

# **The Pennybridge Pioneers: Understanding Internal Stakeholder Perceptions of Body-Worn**

## **Camera Implementation**

Marthinus C. Koen\*\*  
Assistant Professor of Criminal Justice  
State University of New York Oswego  
Marthinus.koen@oswego.edu  
ORCID: 0000-0002-9316-4834

Bryce Clayton Newell  
University of Oregon  
bcnewell@uoregon.edu  
ORCID: 0000-0002-6096-1175

Melinda R. Roberts  
Professor of Criminal Justice  
University of Southern Indiana  
mrroberts1@usi.edu  
ORCID: 0000-0002-8500-9076

\*\* First and Corresponding Author

## **Abstract**

Since body-worn cameras (BWCs) were catapulted into mainstream discourse, they have diffused rapidly across police agencies in the United States. Research followed swiftly, providing a wealth of information about how the police and citizens make sense of these technologies. Moreover, we have learned how these technologies have impacted important policing outcomes, such as citizen complaints and the use of coercive force during citizen encounters. However, despite the growing body of research, very little is known about how police stakeholders make sense of the implementation of BWCs and about their decision-making throughout the implementation process. Therefore, this research examines the decision to implement BWCs in one mid-sized municipal police department in the United States through the lens of Rogers' (2003) Diffusion of Innovations theoretical framework. We rely on semi-structured interviews and observations with 17 stakeholders to address this question. Our findings show that BWC technology generally posed little uncertainty for stakeholders in terms of what it could offer conceptually. However, because the agency was an early adopter, decision-makers were confronted with significant uncertainty about practical matters such as the financial and logistical costs of implementing the technology, in addition to policy creation. These findings have important implications for scholars and practitioners.

**Keywords:** Police Technology; Diffusion of Innovations, Body-Worn Cameras, Implementation

## **Introduction**

In the 1980s, when police agencies in the United States first began to implement car-mounted video recorders (or dash-cams), implementation was somewhat haphazard and agencies did not always share the same goals or reasons for adopting these technologies (IACP, 2004, 5). After adoption, however, some general results were consistent—that is, dash-cams were instrumental in justifying police activities, serving as evidence in certain types of criminal cases, and documenting police misconduct. These results led activists and advocacy organizations to demand adoption of these technologies by the police (Alpert & McLean, 2018). Likewise, the implementation of body-worn cameras (BWCs) in the United States over the past decade or so has also been driven by a variety of factors, some shared across agencies and others unique.

The reasons agencies implemented these technologies and the goals for BWC programs have been haphazard and difficult to parse (Alpert & McLean, 2018) moreover, little research has intently considered how those implementing BWCs make their adoption decisions. Instead, existing research is much more focused on evaluating the impacts of BWC deployment and on the attitudes and perspectives that officers and community members have toward BWC implementation (Lum et al, 2019). Undoubtedly, the practical outcomes and police experience with the implementation of dashboard cameras, automated license plate recognition systems, and closed-circuit television (CCTV) technologies have fed into administrative choices to adopt BWCs. Just as earlier research found that dashboard cameras increased officer safety and accountability while also limiting agency liability (White & Malm, 2020), early research on

BWC implementation also claimed significant reductions in instances of officers using force and in the overall number complaints filed by community members (Lum et al., 2019).

Agencies have justified BWC adoption on these positive findings (Newell, 2021, 133-134), just as they did with prior technologies, even though later research has painted a more nuanced picture (e.g., Newell, 2021; Braga et al., 2018). Studies have also found that some officers perceive the cameras limiting complaints, exonerating officers, and limiting agency liability (Newell, 2021, 104). Thus, this cycle is also probably cyclical and self-sustaining. Early BWC research by the Police Executive Research Forum (Miller et al., 2014) found that a primary reason for police departments to implement BWCs was a desire to document police-citizen encounters more accurately.

However, these implementation choices, especially since widespread implementation of BWCs in the US began in 2014 (Gaub, 2021), have also likely been influenced by socio-cultural considerations arising after the events in Ferguson, Missouri, (Lum et al., 2019), the continuing rise and prominence of Black Lives Matter and other police reform movements, positive results from early academic research into BWC program outcomes, and encouragement from the federal government—including funding to adopt BWCs (White et al., 2018). Certainly, the United States has seen an intensification of protests demanding police reform since the shooting of Michael Brown in 2014 (U.S. Department of Justice, 2015) and again after the murder of George Floyd in 2020, demands that have benefitted from significant media attention. In 2018, the U.S. Justice Department also allotted \$12.2 million to law enforcement agencies to assist in the implementation of BWC programs. Thus, the reasons for BWC adoption at any one agency are likely multi-faceted and **not only** bound to local contextual factors and pressures facing that agency.

For example, law enforcement agencies may choose to implement cameras due to changes in public sentiment, state or federal legislative demands, the availability of funding, demands from the community, to improve community relations locally, protect officers from unfounded complaints, increase officer safety, provide evidence to enhance prosecution, hold officers accountable, or augment officer training (Smith, 2019; Nix et al, 2020; White & Malm, 2020—with many of these factors linked to institutional efforts to maintain legitimacy (see Crank, 2003). Relatedly, implementation decisions likely vary across national boundaries and between cultural contexts, especially where differing levels of public trust in police and police accountability mechanisms exist (Brown, 2021, 122). Agencies in the United Kingdom were early adopters, while US adoption has occurred quickly in more recent years. Even so, police forces in Canada and Australia, for example, have delayed broad implantation (Brown, 2021).

We get some evidence of how and why agencies adopt BWCs from existing research, and from reports evaluating the feasibility of BWC adoption (e.g., U.S. Customs and Border Protection, 2015), but we lack much substantive, focused evaluation of the factors and considerations motivating BWC implementation in many contexts. Understanding why and how police agencies choose to adopt and implement technologies like BWCs—including the underlying aims and goals for these programs—is vital to understanding the role of these technologies in modern society, for analyzing whether the outcomes achieved live up to stated or implicit expectations, and whether the use and aims of these surveillance tools have been expanding in unanticipated ways (Alpert & McLean, 2018).

In some jurisdictions, BWC adoption has been driven by state or local mandates, handed down by legislatures and local municipal leadership. Additionally, “public pressure, the desire to appear cutting edge, using a best practice, or the opportunity to obtain financial support through

government grants”—as well as positive outcomes from academic and other research projects—have all contributed to implementation choices (Alpert & McLean, 2018, 3). Facing public pressure, some agencies have enlisted academic researchers to help them examine what role BWCs might play in their organizations prior to making implementation decisions (Bennett et al., 2019). Notably, BWC adoption grew rapidly the years following 2014, and implementation rates have been higher in larger police agencies than in smaller ones (Gaub, 2021).

