products may perceive itself at a disadvantage relative to other vendors who have no such requirements. A case in point is Axon's Evidence.com platform which, as discussed, houses most of the country's BWC footage. When Axon pushed new body-worn camera analytics to the Evidence.com platform, it did not require democratic authorization or even public notification of this fact.[104] It is unsurprising that a company like Truleo would hesitate to implement a democratic authorization requirement that was not followed by its competitors.

Of course, jurisdictions need not wait for companies to implement a democratic authorization requirement—they can and should require public accountability before the decision is made to deploy a tool like Truleo. Policymakers should vet an agency's plans to deploy this technology, with ample time for public notice and input.

### C. BWC analytic platforms should be transparent in their design and operation and should promote transparency in police interactions with the public.

Democratic approval is imperative, but so is ongoing transparency with communities and policymakers. In our view, the obligation to be transparent falls on both the vendor and the policing agency.

Vendors, at a minimum, should be open with the public about how their platforms work. Truleo, for example, makes its labels and their definitions public.[105] The company is working on developing public-facing materials, such as videos, that provide accurate and simple information on how the platform operates, including definitions of its less obvious

labels. Public transparency should also extend to information about how the company developed its AI models (the training data it used), and how it validated its outputs—information that could prove useful in evaluating the tool. Companies that are unwilling to exercise this sort of transparency risk promoting lack of transparency by their policing customers.

Policing agencies, in turn, should disclose even more information than vendors can on their own. First, the agencies could (and should) develop, implement, and make public a use policy that explains how officers and supervisors are to use the platform. Second, policing agencies should make public at least aggregate data gleaned from their use of the platform. Such aggregate data could include the number of various enforcement actions (e.g., stops, frisks), data on the quality of policing (e.g., "highly professional" encounters), and so on.[106] This practice of public data sharing is already nearly universal with crime data,[107] and increasingly common with respect to stop data.[108] Data produced by Truleo should be no different. And vendors such as Truleo should create features enabling agencies to easily share this information with the public.

To this end, should policymakers authorize an agency to use Truleo or similar platform, they should set rules around what information must be made public and in what manner.

### D. BWC analytic platforms should be made more widely available among prosecutors, defense attorneys, and other participants in the criminal process.

Police are not the only actor in the criminal process that could benefit from a platform like Truleo's. Processing the tremendous volume of BWC footage produced by policing agencies is a consistent problem for prosecutors and defense attorneys. It stands to reason, therefore, that those actors might benefit from transcription software. JusticeText, for example, is an AI-powered platform that transcribes BWC footage for public defenders, seeking to address the massive resource gap that indigent defense services face in this country.[109] Where they exist, civilian oversight agencies might also benefit from a platform that facilitates review of BWC footage.[110] But sales to these sorts of entities are largely non-existent.

Policymakers could address this disparity by requiring, at the time of purchase, that BWC analytics platforms adopted by police also be made available to prosecutors, public defense offices, and oversight entities in the jurisdiction. This does not mean that all footage must be made equally available—footage might be made available with an appropriate authorization from the court or via statutory mandate—but non-police entities should not be

at a technological disadvantage when it comes to review BWC footage.

### E. BWC analytic platforms must implement guardrails, so BWC footage is not used for surveillance or criminal investigation.

As discussed above, BWCs have strayed from their original purpose of providing accountability and improving police services, to a technology that seems primarily geared toward criminal investigations. This was not the purpose for which communities adopted the technology. It is unsurprising, therefore, that when these tools were first adopted, few jurisdictions set rules around how agencies could use BWCs for surveillance and investigation purposes. And few jurisdictions have set such rules in the intervening years.

It is long past time for policymakers to regulate how BWCs can be used in this capacity, including the use of analytics. Although a full exploration of this topic is beyond the scope of this report, it is enough to say that regulation should take a risk-based approach. This includes the possibility of a full prohibition on BWC analytics presenting an outsize risk to privacy, equity, and other values—such as BWCs with real-time face recognition capabilities.

### F. BWC analytic platforms must implement guardrails to protect officer privacy.

Over the last decade of widespread BWC use, state laws and police department policies have incorporated a range of protections for officers. These policies are designed, in part, to make the cameras less objectionable to officers. Some of these protections arguably go too far—such as when officers are permitted to view BWC camera footage prior to making a statement during investigations of alleged misconduct. Other protections are privacy focused, such as permitting officers to de-activate the camera during personal moments.[111]

Because BWC analytic platforms increase the amount of BWC footage reviewed by a person, officer privacy protections are a relevant consideration. Policing agencies should be transparent when using BWC analytics, making clear to officers the purpose of the tool, the information it will analyze, and the sorts of judgments it (with supervisor review) will make (e.g., identifying professionalism).

Vendors can, and should, construct their platforms to protect officer privacy as well. Truleo does well on this front.[112] Although the platform relies on audio analysis, it "does not identify or authenticate individuals based on their voice."[113] The platform also stores officer PII separately from audio analysis and the platform does not analyze videos marked as confidential by authorized users within the agency's evidence management system.[114]

## PART IV: REIMAGINING THE ROLE OF BWC FOOTAGE

By transcribing and annotating every recorded police encounter, Truleo and platforms like it can help begin to unlock perhaps the greatest untapped reservoir of data about policing in our country. In fact, to us it seems a huge waste for communities to pay for body-worn cameras, and to ignore the insights this data might offer. But to capture this full potential, we must rethink traditional notions of who owns BWC footage. As we describe in more detail below, we believe these data should be treated as "civic data," owned by the public, not by the police. And as civic data we believe that—with due respect to concerns such as officer privacy—that data should be made far more widely available.

### A. The Potential & The Status Quo

BWC footage is the most abundant potential source of data on policing. The possibilities of what we might learn from this data is essentially limitless. The footage could provide insights into specific types of police encounters; for example, it could tell us how often police make traffic and pedestrian stops and how often they use force. (Some jurisdictions have enacted legislation, such as New York's "How Many Stops Act," that require police to collect this information. [115]) The footage also can offer a window on the challenges police officers face daily in their encounters. The data might help us better understand what sorts of calls are better suited for a non-police response. Used well, the footage could be an invaluable training resource for police and alternative responders both.

Academic researchers working with departments have unlocked a trove of insights from even relatively small sets of BWC footage.[116] For example, using a combination of computational linguistics and manual coding to review footage from the Oakland Police Department, researchers investigated the impact of procedural justice training on police officers' communication during traffic stops.[117] This study revealed that officers significantly increased their use of recommended techniques after the training.[118] Officers were more likely to engage in respectful behaviors, such as expressing concern for driver safety, offering reassurance, and clearly stating the reason for the stop.[119] Other studies have used BWC footage to examine levels of respect shown by officers during encounters with the public and found clear racial disparities.[120] Another study investigated a Pacific Northwest police agency's BWC footage to better understand use of force incidents.[121] Researchers were able to develop a more in-depth picture of how use of force occurs by identifying what static, situational, and dynamic factors contextualize and influence those incidents.[122] As these examples indicate, BWC footage has the capacity to teach and inform police, communities, policymakers, academic researchers, and many others. And yet, these examples are few and far between.

One key source of this failure is that heretofore BWC footage has been presumed to be the property of policing agencies, to use (or not) as they wish. Policing agencies often decide when the footage will be released after an incident that garners public attention. More important for present purposes, policing agencies have controlled whether and when footage is used for research purposes, or for products like Truleo. A few policing agencies—Oakland, Dallas, Newark—are admirable examples of openness to research about policing—but for the most part, this valuable cache of material sits unused on digital storage servers.