When considering the implementation of cameras, organizations must also consider the product quality, costs associated with the devices and video storage, and user buy-in. The extant literature on BWCs primarily focuses on the use of the technology and its effect on citizen complaints and use-of-force (White & Malm, 2020, Lum et al., 2019). However, few studies have focused on the implementation of BWCs and how they have affected the organizational structures and processes as well as how attitudes toward them may differ across ranks (Koen et al., 2019). In many police agencies, administrators rarely use or wear BWCs, but are the primary decision-makers involved in the implementation and rollout of these devices. Users of BWCs tend to have more negative perceptions of how cameras will affect their work and tend to be resistant to their adoption (Gaub et al., 2016; Koen et al., 2021). The scrutiny of users through video monitoring and comparisons of reports to video footage by administrators or supervisors furthers the perception of inequality between the rank-and-file officers and agency leadership and can alter how users choose to employ the technology (Koper et al., 2014).

After having made the choice to adopt BWCs, police administrators are faced with several complex issues, from practical questions about deployment to issues of policy (Nix et al., 2020). Before the Bureau of Justice Assistance (2015) released the Law Enforcement Implementation Checklist, many agencies were left to their own devices when figuring out their

own implementation plans. Political and social pressure to quickly adopt BWCs within communities can also lead to budget problems, officer morale and resistance issues, citizen backlash, and policy mistakes as evidenced in the literature (Koper et al., 2014). Deficient BWC implementation and technology issues have the potential to damage an agency while harming the officers and the community they serve (White et al., 2018). Implementation effectiveness, as described by White & Malm (2020), is difficult to evaluate because BWC programs have been implemented in various ways across agencies with varying levels of program assessment, data collection, or engagement with researchers.

Understanding which factors were most important in guiding adoption decisions and how they played a role in this process may lend important insights for police practitioners who seek to implement, pilot, or replace BWCs within their organizations. Therefore, relying on 17 semi-structured interviews conducted within a mid-sized police agency in the mid-western United States, this article seeks to elucidate how those in charge of implementing BWCs at one police agency thought about and carried out the implementation of BWCs. We focus on the decision to adopt BWCs and then, subsequently, on questions related to BWC implementation. In doing so, we utilize Rogers' (2003) Diffusion of Innovations theoretical framework to understand this implementation. In what follows, we explain Rogers' (2003) framework and describe how it applies to this study, we describe our research site and methods, and present our findings before we conclude with policy and research implications.

#### Rogers' Diffusion of Innovation Framework

The current study builds on existing research on BWCs (Nix et al., 2020; Wy et al., 2021) and police technology in general (Skogan & Hartnett, 2005; Weisburd & Lum 2005; Willis & Mastrofski, 2011) that have applied a DOI approach to understanding processes and outcomes

related to the implementing innovations whether on a broad or individual level. We utilize a portion of Rogers' (2003) "Diffusion of Innovations (DOI)" theoretical framework to lend insights into the adoption of BWCs at the Pennybridge Police Department (pseudonym). While this iteration of Diffusion of Innovations has been used to address the proliferation of innovation on a large scale across myriad industries (see Nix et al, 2020 as a BWC example), the theoretical framework can also be applied to individual cases to understand how an innovation has diffused throughout an organization (Lundblad, 2003; Drape et al., 2013). In other words, Rogers' DOI theory (like that of others; see, e.g., Wejnert, 2002) can be used to understand the diffusion of an innovation either *across* or *within* organizations.

While factors such as decision type, communication channels, the nature of a social system, and promotional efforts all impact the rate of adoption of an innovation, Rogers (2003) explained that attributes of an innovation tend to be responsible for the lion's share of variance in the spread of innovations (p. 222). Given the current limited state of existing research on BWC diffusion and Rogers' claims, we focus predominantly on innovational attributes as perceived by key stakeholders to understand the choices surrounding adoption of this technology *within* one police organization. These innovational attributes may often reflect the affordances of the technologies (Newell & Koen, 2022; Newell, 2021; Guzik et al., 2019) and this research builds on earlier work addressing how officers frame and understand BWC technologies over time (e.g., Koen et al., 2021). However, our focus in this paper is on the decision-making surrounding BWC adoption and implementation.

According to Rogers' (2003:12) an innovation could include any idea, practice, project, or object that is perceived as new by individuals or groups of individuals. BWCs therefore would fall under this definition of innovation. In fact many subsequent studies that have

considered Rogers' DOI framework in addition or other DOI theories have applied them to the diffusion of technologies whether in the having to do with policing (Skogan & Hartnett, 2005; Weisburd & Lum 2005; Willis & Mastrofski, 2011; Nix et al., 2020; Wy et al., 2021), other aspects of the criminal justice system (Elison et al., 2014), or other industries altogether (Frank et al., 2004; Hollman & Perreault, 2022). Rogers explains that (2003), five important factors related to how an innovation is perceived can impact how well it diffuses across a system. These include the perceived relative advantage, compatibility, complexity, trialability, and observability of a given innovation relative to existing and/or alternative conditions and/innovations.

Rogers (2003) explains that a central feature to the decision-making process by potential adopters is uncertainty. Uncertainty is vexing to those who must make important (and often costly) decisions, which is especially true for leaders in the public sector (e.g., police managers). Therefore, the more information about a new technology (or innovation) an adopter can acquire, the less uncertainty they face and, as such, they become more confident in their adoption decision. Information about an innovation can give adopters insight about what the “relative advantage” (Rogers, 2003: 223) of that innovation could be.

*Relative advantage* according to Rogers (2003: 223) is the extent to which an innovation is thought to be better than previous practices or ideas. Rogers (2003) postulates that relative advantage is one of the most important factors in determining how adopters perceive an innovation. Just as Wejnert (2002) explains how adopters may perceive the costs and benefits of an innovation, Rogers (2003) explains that relative advantage can be expressed in both economic and/or social terms. Relative advantage thus is the “ratio of the expected benefits and the costs of adoption of an innovation” (Rogers, 2003: 233). For example, an innovation might be more cost-



effective compared to previous practices and therefore offer significant economic relative advantage. Similarly, an innovation may offer some form of social prestige or benefit to an individual or group compared to previous ideas (Rogers, 2003). In some cases, an innovation may offer both. Relatedly, choices by major BWC companies to offer free trial periods or steeply discounted initial rates for camera hardware or digital evidence and storage solutions (see, Joh 2017) undoubtedly played into agency decisions to adopt cameras.

Body-worn cameras stand to offer significant economic and social relative advantage to police agencies. While BWCs might be expensive financially (White & Malm, 2020), the technology can help police agencies save money when it comes to settling lawsuits and/or time-related resources spent on investigations (internal or external). For example, when a citizen brings a complaint to a police agency, internal investigations can last for quite some time as internal affairs investigators collect evidence and interview all relevant parties (Koen et al., 2019). This can be a major strain on resources, especially at smaller agencies where investigators take on both internal and external investigations. Body-worn camera footage could allow quick insights into what occurred during a citizen encounter and help speed up complaint investigations (Goodall, 2007), allowing the investigators to move on to new cases more quickly. As such, BWCs provide relative advantage compared to how complaint investigations have traditionally been approached.

BWCs also offer value in terms of social status because the technology may improve community relations, training, police professionalism, and accountability (Gaub et al., 2017; Koen & Willis, 2020). For example, by implementing BWCs a police agency might appear responsive to calls for police reform and willing to hold their officers accountable for misconduct. Thus, BWCs may improve the way the agency is perceived by the public.

A second attribute related to the adoptability of an innovation is *compatibility*. Rogers (2003) defines “compatibility” as the “degree to which an innovation is perceived as consistent with existing values, past experiences, and needs of potential adopters” (pp. 240). When an innovation is considered “compatible” it generates a sense of familiarity, which ultimately reduces uncertainty. The more compatible an innovation, the more likely that innovation is to be adopted by social entities (Rogers, 2003: 249). Potential adopters may seek this sense of familiarity across three domains of compatibility separately or simultaneously: cultural values and beliefs, previous ideas, and perceived need (Rogers, 2003).

Cultural values can be a strong force across social systems, especially in police organizations when it comes to adopting new ideas or technologies (Willis, 2019). If innovations are not perceived to be compatible with existing ideas by potential adopters, it could create much uncertainty and could lead them to look elsewhere. The introduction of BWCs at a police agency may stand in stark contrast to some police values. For examples, since BWCs offer a recording of what occurs during citizen encounters, some adopters might see this technology as a means for supervisors to engage in “Monday-morning quarterbacking” (Newell, 2021: 146, 162; Newell and Greidanus, 2018: 1561-66). Police officers often value the importance of situational factors and “being there” when making assessments of other officers’ actions during an encounter (Willis & Mastrofski, 2017). Police culture rejects the notion of Monday-morning quarterbacking, where someone who was not in a given situation makes judgements about officer use of discretion (Bailey & Bittner, 1984).

At the same time, BWCs might be compatible with other factor such as existing ideas and practices. For instance, many police agencies have been using in-vehicle cameras or have relied on CCTV for decades before BWCs began to proliferate (Gaub & Koen, 2021). Therefore, police

officers may be used to having video around. Much of the BWC literature suggests that police laud the evidentiary value of BWCs as a means of pressing charges and gaining convictions, in addition to protecting them from frivolous complaints (Gaub & Koen, 2021). Police have generally held similar views of in-vehicle camera footage but have come to see BWC footage as more useful and effective in reaching those outcomes (White & Malm, 2020; Gaub & Koen, 2021).

BWCs may also satisfy important police needs, consequently making them compatible. Police stakeholders may seek to improve transparency and community relations in an environment that has been critical of the police (White & Malm, 2020). Research suggest that citizens are generally in favor of police body-worn cameras whether they are community stakeholders or “frequent-flyers” (Todak et al., 2018) as the presence of the cameras can make citizen encounters more transparent and thus can help ensure that individual, citizen rights are protected (White et al., 2017).

A third factor that can impact the adoptability of an innovation according to Rogers (2003) is the perceived *complexity* of an innovation (pp. 257). “The complexity of an innovation as perceived by members of a social system, is negatively related to its rate of adoption” (Rogers, 2003: 257). If a technology is perceived to be technically and conceptually straightforward (that it could be navigated with relative ease), it is more likely to be adopted (Rogers, 2003). However, a complex innovation might be a significant source of uncertainty to potential adopters as they might be vexed about the resources it would take for it to be implemented as intended. While compared to other factors such as relative advantage and compatibility, the complexity of an innovation is not the most important deciding factor, it can tip the scales in some cases (Rogers, 2003).

Two important technical components comprise BWCs: the front and backends. The frontends include the devices that sit on the officers' bodies that record citizen encounters in addition to the wiring, batteries, and local hard drives. The backend concerns the footage and the on-premises or cloud storage solutions (Koen & Willis, 2017). Perceptual studies regarding body-worn cameras have found that police officers, for the most part, find body-worn cameras to be easy to use especially after using them for some time (Wy et al., 2021). However, some research seems to suggest that not all BWC products and services are similar in their complexity and that some manufacturers far outshine others (Koen et al., 2021).

How adopters perceive the *trialability*, or the extent to which adopters can test an innovation before full implementation may also impact the willingness of potential adopters to move forward with implementation (Rogers, 2003: 258). As the inhibition of uncertainty is important factor in stakeholder decision making, the more certain stakeholders feel about the implementation of a new technology or idea, the more likely they will adopt it (Rogers, 2003). In that regard, BWCs are an innovation with much potential trialability as many manufacturers offer free trial periods, pilot programs, and beta testing for police agencies. At the same time, police agencies have received much incentive from the federal government to help pay for pilot programs as approximately \$40 million has been made available to help police agencies pilot and implement BWCs (Lum et al., 2019; White & Malm, 2020). In these conditions, potential adopters may see much trialability in the technology as they have been presented with an opportunity to significantly reduce uncertainty via myriad solutions at little to no cost.

Lastly, Rogers (2003) posits that the extent to which people can see the results of an innovation, or *observability*, can affect the rate at which that innovation diffuses across a social system (pp. 258). As such, observability is linked to the extent to which an innovation may

impact processes or outcomes that are important to stakeholders (Rogers, 2003). In terms of BWCs, much information exists about their impacts on important police outcomes such as citizen complaints (White & Malm, 2020; Lum et al., 2019). Lum et al (2019) identified 18 experimental or quasi-experimental studies that have investigated body-worn camera impacts on citizen complaint statistics since 2012, finding that BWCs lead to fewer citizen complaints. While it is unclear exactly what about the cameras are causing these reductions in citizen complaints (Lum et al., 2019), they are typically well-received by police organizations who include these statistics in their annual reports.

Similarly, the perceived evidentiary value of BWCs go hand-in-hand with their impacts on citizen complaints. According to police, BWCs offer insights into what occurs during citizen encounters or when police officers arrive at crime scenes (Pickering, 2020), this footage can serve as important evidence when it comes to following-up on leads and hunches, pursuing charges, or gaining convictions (White & Malm, 2020), all of which are important police outcomes.

### **Research Site, Method, and Design**

The *Pennybridge Police Department* (PPD) is a mid-sized municipal department located in the United States which, at the time of data collection, employed approximately 300 sworn officers. In 2018, the city of Pennybridge population hovered around 120,000 residents. According to the U.S Census Bureau in 2018, roughly 22% of the population lived below the poverty line while 80% of the residents were White, with 12% identifying as Black or African American, 3% as LatinX, and 1% as Asian. UCR from 2017 data show that PPD saw about 180,000 calls for service, with slightly higher rates of property and violent crimes compared to similar jurisdictions.

By the time of data collection, PPD had gone through two phases of BWC piloting. The first involved a handful of police officers (15-30 patrol officers) trialing BWCs on a voluntary basis in mid-to-late 2011. At that time the agency used a BWC brand that no longer exists, which we will refer to by a pseudonym, “CinePresa” to protect PPD’s identity. These units were about the size of a USB drive and clipped to officers’ uniforms. Footage was recorded to an SD card that sat inside the devices. At the end of each shift, the officer would remove the SD card from the device and manually transfer files to PPD’s intranet via a PPD computer terminal. At that time, video was not uploaded to a backend program (e.g., evidence.com), but sat in designated folders on departmental servers. During the CinePresa phase, there was no activation policy, nor any directions on how and when to turn the cameras on. These cameras were ultimately abandoned by 2013 as PPD began to test a new product for full implementation.