Our engagement with Truleo reflected this reality on multiple occasions. For example, in response to our suggestion that Truleo's customers display their data on a transparency portal, Truleo noted: "Since ultimately we don't own their data, the decision to share it is with the department."[123] In response to our suggestion that Truleo's platform be made accessible to non-policing agencies, Truleo again responded: "Since the data is ultimately owned by the police department, TRULEO itself has no ability to legally provide the data to other parties."[124]

Truleo is right—tech vendors do not own BWC data, which means that they cannot decide how the footage is used. Of course, an implication of this is that customers should give informed consent before vendors use their data for commercial purposes, such as training their AI models. But saying the vendor does not own BWC data is not the same as saying the policing agency does (or should).

The typical BWC contract vests ownership of the footage in the municipality that signs the purchase agreement. Take, for example, Axon's terms of service. Axon is the nation's leading provider of body-worn cameras; its customers also typically store their BWC footage in Axon's cloud service, Evidence.com. In its terms of sale, Axon makes clear that the customer owns all content data.[125] Axon typically executes its sales contracts with the municipal government that operates the police department—for example, the City of San Diego is the customer, not the San Diego Police Department.[126]

Even if policing agencies do not technically own BWC footage, they still functionally control it. As a general rule, policing agencies have "the power to decide what is recorded, who can see it and when."[127] Police unions have a role here as well; some collective bargaining agreements require police to be permitted to review BWC footage before a post-incident investigation.[128] Under this state of affairs, police effectively control whether the public has access to the insights hidden away in BWC footage.

### B. BWC Data as Civic Data

For our enormous national investment in BWCs to pay off, a different path forward

is necessary. BWC footage should be treated as "civic" data—data that is owned and controlled not by the police, but by the public. This would reflect the enormous public investments in the technology. It also would reflect that members of the public are, along with the police, captured in the footage daily. And perhaps most importantly, it would reflect that police are public servants.

The ownership aspects of civic data surfaced in a proposed experimental digital neighborhood in Toronto. Sidewalk Labs, a subsidiary of Google's parent company, Alphabet, proposed to develop part of the Toronto waterfront called Quayside in a way that would generate enormous amounts of data. Refrigerators would know when occupants were absent for a period and adjust temperatures accordingly. Awnings would open and close with the weather. Trash would know when it needed to be taken out. And all the data accompanying this digital wonder (or nightmare, depending on one's perspective) would be recorded. Residents of Toronto understandably were suspicious of a commercial company owning and retaining all their data and opposed the development of Quayside.

During the fight over Quayside, Sidewalk Labs conceded an important point that is equally apt to the question of how BWC footage is used. Sidewalk argued that "[u]rban data is different from other data" because "[i]ndividual consent is hard to achieve . . . unlike when individuals provide data in more traditional contexts."[129] Today, many contest that tech companies own the data individuals provide when they use commercial apps. But putting that debate aside, Sidewalk had an important point: civic data *is* different, in that in the aggregate *no one* has any basis to lay claim to owning it. As Sidewalk acknowledged, the data "could reasonably be considered a public asset."[130]

Treating BWC footage as a public asset would permit communities—if they choose—to make the footage more broadly available. For example, communities might choose, under the right terms and conditions of course, to make footage available to a variety of researchers, independent auditors and monitors, oversight entities, and policymakers to better understanding exactly what policing looks like—from how difficult a police officer's job can be and the challenges they face in encounters with members of the public to what alternative public safety approaches might work best.

Treating BWC footage as civic data also would facilitate sharing with other participants in the criminal system. It seems obvious that BWC footage should be available to both parties in criminal litigation. Police and prosecutors have free access to BWC footage.[131] The same should be true of defense counsel.[132] This should extend beyond individual incidents that are the subject of criminal prosecution to any other incidents that may bear upon the credibility of officers involved.

Individual communities might even want to combine their BWC footage (like police do with crime data) to permit broader insights about policing and public safety. As noted above, researchers already have learned important lessons from one-off agreements with individual departments. It is hard to imagine that there is not more to learn. In fact, the National AI Advisory Committee's subcommittee on law enforcement recently proposed the creation of statewide BWC databases for this very purpose.

Finally, communities might even choose, under certain conditions, to make their footage available for commercial product development. Truleo, for example, developed its model using publicly available footage, and it created a product that does indeed promise societal benefits.[133] But other developers may have other ideas, and in a free-market society the public may benefit from those ideas if they come to fruition.

Of course, in making BWC footage available, it is essential to protect the rights of both officers and members of the public captured on such footage. Police officers are somewhat unique in that their every move may be captured by audio and sometimes video. Their unique role as public guardians may justify this. Still, they retain their rights to a certain amount of privacy and any release of BWC footage must be done in a way that respects this interest. The same is true of members of the public caught on footage.

Although getting the most from BWC footage will not be without its challenges, one way of meeting them is through what is known as a "data trust."[134] During the pandemic and in the face of opposition, Sidewalk Labs abandoned the Toronto project, but not before suggesting a solution to the data issue that since has attracted scholarly attention and actual experimentation including in Silicon Valley.[135] The idea was the creation of a "data trust" as a means of providing access to the data collected by Sidewalk available not only to the company, but to the government of Toronto as well as researchers.

A data trust is what it sounds like, a means of holding data in a trustworthy way and making it available to those entitled to access. One of the most notable aspects of a data trust is that the nature of access may not be the same for all those entitled to have access. To take BWC footage as our example, policing agencies might have full access. Companies like Truleo might also have full access, but under agreements about what can or cannot be done with the data. Researchers might get access only to audio transcript, keeping officer and public identities confidential. A small subset of the footage might be put in a "sandbox,"—a controlled environment—so that developers could work on novel projects.

Ultimately, the challenges with this approach are not technical, they are legal and

political. Will legislatures, in conjunction with the communities they serve, construct data trusts or other legal mechanisms to make this public resource as valuable as it could be, for the general good? Will the legislature implement strict, enforceable controls to prevent abuse? We hope so, because failure to do so will mean that we will continue to fail to realize the true potential of body worn cameras.

## CONCLUSION

The future of body-worn cameras lies in the hands of policymakers. Rather than leaving the use and regulation of this powerful technology in the hands of police departments alone, legislators must step in to ensure body-worn camera footage is utilized to its full potential as a public resource. By treating body-worn camera data as "civic data" owned by the public, not the police, policymakers can open this trove of information to independent oversight, academic research, and community transparency. Establishing data trusts or other legal mechanisms to responsibly govern access to body-worn camera footage will allow communities to realize the full benefits of this technology—improving police accountability, enhancing training, and informing public safety approaches.

The creation of platforms like Truleo make these matters all the more pressing. AI-powered automated review of body-worn camera footage will upend the way this footage is utilized, making it possible to gather insights from vast quantities of footage that would otherwise never be reviewed. Absent regulation and the attention of policymakers, however, this new capability risks furthering the current path of body-worn cameras as another investigative and surveillance tool, rather than one focused on building trust and transparency between police and the public. Proactive policymaking is essential to align this emerging technology with the public interest. By seizing this opportunity, legislators can help shift body-worn cameras toward the transformative tool for modern public safety they were promised to be. The stakes are high, and so too are the potential rewards.

## ENDNOTES

*(Sources on file with authors)*

[1] *See* Frank Borelli, *How the Body Camera Has Changed*, OFFICER (Feb. 21, 2020), https://www.officer.com/on-the-street/body-cameras/article/21120016/how-the-body-worn-camera-has-changed-in-law-enforcement (last visited Nov 7, 2024); Ben Miller, *Data Pinpoints the Moment When Police Body Cameras Took Off*, GOVTECH (Jan. 4, 2019), https://www.govtech.com/data/Data-Pinpoints-the-Moment-When-Police-Body-Cameras-Took-Off.html (last visited Nov 7, 2024).