In early 2014 (four years before data collection), PPD had begun piloting ProCop (pseudonym to protect the department) body-mounted cameras and ultimately chose to fully implement them. PPD stored their footage in-house, using a local server operated by Dell Power Vault with server-based software, ViewSafe (pseudonym). Unlike during the CinePresa era, PPD created a full BWC policy with clear operational guidelines for how and when to use BWCs. The department also retained footage for three years prior to deleting it, unless it was tagged to an open case number. A total of 149 officers were equipped with BWCs at the time of observation in 2018, which included all patrol lieutenants, sergeants, and officers.

The current study was a part of a larger project and relies on 17 semi-structured interviews conducted with stakeholders at PPD. Data collection began in early 2018 and lasted for 8 months. For this paper, we chose to narrow our sampling frame to all PPD officers and civilians who were involved in the implementation decision making related to CinePresa and/or

ProCop. These respondents were all included in the implementation process in some way, which included duties such as product evaluation, policy formation/execution, setting-up and maintaining the storage solutions, and/or liaising with manufacturers. As such, our findings are based on the perceptions of 17 respondents. These included the chief, nine command staff, two public information officers, one internal affairs investigator, and four IT officers/civilians.

All of the 17 people involved in the implementation of BWCs agreed to participate in semi-structured interviews. Semi-structured interviews were important for the purpose of this study as they would offer enough structure to allow us to draw comparisons across respondents (Patton, 1987). At the same time, semi-structured interviews would allow enough flexibility to allow investigators to probe after unexpected and/or interesting insights (Patton, 1987). Semi-structured interviews have been used in several DOI case studies that have applied this theoretical framework to an organizational within the context of technology adoption (e.g., Wainwright & Warning, 2007; Bullock et al., 2022) and therefore are appropriate here as well.

Each of these interviews were conducted at PPD HQ in a conference room, lasted on average 49 minutes, were recorded, and transcribed. As transcripts were created, the data was deidentified and uploaded to Atlas.ti for coding and analysis. Coding was both inductive and deductive, meaning that we began with a start list of codes and created subcodes with each subsequent wave of coding. However, we also created new codes as we discovered themes that were insightful and unanticipated.

## **Findings**

We structure our findings in accordance with Rogers' (2003) framework of innovational attributes, which considers the relative advantage, trialability, compatibility, complexity, and observability of an innovation. Our findings are linked to institutional choices about whether to

adopt BWCs and, after that decision had been made, how to implement BWC technologies within PPD. In particular, we find that the choice to adopt was influenced by local events in which a lack of visual evidence led to disputes about what had occurred during police-public interactions. Decisions about how to implement BWCs then focused, at least in part, on addressing that lack of transparency and visual evidence.

### ***Relative Advantage***

Despite the cost, PPD stakeholders viewed BWCs as being much more effective in documenting police activities than previously used technologies. All 17 interviewees agreed that BWC footage would be most useful in determining what occurred during citizen interactions and, as such, the footage could be relied upon to conduct use-of-force or complaint investigations. While the stakeholders seemed to think that BWC video would be relevant to criminal investigations, they were clear that having video that documented the entirety of the citizen encounter was paramount in their decision making.

*“I [worked] in internal affairs for several years. I can tell you while I was there, there were many times when somebody would come in and file a complaint, and I was thinking, ‘Wow, I wish I could just see what really happened.’ Because you have this sense that it’s not the way they’re describing it and then you have the officers that come in and say, ‘No, I did not do that. I did not say that.’ You can’t prove definitively what happened. You may tend to believe the officer and not believe the citizen, but you can’t prove it.”*  
*[Stakeholder 1]*

In the minds of PPD stakeholders, BWCs would address an important organizational need: increased transparency during citizen encounters. Addressing this need would help them protect the department, hold officers accountable, and serve as a gesture of sincerity to the community.

Interestingly, the decisions to implement CinePresa and ProCop BWCs both came after relatively high-profile events within the Pennybridge community where details of what occurred were largely disputed by the parties involved. Before PPD implemented the CinePresa BWCs in



2011, there was an event that we will refer to as the “Backyard BBQ Brawl,” which was a source of much controversy within the Pennybridge community.

*“We were called to the scene because of a fight...There is a lot of people out in the parking lot. The officers...basically used a form of pepper spray to disperse the crowd... A lot of people were sprayed. It became a major issue because it was predominantly an African-American crowd and there was a lot of allegations going on about that. That was before we had any cameras... We had absolutely no phone camera videos that showed up for that incident when we had probably 100 people at least in the crowd. In my opinion, the reason none of that video showed up is that it did not put the crowd in a good light, and it may have put us in a better light...I really wish, and I think it might have changed the whole tenor of that incident if we had had body cams at that time just to show exactly what we did. [Stakeholder 2]*

Shortly after this event, PPD decided to implement the CinePresa cameras. However, they were not very confident in the technical abilities of the CinePresa BWCs, nor did they force any officers to wear the cameras or provide much policy guidance concerning when to activate them (which is discussed in more detail below). As such, the footage only served useful during the times that individual officers who volunteered to wear CinePresas decided to turn them on, if they even chose to wear them.

Over time, as PPD experienced a shift in leadership including the appointment of a new chief and as BWC technology advanced, PPD stakeholders decided to consider the market for superior BWCs. These efforts were also influenced by another high-profile event, the “Firefighter Incident,” which involved a black fire fighter who was briefly cuffed and let go by officers. The citizen was riding a bicycle while making ambiguous hand gestures at two police officers who were sitting in their patrol car at an intersection. He was stopped because the officers thought he was flagging them down but at first contact was very combative. He was subsequently cuffed, and the situation was diffused. The firefighter was sent on his way with a minor traffic citation because while riding his bicycle, he violated myriad traffic ordinances.

However, false allegations of police brutality and discourteousness from the firefighter emerged, resulting in a messy, protracted lawsuit that was eventually settled.

One of the officers who was involved in the Firefighter Incident opted to wear a CinePresa BWC, however, since there was no activation policy at the time and wearing a BWC was voluntary, the officer did not think to turn on the camera until the citizen had already been cuffed. As such, the footage was incomplete and was not of great quality. This led to two important changes: a BWC policy (which is discussed in a section below) and implementing the ProCop BWCs.

In the minds of most PPD stakeholders (14/17), ProCop BWCs yielded relative advantage over not having BWCs as well as over the CinePresa models, predominantly because these new cameras would help them better control the narrative over what happened during citizen encounters. From a technical standpoint, the ProCop cameras could record many more citizen interactions as they had more on-board storage and a relatively large battery pack. The lenses were also more stable and comprised a newer technology than the previous fleet of cameras. Most importantly, ProCop cameras would be uploaded to ViewSafe by placing the unit on a dock, ensuring against the possibility that anyone would tamper with or edit footage, thus improving the perceived credibility of the video.