[2] *See* Nedra Pickler, *Obama Proposes Body-Worn Cameras for Police*, PBS NEWS (Dec. 1, 2014), https://www.pbs.org/newshour/nation/obama-proposes-body-worn-cameras-police; David Hudson, *Building Trust Between Communities and Local Police* (Dec. 1, 2014), https://obamawhitehouse.archives.gov/blog/2014/12/01/building-trust-between-communities-and-local-police; *see also Justice Department Awards over $23 Million in Funding for Body Worn Camera Pilot Program to Support Law Enforcement Agencies in 32 States*, U.S. DEP'T OF JUSTICE (Sept. 21, 2015), https://www.justice.gov/opa/pr/justice-department-awards-over-23-million-funding-body-worn-camera-pilot-program-support-law.

[3] Congress has allocated at least $250 million for matching grants for state, local, and tribal law enforcement. *See, e.g.*, Consolidated Appropriations Act, 2024, Pub. L. No. 118-42, 138 Stat. 25. (2024) ($32,000,000); Consolidated Appropriations Act, 2023, Pub. L. No. 117-328, 136 Stat. 4459 (2022) ($35,000,000); Consolidated Appropriations Act, 2022, Pub. L. No. 117-103, 136 Stat. 49 (2022) ($35,000,000); Consolidated Appropriations Act, 2021, Pub. L. No. 116-260, 134 Stat. 1182 (2020) ($35,000,000); Consolidated Appropriations Act, 2020, Pub. L. No. 116-93, 133 Stat. 2317 (2019) ($22,500,000); Consolidated Appropriations Act, 2019, Pub. L. No. 116-6, 133 Stat. 13 (2019) ($22,500,000); Consolidated Appropriations Act, 2018, Pub. L. No. 115-141, 132 Stat. 348 (2018) ($22,500,000); Consolidated Appropriations Act, 2017, Pub. L. No. 115-31, 131 Stat. 135 (2017) ($22,500,000); Consolidated Appropriations Act, 2016, Pub. L. No. 114-113, 129 Stat. 2242 (2015) ($22,500,000).

In fact, the federal government spends more than a billion dollars annually to support state and local policing. Barry Friedman et al., *The Federal Government's Role in Local Policing*, 109 VA. L. REV. 1527, 1597–98 (2023).

[4] SEAN E. GOODISON & CONNOR BROOKS, DOJ, BUREAU OF JUST. STAT., LOCAL POLICE DEPARTMENTS, PROCEDURES, POLICIES, AND TECHNOLOGY, 2020 – STATISTICAL TABLES (2023).

[5] *Id.*

[6] *See Research on Body-Worn Cameras and Law Enforcement*, NAT'L INST. OF JUST. (Jan. 7, 2022), https://nij.ojp.gov/topics/articles/research-body-worn-cameras-and-law-enforcement.

[7] GOODISON, *supra* note 7.

[8] POLICE EXEC. RSCH. F., BODY-WORN CAMERAS A DECADE LATER: WHAT WE KNOW, 35 (2023), https://www.policeforum.org/assets/BWCdecadelater.pdf.

[9] CITY OF DALL. OFF. OF THE CITY AUDITOR, AUDIT OF DALLAS POLICE DEPARTMENT BODY WORN AND IN CAR CAMERA OPERATIONS (2024), https://dallascityhall.com/departments/auditor/DCH Documents/FINAL REPORT - Dallas Police Department Body Worn and In Car Camera Operations.pdf.

[10] *See* Umar Farooq, *Police Departments Are Turning to AI to Sift Through Millions of Hours of Unreviewed Body-Cam Footage*, PROPUBLICA (Feb. 2, 2024), https://www.propublica.org/article/police-body-cameras-video-ai-law-enforcement.

[11] These purposes include enhancing law enforcement transparency and accountability, thus building public trust. *See* OFF. OF THE INSPECTOR GEN., U.S. DEP'T OF JUST., AUDIT OF THE DEPARTMENT OF JUSTICE POLICY ON BODY WORN CAMERAS (2021), https://oig.justice.gov/sites/default/files/reports/21-085.pdf.

[12] POLICE EXEC. RSCH. F., *supra* note 11 at 12.

Overall, the evidence regarding whether BWCs reduce police use of force is mixed. Cynthia Lum et al., *Body-worn Cameras' Effects on Police Officers and Citizen Behavior: A Systematic Review*, 16 CAMPBELL SYSTEMATIC REVS. e1112 (2020) (finding "additional support for the idea that cameras may affect a number of policing outcomes

that are important from a social welfare perspective, particularly police use of force"); Janne E. Gaub & Michael D. White, *Open to Interpretation: Confronting the Challenges of Understanding the Current State of Body-Worn Camera Research*, 45 AM. J. CRIM. JUST. 899 (2020); Aili Malm, *Promise of Police Body-Worn Cameras*, 18 CRIMINOLOGY & PUB. POL'Y 119 (2019).

Studies conducted in Washington D.C., New York City, and Milwaukee, as well as a multi-site evaluation of eight agencies in the U.S. and U.K., found that body-worn cameras were not associated with a decrease in use-of-force incidents or citizen complaints. *See Research on Body-Worn Cameras and Law Enforcement*, NAT'L INST. OF JUST. (2022), https://nij.ojp.gov/topics/articles/research-body-worn-cameras-and-law-enforcement (last visited Nov 7, 2024). On the other hand, studies conducted in Boston, Las Vegas, Phoenix, and Birmingham, UK, found that body-worn cameras were associated with a decrease in use-of-force incidents, citizen complaints, or both. *See id.*

Regarding citizen complaints, *see* POLICE EXEC. RSCH. F., *supra* note 11 at 11 ("A key unanswered question, however, is whether complaints went down because officers behaved better in interacting with citizens or because citizens filed fewer unfounded complaints since they knew the interaction was recorded.").

[13] *See Body-Worn Camera Laws Database*, NAT'L CONF. STATE LEG. (2021), https://www.ncsl.org/civil-and-criminal-justice/body-worn-camera-laws-database (last visited Nov 7, 2024); *See also* Wouter Zwart, *Slow Your Roll out of Body-Worn Cameras: Privacy Concerns and the Tension between Transparency and Surveillance in Arizona*, 60 ARIZ. L. REV. 783, 805–807 (2018) (explaining that in Arizona police departments have discretion whether to release public records, which can weigh both for and against transparency and privacy).

[14] POLICE EXEC. RSCH. F., *supra* note 11 at 34 ("PERF reviewed 127 BWC policies and found only 14 percent of them specifically referred to the release of BWC video footage pursuant to critical incidents.").

An exception is Chicago. *See* Eric Umansky, *How Chicago Became an Unlikely Leader in Body-Camera Transparency*, PROPUBLICA (Jan. 23, 2024), https://www.propublica.org/article/how-chicago-became-leader-body-camera-transparency-police.

[15] For a recent example, see stop of Tyreek Hill by Miami-Dade Police Department. *See* Sara Sidner et al., *Police Release Video of NFL Star Tyreek Hill Being Detained after Traffic Stop on the Way to the Stadium*, CNN (Sep. 9, 2024), https://www.cnn.com/2024/09/09/sport/tyreek-hill-detaining-drew-rosenhaus-dolphins-spt-intl/index.html.

[16] *See, e.g.*, Jamiles Lartey, *Policing the Police: A Week of Racism, Abuse and Misconduct*, MARSHALL PROJECT (Nov. 19, 2022), https://www.themarshallproject.org/2022/11/19/policing-the-police-a-week-of-racism-abuse-and-misconduct (last visited Dec 21, 2023); Umar Farooq, *Police Departments Are Turning to AI to Sift Through Millions of Hours of Unreviewed Body-Cam Footage*, PROPUBLICA (Feb. 2, 2024), https://www.propublica.org/article/police-body-cameras-video-ai-law-enforcement; Eric Umansky, *The Failed Promise of Police Body Cameras*, N.Y. TIMES (Dec. 14, 2023), https://www.nytimes.com/2023/12/13/magazine/police-body-cameras-miguel-richards.html ("The reporting reveals that without further intervention from city, state and federal officials and lawmakers, body cameras may do more to serve police interests than those of the public they are sworn to protect.").