In case an officer violated policy, PPD could come out and admit their mistake and take decisive disciplinary action. If the citizen was in the wrong, PPD could show footage to the public and explain the officers' decision making. If a complaint was filed, PPD would likely have longer, uninterrupted, and more credible video of the event than other parties. Armed with a policy that required officers to record as soon as they were dispatched to a run, footage that could not be tampered with, and a product that was technically superior to what they previously had, all

of our respondents (17/17) felt that the ProCop era would render more transparency than in the past.

Lastly, because it was easier to access footage on ViewSafe compared to the previous, SD card-based system, PPD was able to quickly share footage of potential high-profile events with the public. In fact, stakeholders would immediately release footage that they deemed to have potential for public outrage on their social media platforms before the news media could find out about it. This, in turn, provided PPD the ability to be in significant control of the narrative and gave off the perception that they had nothing to hide.

### ***Compatibility***

Compatibility, or the “degree to which an innovation is perceived as consistent with existing values, past experiences, and needs of potential adopters” (Rogers, 2003; pp. 240) had both positive and negative implications at PPD. Within the department, BWCs were perceived by administrators as compatible with organizational and environmental realities. However, BWCs were not universally compatible, particularly with frontline officers’ values and concerns about supervisory overreach and workplace surveillance.

Stakeholders were aware that BWCs might pose significant challenges to existing belief systems among patrol officers and the local police union. In fact, all 17 who participated in the study mentioned that they had initially expected pushback from patrol and the union, and they found this pushback to be based in legitimate concerns for officer privacy. Specifically, they expected officers to be concerned that BWCs might be used to monitor them on a constant basis, opening room for administrators to scrutinize behaviors that went beyond their typical duties. In the eyes of the patrol officers and the police union, administrators could meticulously scrutinize BWC footage until they found some technicality with which to hem up individual officers whom

they did not like. Moreover, 8 stakeholders recognized that BWCs might also capture private conversations, jokes and/or sarcasm out of context, or officers blowing off steam.

*“I expected a lot [of pushback], and I think that was probably the first thing I did as Chief that really turned a lot of people against me. I had been pretty well-received up until that point. I would think now, most of the guys are buying into it. I don’t know the feedback you’re getting, but I think most of them are believers in it...One of the things that the guys were concerned about and I understood was, ‘What if we forget to turn off the recorder and we get back in the car and we’re bad-mouthing the chief?’ As an officer, I used to do it. I mean you got your partner in the car. You’re upset about a new policy, you’re griping and moaning. We were trying to put them at ease that, ‘If you screw up and do that, we’re not out here listening to those.’ Now, they all think we’re the boogey man. We set it up originally that the Internal Affairs sergeant, if you go to him, he could delete anything there was.” [Police Chief]*

Stakeholders hoped that allowing officers to petition the designated internal affairs officer to delete any non-case-related footage that officers might want off record would assuage some initial apprehension. Furthermore, at the time of implementation, 13 of them were confident that patrol officers would eventually see the protective benefits of having BWCs. As such, stakeholders were sanguine about the anticipated pushback, which they saw as predominantly temporary. The other four respondents perceived the pushback a handful of “loud” voices who would always be unhappy with anything the current administration did and, as such, were also not too concerned about how the patrol units and/or the police union would react.

In general, stakeholders perceived substantial compatibility between what BWCs could theoretically offer and what they perceived as organizational needs. These officers saw their positions in the organization as serving two (among many) relevant purposes: to protect the department and to hold officers accountable (17/17). They felt that BWC adoption was inevitable due to the perceived need to satisfy public demands for transparency and accountability.

Moreover, our respondents generally viewed video evidence as less biased and more straightforward compared to other forms of evidence and, as such, saw BWC footage as the most compatible innovation to address these goals.

Eleven stakeholders reported that the public at large had become more concerned with police accountability and, as such, demanded more action from the police. With the advent of social media and smartphones, people were easily able to share partial videos of police encounters with others and promulgate their opinions. Stakeholders anticipated that these national changes might lead to more complaints filed against officers and/or open the department up to more lawsuits at the local level. As such, having BWC footage of citizen encounters could prove useful when an encounter was the subject of a complaint or lawsuit.

*“I realize they've become a necessity. Part of the problem law enforcement has in what goes on and with some of the current things. Black Lives Matter and some of the things that are going on, I think is, not the majority, but there was law enforcement that beat people and then lied about it...things happened in high-profile things, and law enforcement was shown to be less than truthful when things did happen. As a result, we've had to supplement our testimony in our paperwork with video now...” [Stakeholder 3]*

As the quote from the stakeholder above demonstrates, some officers felt that the police themselves shared some blame in the perceived changes in how the public viewed them. They understood that some officers took advantage of the traditionally invisible nature of police-citizen encounters, leading to potentially differential outcomes for different people based on extralegal factors when it came to invoking the law or using coercive force. Moreover, they were sure that this was happening at PPD as well. To this end, footage would serve to encourage officers to behave more professionally, to deter officers from misconduct, and/or to weed out officers engaging in nefarious activity.

## ***Trialability***

In their journey with BWCs, PPD stakeholders (16/17) saw BWCs as a very “trialable” innovation, especially due to the ability to test cameras at a small scale or to function within a “beta testing” phase offered by a manufacturer. This ability to test the cameras prior to making full adoption decisions reduced uncertainty about how that innovation might operate in their own environment (see Rogers, 2003).

In 2011, the previous police chief purchased a small fleet of BWCs for officers to test on a voluntary basis for the purpose of finding ways to help protect officers from frivolous complaints. During that time, CinePresa did not offer piloting, but the cameras were affordable (according to current standards) and the mayor at that time allowed some funds to purchase the BWCs.

While they did purchase enough cameras initially to cover the entire patrol division, the roll out began on a voluntary basis as they wanted to see what logistical, financial, and organizational demands would come from full implementation. As such, the department sent out calls for volunteers, but did not grant every officer that volunteered a camera.

*“They did volunteer...we even put out emails prior to that saying, ‘We are going to be testing and evaluating various body-worn cameras. Who would like to do it?’ Now once we got the volunteers, we did have the discretionary authority to say, ‘yes’ or ‘no’ and the reason why. We wanted to make sure that the ones that were doing it were active officers. ... those that were going to be getting involved. We don’t want to have an officer assigned to a camera for two weeks and you turn it in with one recording. We wanted to see it in action. We wanted to see what it was going to be like in all lighting conditions and in buildings and in the outdoors and in all kinds of weather conditions.”*  
*[Stakeholder 4]*

Even though they did not “pilot” the CinePresa units in a traditional sense, PPD was able to trial the cameras by allocating them to specific officers who they thought would give them the

best idea of how things might look after full implementation. In the end, the technical capabilities of CinePresa cameras did not impress the PPD stakeholders to fully implement them (which is discussed in the sections below), stakeholders felt that the CinePresa era provided them with a glimpse of how BWCs could benefit the department conceptually and decided to move to piloting new cameras in 2013.