[17] POLICE EXEC. RSCH. F., *supra* note 11 at 21–22.

[18] On the use of BWCs as an investigative tool, *see* OFF. OF THE INSPECTOR GEN., U.S. DEP'T OF JUST., *supra* note 14 (noting that BWCs can provide protection for officers from being falsely accused of wrongdoing, thereby potentially reducing agency liability, and improve the quality of evidence collected during law enforcement operations).

Numerous scholars and practitioners have lamented this shift in the use of BWCs. *See, e.g.*, Woodrow Hartzog, *Body Cameras and the Path to Redeem Privacy Law*, 96 N.C. L. REV. 1257 (2017), *and* CONST. PROJECT COMM. ON POLICING REFORMS, GUIDELINES FOR THE USE OF BODY-WORN CAMERAS BY LAW ENFORCEMENT 17 (2020), https://www.pogo.org/reports/guidelines-for-the-use-of-body-worn-cameras-by-law-enforcement.

On the privacy implications of BWCs, *see, e.g.*, Michael D. White & Henry F. Fradella, *The Intersection of Law, Policy, and Police Body Worn Cameras: An Exploration of Critical Issues*, 96 N.C. L. REV. 1579, 161–17 (2017) (noting that BWCs might run afoul of laws that prohibit recording conversations where a speaker expects privacy, such as when interviewing victims of certain crimes [particularly sex crimes and domestic violence] or speaking with people in health care facilities); Richard Lin, *Police Body Worn Cameras and Privacy: Retaining Benefits While Reducing Public Concerns*, 14 DUKE L. & TECH. REV. 346, 353–54 (2015) (arguing that even if officers have a warrant, the

disclosable and easily distributable video turns the privileged entry of a couple of officers into a "ride-along for thousands of watchers who may view the released video in the future."); Zwart, *supra* note 16 at 798–801 (explaining that BWCs can transform a plain-view search into a more invasive search).

Some criticize BWC's evidentiary use, arguing they make skew outcomes because of the limits of the technology (for example, by offering an incomplete perspective of events). *See, e.g.*, Mitch Zamoff, *Assessing the Impact of Police Body Camera Evidence on the Litigation of Excessive Force Cases*, 54 GA. L. REV. 1 (2019); Zwart, *supra* note 16 at 795–98.

[19] *See, e.g.*, Julian R. Murphy, *Chilling: The Constitutional Implications of Body-Worn Cameras and Facial Recognition Technology at Public Protests*, 75 WASH. & LEE L. REV. ONLINE 1, 11–12 (2018); Katelyn Ringrose, *Law Enforcement's Pairing of Facial Recognition Technology with Body-Worn Cameras Escalates Privacy Concerns*, 105 VA. L. REV. ONLINE 57, 61–63 (2019). *See also* Lin, *supra* note 21 at 354–55 (explaining that facial recognition, GPS tracking, and a database of BWC footage may eventually create a system like ALPRs that allow the government to monitor and track individuals).

[20] Some have also attributed this failure to a lack of transparency and oversight regarding body-worn camera footage. *See* Umansky, *supra* note 19.

[21] The term "AI" is used to refer to a wide range of technologies. The form of AI most relevant to Truleo is "natural language processing" (NLP), which allows machines to understand and process human language. *See* Ross Gruetzemacher, *The Power of Natural Language Processing*, HARVARD BUS. REV. (Apr. 19, 2022), https://hbr.org/2022/04/the-power-of-natural-language-processing. NLP is a key component of the now ubiquitous large language models (LLMs) —such as Open AI's Chat GPT — which can analyze vast amounts of text and generate text in response to specific questions or prompts. *See* Adam Zewe, *Explained: Generative AI*, MIT NEWS (Nov. 9, 2023), https://news.mit.edu/2023/explained-generative-ai-1109.

[22] *See TrustStat*, POLIS, https://www.polis-solutions.ai/services/truststat (last visited Sept. 13, 2024).

[23] *See* JUSTICETEXT, https://justicetext.com/ (last visited Nov 7, 2024).

[24] The authors are grateful to additional members of the research team, in particular, Katie Kinsey, Chief of Staff, Policing Project, New York University School of Law.

[25] *See infra* Part I.B. Like the efficacy evaluation of Truleo discussed *infra*, notes 38–39, this evaluation was supported by funding from Arnold Ventures.

[26] The Baltimore Police Department's Performance Review Board, is one example. *See* BALT. POLICE DEP'T, PERFORMANCE REVIEW BOARD POLICY 724, (2022), https://www.baltimorepolice.org/transparency/bpd-policies/724-performance-review-board-0.

[27] Eric Umansky, *The NYPD Isn't Giving Critical Bodycam Footage to Officials Investigating Alleged Abuse*, PROPUBLICA (Jul. 3, 2020), https://www.propublica.org/article/the-nypd-isnt-giving-critical-bodycam-footage-to-officials-investigating-alleged-abuse. *See e.g.*, Richard A. Oppel Jr. & Kim Barker, *New Transcripts Detail Last Moments for George Floyd*, N.Y. TIMES (Jul. 8, 2020), https://www.nytimes.com/2020/07/08/us/george-floyd-body-camera-transcripts.html; *see supra* note 30 (describing Chicago's system of external review of BWC footage following critical incidents).

[28] John McCluskey et al., *The Evidentiary Value of Body-Worn Camera Footage: A Survey of Prosecutors and Public Defenders* (2019), https://bwctta.com/sites/default/files/Files/Resources/Evidentiary%20Value%20of%20BWC%20Footage_FINAL_0.pdf

[29] Minnesota is a major exception, requiring bi-annual independent audits, but these audits are focused more with compliance with the law and not reviewing the bulk of unreviewed officer interactions. *See Body Camera Data*, MINNESOTA DATA PRACTICES OFFICE, https://mn.gov/admin/data-practices/data/types/body-camera/ ("Law enforcement agencies that use body-worn cameras are required to conduct biennial independent audits of the data to determine whether data are appropriately classified according to this section, how the data are used, and whether the data are destroyed as required under this section, and to verify compliance with the law. Law enforcement must forward a report summarizing the results of the audit to the governing body within the jurisdiction and to the Legislative Commission on Data Practices and Personal Data Privacy.").

Another jurisdiction that by law reviews random internal review of BWC footage is Montgomery County, Maryland. POLICE EXEC. RSCH. F., *supra* note 11 at 19–20 (describing county law in Montgomery County,

Maryland which "mandates review of a statistically valid sample of [BWC captured] incidents to address: 1) compliance with BWC policy and law; 2) employee performance; and 3) consistency between BWC footage and the incident report. The department is required to report the results to the county council and notify the union of whom it audited and how many audits it conducted.").

[30] *See, e.g.*, CITY OF DURHAM AUDIT SERVS. DEP'T, *Police Body-Worn Camera Performance Audit*, 15 (2021) ("General Order 4083-R2 states that, "On a monthly basis, a random review of officers' body-worn cameras will include"); CITY OF DALL. OFF. OF THE CITY AUDITOR, *supra* note 12 (The Dallas Police Department lacks a robust formalized review process to ensure that body worn and in car camera operations footage are categorized appropriately. While department supervisors perform a monthly audit for two random body worn camera operations footages, categorization is not clearly defined in the department's general orders and could impact the accuracy of categorization. In addition, the random audit performed does not cover the review of in car camera operations footage.); CITY OF CHI. OFF. OF INSPECTOR GEN., *Evaluation of the Chicago Police Department's Random Reviews of Body-Worn Camera Recordings Follow-Up* (2021), https://igchicago.org/publications/evaluation-of-the-chicago-police-departments-random-reviews-of-body-worn-camera-recordings-follow-up/.

[31] POLICE EXEC. RSCH. F., *supra* note 11 at 20–21 & Fig. 1.