In 2013, PPD piloted several BWC brands, but ended up choosing ProCop, which in their minds offered much trialability. In their negotiations with BWC manufacturers, ProCop was the only agency to offer that PPD become what is known as a “beta agency.” This meant that in return for signing a contract with ProCop, PPD would get to test and provide feedback on new products. When products failed, PPD would get new ones at no additional cost and their warranties would reset. Compared to all the other manufacturers, this seemed to PPD stakeholders (15/17) like an offer that was too hard to refuse.

*“We were sort of a test agency for them when they were starting out...They would make a new product based on our feedback, give us all new products to test. We got a lot of free things off of them. They would swap them out, start the warranty over again for us. I don't know that we would have been able to afford it had they not done that.”*  
[Stakeholder 5]

PPD stakeholders were wooed by the prospect of being able to test BWCs to the extent that ProCop offered. Knowing that once something failed, they could return it for no (or little) cost to be replaced, reduced a significant amount of uncertainty.

### ***Complexity***

At PPD, stakeholders viewed BWCs—especially the ProCop units—to be rather straightforward, especially since the ProCop cameras were adopted after the agency had already used dashcams and the CinePresa BWCs. In particular, their experience piloting and beta testing BWCs served to allay perceptions of complexity. Respondents lauded the perceived simplicity of

the frontend BWC system, finding them durable and “cop proof.” However, PPD stakeholders were more concerned about the backend storage logistics and costs. For example, one of the qualms stakeholders had with the CinePresa models was that footage was saved to SD cards that would then need to be manually uploaded to the departmental intranet. In the minds of most respondents (11/17), this created the opportunity for people outside the agency to question the integrity with which footage was handled, generating chain-of-custody concerns. SD cards could get lost and video could be deleted without any audit trails. As such, the department sought a product that would restrict footage tampering but still allow minor redacting abilities. ProCop offered such a solution, as the cameras could either be docked or plugged into a computer via a micro-USB to have footage downloaded to the departmental intranet. Footage would then automatically be uploaded to ViewSafe, which was the software solution that ProCop offered. Moreover, an audit trail would track everyone who had access to or opened video files in ViewSafe.

During the piloting phase between the move from CinePresa to ProCop, stakeholders considered the option of implementing a system that offered cloud-based storage. Such a system would alleviate PPD’s responsibility for keeping the BWC footage on their own servers. This was preferable to PPD stakeholders (14/17); however, they were dissuaded by the upfront costs of cloud storage. These services were subscription-based and, to some extent, limited the amount of storage available (without additional expenditures for more space). At the time, the state government had not promulgated video storage guidelines, and so PPD was treating such video just as it treated all digital evidence, storing it for 10 years before purging any unused data.<sup>4</sup> In their view, these factors made going with a cloud-based solution unmanageable at the time. With the on-premises system offered through ProCop, PPD stakeholders felt (at least at the time of



implementation) that they would be in more control of the financial and logistical burden that BWCs might present and as such felt sanguine about their decision.

### ***Observability***

PPD were, in a sense, “pioneers.” They were the first agency of their size in their state to experiment with and adopt BWCs. As such, they did not benefit from Rogers’ (2003) concept of “observability,” or the extent to which potential adopters may perceive the outcomes of an innovation elsewhere. Indeed, since PPD implemented BWCs prior to the increased furor for BWCs in the aftermath of Michael Brown’s killing in Ferguson, Missouri, they were among the first wave of agencies in the United States to have experimented with and implemented them. By the time the 21<sup>st</sup> Century Policing Taskforce’s policy guidelines were released, PPD had long been using BWCs. Observability clearly had little impact on their implementation decisions. However, the *lack of observability* did impact how PPD paid for the technology and formulated their initial BWC policies, as there were fewer funding opportunities and best practice guidelines available at the time.

BWCs are a costly innovation requiring a lot of backend maintenance and storage in addition to the initial frontend costs (White & Malm, 2020). As such, finding the funds to acquire BWCs is not easy if not subsidized by external funding sources. While PPD was able to find some resources from the Pennybridge City Council when they sought to implement ProCop (and ProCop offered some products and services at no cost as part of the beta program), most of the implementation of the cameras were and continued to be paid for through asset forfeiture funds. The asset forfeiture funds aided in paying for the initial fleet of cameras in addition to the initial upgrades to the on-premises server. Subsequently, as they added storage space to the server, they would often dip into additional asset forfeiture funds in the years since. However,

the department was also able to obtain some funds from the Pennybridge City Council, who approved the hiring of a civilian IT worker the year after ProCop was implemented. The stakeholders explained that they were able to show that there was a drastic need for this position during the same budget meeting where they reported their initial decline in citizen complaints because of the BWCs. As such, the council seemed buoyant to the idea of allocating funds for a civilian in IT.

Furthermore, PPD had very little guidance on how to formulate policy when they implemented BWCs. Consequently, their policy grew from a single-page document at beginning of the CinePresa era to an 11-page standard of operation at the time of data collection. During the CinePresa years, the usage and activation of the BWCs was entirely voluntary. However, when the department chose to move forward with ProCop, they decided to make clearer policy guidelines and also overhauled the policy. PPD stakeholders tried to identify and contact other agencies in the country that were like them and who were also using BWCs in early 2013 and to their surprise found that many of the agencies had not implemented a mandatory activation policy.

*“It’s kind of interesting. We are different from the other agencies. Our body camera policy was so much more extensive. We require our officers to record every public interaction. Whereas every other agency I’ve ever talked to leaves it at the officer’s discretion.” [Stakeholder 6]*

At that point PPD decided to move forward with their policy on their own. When they implemented the ProCop units, PPD made several important changes to their policy. Interestingly, many of the directives that were added to the policy, seemed to be after high-profile or suspicious events that occurred in Pennybridge involving the police.

For example, the review of footage was reactive and would be conducted by squad supervisors. Stakeholders felt that it would be too much of a time and resource strain to force supervisors to conduct proactive reviews of footage. Therefore, they mandated supervisor review of BWC footage only in response to complaints, uses-of-force, or their supervisor suspicion. If a use-of-force occurred and an officer did not have accompanying video, the shift commander would immediately be included in the investigation. A written statement would need to be generated by the officer responsible for the use-of-force as to why there was no footage and would be verified by the shift commander and direct supervisor. Sometimes, such investigations would be pushed to the chief of patrol or the police chief in the case where those responsible for the investigation did not feel as though they could make a clear determination of the facts. This directive was articulated after a high-profile event.

After some time, they implemented another directive, compelling supervisors to conduct monthly “run-card audits.” This particular directive was implemented shortly after a high-profile event occurred in PPD where not all the officers present had activated their BWCs. This policy directive mandates supervisors logging into their subordinates’ ViewSafe folders monthly and assessing whether the amount of video included in their ViewSafe folders were roughly like the amount of calls they were dispatched or responded to. If glaring discrepancies existed, supervisors would be compelled to investigate further and notify command staff.