[32] A slightly better practice is to choose from a subset of videos that involve incidents that are likely to be of interest to supervisors and their community (such as motor vehicle stops), but even then, such a review can reach only a small number of videos and relies on a system that can accurately tag and sort videos. Faye C. Elkins, *Better Performance through Body-Worn Camera Footage Review*, 15 COMTY. POLICING DISPATCH (2022), https://cops.usdoj.gov/html/dispatch/08-2022/body_camera_footage.html ("The project team also limited the scope of review to three specific incident types: motor vehicle stops; investigations of driving while intoxicated; and mental health response/assist calls for service. These incidents were chosen because of the frequency of their occurrence, the existence of clear guidelines and best practices, their significance in maintaining and improving public safety, and the degree of risk they pose to the public and the police. Each agency selected 40 videos chosen at random from footage recorded during the normal course of agency operation over a 90-day period. The footage was then imported into a video analysis software program developed by Parham.").

[33] *Supra* notes 8–10.

[34] *See* Umar Farooq, *Police Departments Are Turning to AI to Sift Through Millions of Hours of Unreviewed Body-Cam Footage*, PROPUBLICA (Feb. 2, 2024), https://www.propublica.org/article/police-body-cameras-video-ai-law-enforcement.

[35] Truleo Interview Notes (date) (on file with author).

[36] *See* ARNOLD VENTURES, https://www.arnoldventures.org/ (last visited Sep 29, 2024). Arnold Ventures is also an investor in Truleo. *See* TRULEO, Part II of Offering Document (Exhibit A to Form C) (April 11, 2023), https://www.sec.gov/Archives/edgar/data/1971763/000166516023000590/offeringmemoformc.pdf

As with any research performed by the authors, the research funder had no substantive or editorial influence, and in fact, no preview of this Report's findings.

[37] A sampling of the people we spoke to included: Dr. Jennifer Lynn Eberhardt. Professor, Department of Psychology, Stanford University; David Makin, Associate Professor, Director of the Complex Social Interaction Laboratory, Washington State University; Chris Harris, Associate Director of Advocacy at Texas Civil Rights Project; Brian Hofer, Chair and Executive Director, Secure Justice and Chair, City of Oakland Privacy Advisory Commission; Greg Stoddard, Senior Research Director, University of Chicago Crime Lab and Education Lab; Quincy Blair, Tech/Advocacy Counsel, Policing Project, New York University School of Law. We list these individuals to recognize and thank them. None of these individuals reviewed or endorsed this final report in any way. None of the view reflected here should be attributed to any of these individuals.

[38] *Evaluating Implementation & Impact of Automated Body-Camera Review on Officers' Professionalism and Behavioral Outcomes*, ARNOLD VENTURES (Jul. 1, 2024), www.arnoldventures.org/stories/evaluating-implementation-impact-of-automated-body-camera-review-on-officers-professionalism-and-behavioral-outcomes (describes a project which use a randomized controlled trial to study the impact of automated body worn camera review in Colorado and South Carolina).

[39] *A Process and Outcome Evaluation of Automated Body-Worn Camera Review Technology in 3 Arizona Police*

*Departments*, ARNOLD VENTURES (Jul. 1, 2024), https://www.arnoldventures.org/stories/a-process-and-outcome-evaluation-of-automated-body-worn-camera-review-technology-in-3-arizona-police-departments (describes a project which uses a randomized controlled trial to study the impact of automated body worn camera review in Arizona).

[40] TRULEO, Part II of Offering Document, *supra* note 44.

[41] *See How Truleo Measures Professionalism*, TRULEO (on file with author).

[42] Truleo claims that these transcripts are approximately 85% accurate, and are "not court-ready." *See id.*

[43] Truleo does this by analyzing segments of transcribed audio, creating representations of the audio signal called "speaker embeddings." Truleo uses a clustering algorithm (i.e., an algorithm that groups data elements with similar features) to group similar speakers together and assign labels to each speaker, such as "Speaker 1" and "Speaker 2." *See id.*

[44] Truleo uses a text-based model to evaluate whether an identified speaker's speech looks like something an officer would say. The speaker in the video whose language seems most like an officer's is assigned to an individual officer based on video metadata. After dozens of videos have been processed for a given officer, Truleo can automatically assign the officer a voiceprint. *See How Truleo Identifies the Officer Speaking*, TRULEO (on file with author).

[45] *See Officer ID vs Voice Biometrics*, TRULEO https://help.truleo.co/officer-id-vs-voice-biometrics (last visited Sep 29, 2024).

[46] A reviewer can, however, change a label.

[47] *See Truleo Success Deck*, TRULEO (on file with author). Note that Truleo analyzes only transcribed audio, but when queueing up sections of BWC footage for supervisors to review, the platform provides users with both the transcription and the relevant video clip so that the user can make an informed assessment.

[48] *See* Truleo, *TRULEO Enables AI-Powered Police Reports*, PR NEWSWIRE (July 16, 2024), https://www.prnewswire.com/news-releases/truleo-enables-ai-powered-police-reports-302197683.html. We would note, however, that some have raised caution regarding the use of this technology. *See* Andrew Ferguson, AI-Assisted Police Reports and the Challenge of Generative Suspicion (July 17, 2024) (SSRN), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4897632.

[49] Truleo, *Truleo Launches First Body Camera Audio Analytics Platform for Law Enforcement*, PR NEWSWIRE (Oct. 6, 2021), https://www.prnewswire.com/news-releases/truleo-launches-first-body-camera-audio-analytics-platform-for-law-enforcement-301393766.html.

[50] *See* Laurence Du Sault, *Under Union Pressure, Vallejo Police Chief Ends Body Camera Analysis*, OPEN VALLEJO (Jul. 9, 2023), https://openvallejo.org/2023/07/09/under-union-pressure-vallejo-police-chief-ends-body-camera-analysis/ (last visited Sep 29, 2024).

[51] *See Recognizing Police Professionalism*, TRULEO (on file with author).

[52] *See id.*

[53] *See id.*

[54] Truleo Interview Notes (May 16, 2024) (on file with author).

[55] Truleo Interview Notes (June 26, 2024) (on file with author).

[56] *See Recognizing Police Professionalism, Truleo* (on file with author), and Truleo*, 1st Sheriff in Michigan to Deploy Advanced Body Camera Analytics*, PR NEWSWIRE (2024), https://www.prnewswire.com/news-releases/1st-sheriff-in-michigan-to-deploy-advanced-body-camera-analytics-302032950.html.

[57] *See* Anthony Tassone Interview Notes (on file with author).

[58] *Virtual Public Information Officer (PIO)*, TRULEO, https://truleo.co/virtual-pio (last visited Sep 29, 2024).

[59] *See supra* notes 18–19.

[60] *See* Truleo Interview Notes (Mar. 6, 2024) (on file with author).

[61] *See What TRULEO Is & Is Not*, TRULEO, https://help.truleo.co/what-truleo-is-/-is-not (last visited Sep 29, 2024).

[62] *Axon Auto-Transcribe General FAQs*, MYAXON, https://my.axon.com/s/article/Axon-Auto-Transcribe-General-FAQs?language=en_US#If-I-redact-audio-will-that-automatically-redact-the-transcript (last visited Nov 7, 2024).

[63] This stands in contrast to a feature of Axon's Evidence.com, which permits search across all transcripts. *See Keyword search across transcripts overview - Axon Auto-Transcribe*, MYAXON (2024), https://my.axon.com/s/article/Keyword-search-across-transcripts-overview-Axon-Auto-Transcribe?language=en_US (last visited Sep 29, 2024) ("If your organization has an Auto-Transcribe Unlimited Add-On plan, you can search by keyword across all transcribed evidence you have access to. This search functionality appears on both the Evidence search page and the Case page.").

[64] *Id.*

[65] Jessica Gibbs, *Aurora Looks to AI to Monitor Police Behavior*, DENVER GAZETTE (Mar. 28, 2023), https://denvergazette.com/aurora/aurora-looks-to-ai-to-monitor-police-behavior/article_8a52e364-cdbe-11ed-847f-b7be5f768226.html.

[66] *See, e.g.*, FRATERNAL ORD. OF POLICE LAB. SERVS. DIV., FRATERNAL ORDER OF POLICE BODY-WORN CAMERA (BWC) RECOMMENDED BEST PRACTICES (2019), https://fop.net/wp-content/uploads/2021/03/nfop-body-worn-camera-recommended-best-practices.pdf (guidance from Fraternal Order of Police suggesting that BWC audits should not be used "for maintenance and training purposes only and not for discipline, absent additional corroborating evidence or civilian complaint"); Scot Haug, *Audits and Compliance Reviews Can Strengthen Body-Worn Camera Programs*, IN VIEW: COMMENT. FROM BWC EXPERTS (BODY-WORN CAMERA TRAINING & TECH. ASSISTANCE) (Mar. 2020), https://www.bwctta.com/resources/commentary/audits-and-compliance-reviews-can-strengthen-body-worn-camera-programs (suggesting that in order to "allay officers' fears of supervisors using BWC video reviews to discover instances of an officer's poor performance, many agencies ask supervisors to look for and highlight examples of exemplary performance and use them as training examples. Many agencies refrain from disciplining officers based on video review, except in cases of egregious behavior. Instead, agencies use BWC review as a coaching approach to improve performance with a minimum criticism.").

[67] Patrick Sisson, *AI was supposed to make police bodycams better. What happened?*, MIT TECH. REV. (Apr. 16, 2024), https://www.technologyreview.com/2024/04/16/1090846/ai-police-body-cams-cops-transparency/.

[68] Mike Carter, *Decision to Halt Program Analyzing Seattle Police Bodycam Video under Scrutiny*, SEATTLE TIMES (Sep. 27, 2023), https://www.seattletimes.com/seattle-news/law-justice/decision-to-halt-program-analyzing-seattle-police-bodycam-video-under-scrutiny/.

[69] Sault, *supra* note 55.

[70] As Company representatives have acknowledged the need to "target our messaging for the best reception to our customers." Truleo Interview Notes (date) (on file with author); *see also* Chris Sansone, *My Technology Can…Automate Body-Worn Camera Reviews*, POLICE MAGAZINE (Apr. 6, 2022), https://www.policemag.com/technology/article/15308914/my-technology-canautomate-body-worn-camera-reviews (last visited Nov 7, 2024).

[71] *How Truleo Measures Professionalism*, *supra* note 46.

Some of Truleo's labels also have evolved to emphasize positive encounters. For example, Truleo initially used a label called "verbal clearance," which it applied to calls in which an officer experiences noncompliance from a citizen that did not end in an escalation or arrest, thus implying that the officer was able to verbally resolve with the encounter. It now calls that label "high composure."

[72] *See, e.g.,* Jim Dallke, *This Startup Analyzes Police Body Cam Audio to Flag Problem Officers*, CHI. BUS. J. (Oct. 7, 2021), https://www.bizjournals.com/chicago/inno/stories/profiles/2021/10/07/truleo-police-body-cam-audio.html; *see also* TRULEO (@truleo_police), X (Dec, 14, 2021, 1:33 PM CST), https://x.com/truleo_police/status/1470839449428836352 (identifying negative interactions, as well as positive ones).

[73] *Compare, e.g.,* TRULEO (@truleo_police), X (Dec., 14, 2021, 1:33 PM CST), https://x.com/truleo_police/status/1470839449428836352 (identifying negative interactions, as well as positive ones), *and* Truleo, *Consent Decrees and Risk Management*, LINKEDIN (Dec. 16, 2021), https://www.linkedin.com/pulse/consent-decrees-risk-management-truleo-for-audio-analytics/ (mitigating the risk of being subjected to a consent decree).

[74] TRULEO (Oct. 6, 2021), https://truleo.co/ [https://web.archive.org/web/20211006141918/https://www.truleo.co/]

[75] TRULEO (Sept. 22, 2024), https://truleo.co/ [https://perma.cc/LBH2-4UBJ]

[76] Truleo Responses to Potential Recommendations (date) (on file with author).

[77] Barry Friedman et al., *Policing Police Tech: A Soft Law Solution*, 37 BERKELEY TECH. L.J. 701 (2022).

[78] Leong Teen Wei & Rashad Yazdanifard, *The Impact of Positive Reinforcement on Employees' Performance in Organizations*, 4 AM. J. INDUS. & BUS. MGMT. 9 (2014); Carlene Wilson et al., *The Effectiveness of Task Clarification, Positive Reinforcement and Corrective Feedback in Changing Courtesy Among Police Staff*, 17 J. ORG. BEHAV. MGMT. 65 (1997).

[79] Barry Friedman & Maria Ponomarenko, *Democratic Policing*, 90 NYU L. REV. 1827 (2015); POLICING PROJECT AT NYU SCHOOL OF LAW, *Data & Transparency Framework for Policing Agencies*, https://www.policingproject.org/transparency-framework (last visited Sep 30, 2024); Principles of the Law of Policing § 1.04, (2022).

[80] KENNETH CULP DAVIS, POLICE DISCRETION 71–72 (1975); Friedman and Ponomarenko, *supra* note 84 at 1837 ("Executive officials work for us, and are governed by us, not the other way around.").

[81] As Truleo explained to us (accurately): "TRULEO currently provides all of this information [that we suggest including in the transparency portal ] to departments in Achievements & Organization settings in a way that can be shared publicly as they may desire. Since ultimately we don't own their data, the decision to share it is with the department." Truleo Responses to Potential Recommendations (date) (on file with author).

And we would add that if Truleo only worked with policing agencies that agreed to share this data, it would likely have far fewer customers. Even other companies that have such a transparency portal do not make them mandatory. *Flock Safety Media FAQs*, FLOCK SAFETY 4 (July 11, 2021), https://www.bristolri.gov/DocumentCenter/View/892/Flock-Safety-Media-FAQs-2-1-.

[82] One particularly difficult issue with respect to Truleo's construct validity is that Truleo's platform by design, does not measure or account for nonverbal or "implicit" aspects of speech, such as tone, cadence, and gestures, in police-citizen encounters. This is due in part to real concerns that analysis of tone may be both more subjective, i.e., harder to validate independently, and more challenging to train AI models to recognize than on the words actually spoken.

Still, there is a longstanding body of research demonstrating that nonverbal dimensions of communication contribute significantly to how people understand and make meaning of interactions. *E.g.*, ALBERT MEHRABIAN, NONVERBAL COMMUNICATION (1972). This is why academic researchers at Washington State's Complex Social Interactions Lab, which like Truleo uses AI models to analyze body-worn camera to help departments improve officer behaviors, analyze not just the text of the transcript but also tone, cadence, and even biometric measures because they have found these implicit and environmental factors are essential to understand and label an encounter. COMPLEX SOCIAL INTERACTION LAB, https://labs.wsu.edu/csi/ (last visited Sep 30, 2024); *see also* David A. Makin et al., *Complex Social Interactions Lab Codebook*, COMPLEX SOC. INTERACTIONS LAB AT WASH. STATE UNIVERSITY (2024), https://acrobat.adobe.com/link/track?uri=urn%3Aaaid%3Ascds%3AUS%3Aa848ba82-c563-3ce0-ab5e-469fbb5fd996&viewer%21megaVerb=group-discover (rating tone of interactions to evaluate uses of force). In order words, it is of course not just what officers say that matters, but how they say it. Text alone may not reveal tones of sarcasm or flippancy.

[83] Truleo Responses to Potential Recommendations (date) (on file with author).

[84] Departments can add their own elements—such as when an officer provides a badge number or business card—but Truleo's default definition is the one we provide above.