Later, PPD stakeholders expanded the policy to include officer activate their cameras at the moment they are dispatched to a call. This came after some officers who did not record their use-of-force on a citizen complained that when they were faced with a high-intensity situation that they were focused on their safety and the safety of the community. As such, they had no time to think about activating their BWCs. Much to the chagrin of supervisors who had to review

the footage, officers were compelled to activate their cameras as they are dispatched to runs. This would then allow them to focus on the situation at hand instead of dividing their attention.

## **Discussion**

Much existing research on BWCs in police organizations has focused on the effects of BWC deployment or the perspectives of the officers tasked with wearing the cameras. However, less attention has been paid to the decision-making and experiences behind camera adoption. In many police agencies, the administrators who make the decisions about adoption and policy rarely use or wear BWCs. Our findings in this study are important because our data on BWC adoption and implementation comes from an agency that chose to adopt BWCs prior to the events in Ferguson, MO, in the summer of 2014, and before any formal BWC implementation guidelines were available from the federal government. Our study also helps fill gaps in existing literature on BWC implementation, examining why BWCs were implemented within the agency and how stakeholders navigate the challenges associated with implementing BWCs.

Our findings are consistent with, and informed by, Rogers' (2003) Diffusion of Innovations framework. For example, our respondents reported that BWCs offered relative advantage over existing technologies and processes within their agency. As Rogers (2003) explains, relative advantage can be one of the most instrumental factors in the adoption decision-making process. PPD administrators felt that BWCs offered both economic and social advantages to those making implementation decisions. In the minds of the PPD stakeholders, BWCs—in general—were seen as more effective for documentation compared to previous technologies and as such made the technology a valuable venture. However, although PPD stakeholders were sanguine about the concept of BWCs, they seemed to have difficulty finding a specific product that would be both financially and logistically viable.

PPD respondents also felt that BWCs would be compatible with the agency’s mission to identify, record, and report information, a central feature of policing (Gaub & Koen, 2021). They saw BWCs as a tool for improving documentation. In their minds, video evidence was straightforward. PPD stakeholders felt that having BWCs during citizen interactions would, in theory, allow them to have far more access to straightforward evidence of what occurred during these encounters compared to what other technologies could offer. Therefore, BWC footage was also compatible with how they viewed evidence in a general sense.

To PPD stakeholders, BWCs were a very trailable innovation, both during the CinePresa and ProCop eras. The CinePresa pilot convinced them of the need to move to adopt BWCs, while their experience with ProCop allowed them to find a specific product with which they were sanguine. Being a beta agency reduced a significant amount of uncertainty for PPD stakeholders and as such, the trialability of ProCop BWCs were instrumental in their adoption.

According to Rogers (2003), there exists an indirect relationship between the perceived complexity of an innovation and adoption. The more people perceive a technology as being “complex,” the less likely they are to adopt it. As noted earlier, PPD respondents felt that BWCs were generally “cop proof,” lauding the perceived simplicity of the frontend BWC system. Moving from CinePresa to ProCop seemed to pronounce these perceptions.

Finally, Rogers’ (2003) concept of “observability”—or the extent to which potential adopters may perceive the outcomes of an innovation elsewhere—was the only element of Rogers’ framework that was not well represented in our findings. Since observability relies on the ability of the potential adopter to observe favorable consequences of the adoption of an innovation by another agency, the fact that few agencies had adopted BWCs at the time meant

that PPD was largely unable to observe the impact of BWCs in similar agencies, which especially reflects in how their BWC policy evolved over time.

These findings have important implications for practitioners and scholars. First, because BWCs are not cheap, practitioners must also consider the product quality, costs, and technical capabilities, instead of simply going for what might initially seem to be the most affordable option. This might help them circumvent having to reconsider their existing program like PPD were forced to do. Furthermore, scholars must begin to consider the technical differences between BWC brands and determine how these technical aspects impact organizational outcomes and processes to bring more nuance to the BWC knowledgebase.

Second practitioners must have a clear understanding of what their policy goals are and implement a technology that most adequately addresses them. Moreover, when practitioners are aware of existing cultural norms within police agencies, they may emphasize those BWC features that are most compatible with those norms to garner buy-in. Similarly, future research can consider the extent to which organizational goals and norms align with certain technologies, which can highlight the extent to which they meet or fall short of public expectations.

Scholars must work with police departments and offer to help them assess and reach their policy goals as part of their community service engagements. Helping agencies collect data during piloting stages and helping them interpret and apply those data could help them make more sound and informed policy decisions. This should especially be the case when those agencies are early adopters in a low observability environment. Collaborating with practitioners could result in long-lasting partnerships that potentially lead to significant improvements in policy and program outcomes which ultimately benefit the community (Rudes et al., 2014).

## **Conclusion**

This study contributes to the growing body of research on BWC adoption by providing a case study on BWC implementation within a mid-sized municipal police agency in the mid-western United States. Specifically, it provides findings from the decision-making process surrounding the implementation of BWCs, based on interviews with agency administrators and others who had decision-making roles throughout that process, informed by Rogers' (2003) Diffusion of Innovations framework.

This research is not without limitations. It consists of a single case study with only one agency. Undoubtedly, various contextual factors make decision making and implementation decisions different in differently situated agencies. Additionally, the study was conducted after the agency had been using cameras for a few years—thus, respondents spoke to us based on their recollection of prior events and decisions. However, this study does make important contributions to the scholarly understanding of the implementation process. The lacunae of scholarly work investigating BWC implementation in general, and the likelihood that other agencies may have a somewhat different experience, suggests the need for more research on the subject so that we can better understand how these experiences diverge, and what similarities may exist.

## **References**

- Alpert, Geoffrey P., and Kyle McLean. 2018. Where Is the Goal Line? A Critical Look at Police Body-Worn Camera Programs. *Criminology & Public Policy* 17 (3): 1-10. doi: 10.1111/1745-9133.12374
- Bayley, D. H., & Bittner, E. (1984). Learning the skills of policing. *Law & Contemporary Problems*, 47, 35.

- Bennett, Richard R., Brad Bartholomew, and Holly Champagne. 2019. Fairfax County Police Department's Body-Worn Camera Pilot Project: An Evaluation. Washington, D.C.: Department of Justice, Law and Criminology, The American University.  
[https://www.fairfaxcounty.gov/police/sites/police/files/assets/documents/fcpd%20final%20report%2006\\_25\\_19.pdf](https://www.fairfaxcounty.gov/police/sites/police/files/assets/documents/fcpd%20final%20report%2006_25_19.pdf)
- Braga, Anthony A., William H. Sousa; James R. Coldren, Jr.; and Denise Rodriguez. 2018. The Effects of Body-Worn Cameras on Police Activity and Police-Citizen Encounters: A Randomized Controlled Trial. *Journal of Criminal Law & Criminology* 108 (3): 511-538.  
<https://scholarlycommons.law.northwestern.edu/jclc/vol108/iss3/3>
- Brown, Gregory R. 2021. Police body-worn cameras in the Canadian context: Policing's new visibility and today's expectations for police accountability. In *Police on Camera: Surveillance, Privacy and Accountability*, edited by Bryce Clayton Newell, pp. 122-148. Routledge.
- Bullock, K., Sidebottom, A., Laycock, G., & Tilley, N. (2022). The diffusion of police innovation: A case study of problem-oriented policing in England and Wales. *International Journal of Police Science & Management*, 14613557221106084.
- Crank, J. P. (2003). Institutional theory of police: A review of the state of the art. *Policing: An International Journal of Police Strategies & Management* 26(2):186-207.
- Drape, T. A., Westfall-Rudd, D., Doak, S., Guthrie, J., & Mykerezzi, P. (2013). Technology integration in an agriculture associate's degree program: A case study guided by Rogers' diffusion of innovation. *NACTA Journal*, 57(1), 24-35.
- Elison, S., Ward, J., Davies, G. and Moody, M. (2014), "Implementation of computer-assisted therapy for substance misuse: a qualitative study of Breaking Free Online using Roger's