[85] Wesley G. Skogan, Maarten Van Craen & Cari Hennessy, *Training Police for Procedural Justice*, 11 J. EXPERIMENTAL CRIMINOLOGY 319 (2015); TOM R. TYLER, WHY PEOPLE OBEY THE LAW (1990); Nicholas P. Camp et al., *Leveraging Body-Worn Camera Footage to Assess the Effects of Training on Officer Communication during Traffic Stops*, 3 PNAS NEXUS pgae359 (2024).

[86] *E.g.*, TEJAS SHASTRY, *36% Reduction in Use of Force after Implementation of Training and Body-Worn Camera Analytics* (2023), https://help.truleo.co/hubfs/Resources/Truleo_Alameda_Case_Study_Q1-23.pdf [https://web.archive.org/web/20221229124017/https://truleo.co/alameda-case-study].

[87] Skogan, Van Craen, and Hennessy, *supra* note 90; TYLER, *supra* note 90; Camp et al., *supra* note 90.

[88] Jason Sunshine & Tom R. Tyler, *The Role of Procedural Justice and Legitimacy in Shaping Public Support for Policing*, 37 L. & SOC'Y REV. 513 (2003); Skogan, Van Craen, and Hennessy, *supra* note 90; Wesley G. Skogan, *Citizen Satisfaction with Police Encounters*, 8 POLICE Q. 298 (2005).

[89] *E.g.*, Lorraine Mazerolle et al., *Shaping Citizen Perceptions of Police Legitimacy: A Randomized Field Trial of Procedural Justice*, 51 CRIMINOLOGY 33 (2013) (traffic stop script developed by study testing procedural justice police under randomized field intended to "operationalize[] the four elements of procedural justice").

[90] Emanuella Grinberg, *Florida State Attorney Pulled over in Traffic Stop That Goes Nowhere Fast*, CNN (Jul. 12, 2017), https://www.cnn.com/2017/07/12/us/florida-state-attorney-aramis-ayala-traffic-stop/index.html.

[91] *See* Wendy Ruderman, *Rude or Polite, City's Officers Leave Raw Feelings in Stops*, N.Y. TIMES (Jun. 27, 2012), https://www.nytimes.com/2012/06/27/nyregion/new-york-police-leave-raw-feelings-in-stops.html (Other times, the officers are polite, their introductions almost gentle. "Hey, how's it going?" "Can you step over here, sir?" "We'd like to talk to you.").

[92] CHARLES R. EPP ET AL., PULLED OVER: HOW POLICE STOPS DEFINE RACE AND CITIZENSHIP (2014).

[93] *Id.*

[94] Joe Malinconico, *What Does an AI Analysis Say about Paterson Police Officers' Behavior?*, PATERSON PRESS (NORTHJERSEY.COM) (Feb. 16, 2024), https://www.northjersey.com/story/news/paterson-press/2024/02/16/paterson-nj-ai-analysis-examines-police-officer-behavior/72612782007/ (citing data from *Paterson Police Department Earns Huge Improvement in Professionalism*, TRULEO (Feb. 15, 2024), https://help.truleo.co/hubfs/Case%20Studies/Truleo_Paterson_Case_Study.pdf)

[95] SHASTRY, *supra* note 86.

[96] *Supra* note 38.

[97] *TRULEO Event Labels & Definitions*, TRULEO HELP CENTER, https://help.truleo.co/truleo-event-labels (last visited Nov 7, 2024).

[98] NAT'L ACADS. OF SCIS., ENG'G, AND MED., HUMAN-AI TEAMING: STATE-OF-THE-ART AND RESEARCH NEEDS (2022) ("people are significantly challenged in performing as successful monitors of complex automation" with issues ranging from "poor understanding of what the systems are doing, high workload when trying to interact with AI systems," "performance deficits when intervention is needed, biases in decision making based on system inputs.).

[99] In articulating these best practices, our goal is not to suggest that any particular jurisdiction should or should not adopt analytics like Truleo—that is precisely the question for democratic consideration.

[100] *Responsible Use of Policing Tech: Evaluative Framework*, POLICING PROJECT AT N.Y.U., https://www.policingproject.org/tech-framework (last visited Nov 7, 2024).

[101] *See supra* Part I.B.

[102] In some jurisdictions, policing agencies have skirted these processes, using separate funding sources to acquire materials or technology. One source is asset forfeiture funds, which police can get through state law or the federal government's equitable sharing system, when police obtain items of value during criminal investigations. Another source is private police foundations. *See* Farhang Heydari, *The Private Role in Public Safety*, 90 GEO. WASH. L. REV. 696, 742–45 (2022). Using either of these allows policing agencies to acquire materials that might be controversial, by working around the usual public acquisition or procurement processes.

[103] *See* Kate Conger et al., *San Francisco Bans Facial Recognition Technology*, N.Y. TIMES (May 14, 2019), https://www.nytimes.com/2019/05/14/us/facial-recognition-ban-san-francisco.html, *and* Christine Clarridge, *Seattle Grounds Police Drone Program*, SEATTLE TIMES (Feb. 7, 2013), https://www.seattletimes.com/seattle-news/seattle-grounds-police-drone-program/.

[104] *Axon Auto-Transcribe*, AXON, https://www.axon.com/products/auto-transcribe (last visited Sep 30, 2024); *see also* AXON, *Fast Evidence Review Overview - Axon Auto-Transcribe*, https://my.axon.com/apex/MyAxonArticlePDF?Id=ka0Rl000000EA4LIAW

[105] *For Officers*, TRULEO, https://truleo.co/for-officers (last visited Sep 30, 2024).

[106] Truleo provides this sort of aggregate data to policing agencies in their Achievements & Organization settings.

[107] *See, e.g.,* CAL. GOV'T CODE § 13010(g) and N.Y. EXEC. § 837-a.

[108] *See, e.g.,* CAL. GOV'T CODE § 12525.5 and CON. GEN. STAT. § 54-1m.

[109] *See* JUSTICETEXT, *supra* note 26; JusticeText, *JusticeText: Evidence Management Platform for Fairer Criminal Justice Outcomes*, CODING IT FORWARD (Oct. 21, 2020), https://blog.codingitforward.com/justicetext-evidence-management-platform-for-fairer-criminal-justice-outcomes-3478e7243ba1 (last visited Nov 7, 2024).

[110] Of course, few such civilian oversight agencies exist with meaningful authority over police, and where they do, those agencies often must request BWC footage from police—because police control access to the footage. *See, e.g.*, Maria Ponomarenko, *Rethinking Police Rulemaking*, 114 NW. L. REV. 1, 47-48 (2019).

[111] UTAH CODE ANN. § 77-7a-104.

[112] Of course, body-worn cameras carry with them some risks to officer privacy, for example, but state laws and department policies do well to account for these risks. *See* CONN. POLICE OFFICER STANDARDS & TRAINING COUNCIL, MODEL POLICY FOR USE OF BODY WORN RECORDING EQUIPMENT AND DASHBOARD CAMERAS (2022) (on file with author); TEX. OCC. CODE ANN. § 1701.655.

[113] *Officer ID vs Voice Biometrics*, TRULEO https://help.truleo.co/officer-id-vs-voice-biometrics (last visited Sep 29, 2024).

[114] Truleo Responses to Potential Recommendations (date) (on file with author). The process for marking footage confidential within an agency's evidence management system typically is governed by agency policy.

[115] *See* Alyssa Paolicelli, *Law requiring NYPD to report most encounters with civilians takes effect*, SPECTRUM NEWS NY1 (July 1, 2024), https://ny1.com/nyc/all-boroughs/news/2024/07/01/nypd-how-many-stops-act-takes-effect (discussing requirements of New York City's new "How Many Stops Act" which requires NYPD to gather data on investigative encounters and was enacted after "a federal monitor found nearly a quarter of "Level 3" stops between April and October of 2022 were considered unconstitutional, and 97% of the individuals stopped were Black or Hispanic").

[116] *See generally* Cynthia Lum et al., *Research on Body-Worn Cameras: What We Know, What We Need to Know*, 18 CRIMINOLOGY PUB. POL'Y 93 (2019).

[117] Camp et al., *supra* note 90.

[118] *Id.*

[119] *Id.*

[120] Rob Voigt et al., *Language from Police Body Camera Footage Shows Racial Disparities in Officer Respect*, 114 PROC. NATL. ACAD. SCI. 6521 (2017). *See also* David A. Makin et al., *Contextual Determinants of Observed Negative Emotional States in Police–Community Interactions*, 46 CRIM. JUST. BEHAV. 301 (2019).

[121] Dale W. Willits & David A. Makin, *Show Me What Happened: Analyzing Use of Force through Analysis of Body-Worn Camera Footage*, 55 J. RES. CRIME DELINQUENCY 51 (2018); David A. Makin et al., Brooks, *Systematic Social Event Modeling: A Methodology for Analyzing Body-Worn Camera Footage*, 24 INT. J. SOC. RES. METHODOL. 163 (2021).

[122] Willits and Makin, *supra* note 6.

Similar studies have been conducted with agencies in New Jersey and Texas, among others. *See, e.g.*, William Terrill, et al., *Applying Video-Based Systematic Social Observation to Police Use of Force Encounters: An Assessment of De-Escalation and Escalation within the Context of Proportionality and Incrementalism*, 40 JUST. Q. 1045 (2023); Victoria A. Sytsma et al., *Scripting Police Escalation of Use of Force through Conjunctive Analysis of Body-Worn Camera Footage: A Systematic Social Observational Pilot Study*, 74 J. CRIM. JUST. 101776 (2021); Eric L. Piza & Victoria A. Sytsma, *The Impact of Suspect Resistance, Informational Justice, and Interpersonal Justice on Time Until Police Use of Physical Force: A Survival Analysis*, 70 CRIME DELINQUENCY 3 (2024); *See also* Michael D. White et al., *Impacts of BWCs on Use of Force: Directory of Outcomes*, BODY-WORN CAMERA TRAINING AND TECHNICAL ASSISTANCE (2023), https://bwctta.com/impacts-bwcs-use-force-directory-outcomes [http://web.archive.org/web/20240719204033/https://bwctta.com/impacts-bwcs-use-force-directory-outcomes].

[123] Truleo Responses to Potential Recommendations (date) (on file with author).

[124] Truleo Responses to Potential Recommendations (date) (on file with author).

[125] AXON, MASTER SERVICES AND PURCHASING AGREEMENT BETWEEN AXON AND CUSTOMER 6 (August 2,

2024). ("Customer Owns Customer Content. Customer controls and owns all right, title, and interest in Customer Content. Except as outlined herein, Axon obtains no interest in Customer Content, and Customer Content is not Axon's business records. Customer is solely responsible for uploading, sharing, managing, and deleting Customer Content. Axon will only have access to Customer Content for the limited purposes set forth herein. Customer agrees to allow Axon access to Customer Content to (a) perform troubleshooting, maintenance, or diagnostic screenings; and (b) enforce this Agreement or policies governing use of the Axon products.")

[126] AGREEMENT BETWEEN THE CITY OF SAN DIEGO AND AXON ENTERPRISE, INC. (AXON) FOR BODY WORN CAMERA (BWC) AND BWC SYSTEM SOLUTION (June 2023), https://www.sandiego.gov/sites/default/files/4159-axon-enterprises.pdf. We use San Diego as an example but could have used a myriad of others. *See, e.g.*, Resolution Of South Ogden City Authorizing An Amendment To An. Agreement With Axon Enterprises Inc. For Body Cameras, Dash Cameras And Digital Storage, Resolution No. 23-11 (Mar. 21, 2023), https://cms7files.revize.com/southogden/document_center/Resolutions/2023/Resolution%2023-11%20-%20Agreement%20with%20Axon%20for%20Body%20Cams%20-Dash%20Cams%20-%2021%20Mar%2023.pdf and Letter from Dee Williams-Ridley, City Manager, and Jennifer Louis, Interim Chief of Police, to Mayor and Members of the City Council of Berkeley (June 21, 2022), https://berkeleyca.gov/sites/default/files/documents/2022-06-21 Special Item 01 Contract_Axon Enterprise %284pm%29.pdf. (recommends adopting a resolution authorizing the City Manager to enter into a Contract with Axon Enterprise).

[127] Eric Umansky, *How Police Have Undermined the Promise of Body Cameras* (Dec. 14, 2023), https://www.propublica.org/article/how-police-undermined-promise-body-cameras.

[128] *States and cities with police union agreements that have provisions related to the use of body-worn cameras or body-worn camera video evidence*, BALLOTPEDIA, https://ballotpedia.org/States_and_cities_with_police_union_agreements_that_have_provisions_related_to_the_use_of_body-worn_cameras_or_body-worn_camera_video_evidence (last visited Sep 29, 2024) ("One state and four city CBAs contain provisions allowing officers to review body-worn camera footage before an interrogation or investigation following an incident. These include Nebraska; Glendale, Arizona; Houston, Texas; Milwaukee, Wisconsin; and Phoenix, Arizona. One city CBA (Glendale, Arizona) contains provisions requiring officers to be notified before body-worn camera video evidence is released.").

Some unions negotiate a pay raise for wearing the cameras. *Police Unions Demand Extra Pay For Wearing Body Cameras*, NAT'L CRIMINAL JUST. ASS'N.'S CRIME & JUST. NEWS (Aug. 21, 2024), https://www.ncja.org/crimeandjusticenews/police-unions-demand-extra-pay-for-wearing-body-cameras.

[129] Sidewalk Labs, *Digital Governance Proposals for DSAP Consultation* (Oct. 2018), https://www.waterfrontoronto.ca/sites/default/files/documents/18-10-16-swt-draft-proposals-regarding-data-use-and-governance-tuesday-730pm.pdf.

[130] *Id.; see* Ira S. Rubinstein & Bilyana Petkova, *Governing Privacy in the Datafied City*, 47 FORDHAM URB. L.J. 755 (2019) (arguing that cities must serve as "data stewards" with fiduciary responsibilities on behalf of their citizens).

[131] LINDA MEROLA ET AL., BODY WORN CAMERAS AND THE COURTS: A NATIONAL SURVEY OF STATE PROSECUTORS 5, 17, 31 (2016), https://bwctta.com/sites/default/files/Files/Resources/BWCProsecutors.pdf.

[132] V. Noah Gimbel, *Body Cameras and Criminal Discovery*, 104 GEO. L.J. 1581 (2016) (noting imbalance in access to information between the state and a criminal defendant, which can impact critical decisions, including whether to go to trial or to accept a plea).

[133] Polis is another entity in this field, but as far as we are aware, the company has far fewer clients at present. CITY OF DALL. OFF. OF THE CITY AUDITOR, *supra* note 12 at 15.

[134] *See* Barry Friedman, *Policing Agency Data Trusts* (forthcoming) (manuscript on file with author).

[135] The Silicon Valley Regional Data Trust (SVRDT) is a secure platform that integrates data from education, health, human services, and juvenile probation across three counties in Silicon Valley. It aims to enhance decision-making and service coordination for improved educational outcomes while also supporting research on student learning in broader contexts. By addressing key limitations in data access, SVRDT provides a more comprehensive understanding of factors impacting academic achievement, including the role of non-school

elements such as poverty. *See Silicon Valley Regional Data Trust*, CTR. FOR COLLABORATIVE RSCH. FOR AN EQUITABLE CAL., https://ccrec.ucsc.edu/partnerships/silicon-valley-regional-data-trust (last visited Sep 29, 2024).