- diffusion of innovation theory", *Drugs and Alcohol Today*, Vol. 14 No. 4, pp. 207-218.  
<https://doi.org/10.1108/DAT-05-2014-0025>
- Frank, K. A., Zhao, Y., & Borman, K. (2004). Social capital and the diffusion of innovations within organizations: The case of computer technology in schools. *Sociology of education*, 77(2), 148-171.
- Gaub, J. E., Choate, D. E., Todak, N., Katz, C. M., & White, M. D. (2016). Officer perceptions of body-worn cameras before and after deployment: A study of three departments. *Police Quarterly*, 19(3), 275-302.
- Gaub, J.E., Todak, N., White, M. D. (2017). Beyond Patrol: Exploring the Perceptions of Police Body-Worn Cameras among Officers in Specialized Units. Technical Report, February 2017. Arizona State University, Center for Violence Prevention and Community Safety.
- Gaub, Janne E. 2021. Assessing the Utility of Body-Worn Cameras for Collegiate Police Agencies. *Police Quarterly* 25 (1): 118-148. doi: 10.1177/10986111211037586
- Gaub, J. E., Koen, M. C. (2021). Cameras and police dataveillance: a new era in policing. In B. Arrigo, B. Sellers (eds), *The Pre-Crime Society: Crime, Culture and Control in the Ultramodern Age*, 203-225.
- Goodall, M. (2007). Guidance for the police use of body-worn video devices. London, England: British Home Office, Police and Crime Standards Directorate.
- Guzik, Keith, A. Sesay, O. Oh, R. Ramirez & T. Tong. 2019. Making the Material Routine: A Sociomaterial Study of the Relationship Between Police Body Worn Cameras (BWCs) And Organisational Routines. *Policing and Society* 31 (1): 100-115.
- Holman, L., & Perreault, G. P. (2022). Diffusion of innovations in digital journalism: Technology, roles, and gender in modern newsrooms. *Journalism*, 14648849211073441.

- International Association of Chiefs of Police (IACP). 2004. The Impact of Video Evidence on Modern Policing: Research and Best Practices from the IACP Study on In-Car Cameras. Alexandria, VA: IACP. <https://cops.usdoj.gov/RIC/Publications/cops-w0404-pub.pdf>
- Joh, Elizabeth. 2017. Free Police Body Cameras Come With a Price. *Slate.com*, Future Tense blog, April 5. <https://slate.com/technology/2017/04/taser-international-now-axon-offers-police-free-body-cameras.html>
- Koen, M. C., & Willis, J. J. (2017). Body-worn cameras: The new “normal?” In J. Moriarty (Ed.), *Criminal Justice Technology in the 21st Century* (pp. 69–85). Springfield, IL: Charles C. Thomas.
- Koen, Marthinus C., and James J. Willis. 2020. Making sense of body-worn cameras in a police organization: a technological frames analysis. *Police Practice and Research*, 21 (4): 351-367.
- Koen, Marthinus C., James J. Willis, Stephen D. Mas. 2019. The effects of body-worn cameras on police organisation and practice: a theory-based analysis. *Policing and Society*, 29 (8): 968-984.
- Koen, M. C., Newell, B. C., & Roberts, M. R. 2021. Body-worn cameras: Technological frames and project abandonment. *Journal of Criminal Justice*, 72, 101773.
- Koper, Christopher S., Cynthia Lum, and James J. Willis. 2014. Optimizing the Use of Technology in Policing: Results and Implications from a Multi-Site Study of the Social, Organizational, and Behavioural Aspects of Implementing Police Technologies. *Policing: A Journal of Policy and Practice*, 8 (2): 212–221.

- Lum, Cynthia, Megan Stoltz, Christopher S. Koper, and J. Amber Scherer. 2019. Research on body-worn cameras: What we know, what we need to know. *Criminology & Public Policy* 18 (1): 93–118.
- Lundblad, J. P. (2003). A review and critique of Rogers' diffusion of innovation theory as it applies to organizations. *Organization Development Journal*, 21(4), 50.
- Miller, L., & Toliver, J. (2014). Implementing a body-worn camera program: Recommendations and lessons learned. Washington, D.C: U.S. Department of Justice, Bureau of Justice Assistance, Office of Community Oriented Policing Services.
- Newell, B. C. 2021. Police Visibility: Privacy, Surveillance, and the False Promise of Body-Worn Cameras. University of California Press.
- Newell, B. C., & Greidanus, R. 2018. Officer Discretion and the Choice to Record: Officer Attitudes Towards Body-Worn Camera Activation. *North Carolina Law Review*, 96 (5): 1525-1578. <https://scholarship.law.unc.edu/nclr/vol96/iss5/8>
- Newell, B. C., Koen, M, C. 2022. Painting the Narrative: Police Body-Worn Cameras, Report Writing, and the Techno-Regulation of Policework. *First Monday* (forthcoming).
- Nix, J., Todak, N., & Tregle, B. (2020). Understanding body-worn camera diffusion in US policing. *Police Quarterly*, 23(3), 396-422.
- Pickering, J. C. (2020). Officers' perceptions regarding the unexpected effects of body-worn cameras. *Policing: An International Journal*, 43(2), 390–402.
- Rogers, E. M. (2003). *Diffusion of Innovations 5th ed.* Free Press: New York, NY
- Rudes, D. S., Viglione, J., Lerch, J., Porter, C., & Taxman, F. S. (2014). Build to sustain: Collaborative partnerships between university researchers and criminal justice practitioners. *Criminal Justice Studies*, 27(3), 249-263.

- Skogan, W. G., & Hartnett, S. M. (2005). The diffusion of information technology in policing. *Police Practice and Research*, 6(5), 401-417.
- Smith, J. J. (2019). To adopt or not to adopt: Contextualizing police body-worn cameras through structural contingency and institutional theoretical perspectives. *Criminal Justice Review*, 44(3), 369-385.
- Todak, N., Gaub, J. E., & White, M. D. (2018). The importance of external stakeholders for police body-worn camera diffusion. *Policing: An International Journal*. 14(4), pp.448-464
- U.S. Customs and Border Protection. 2015. Body-Worn Camera Feasibility Study Report. CBP Body-Worn Camera Working Group.  
<https://www.cbp.gov/sites/default/files/documents/body-worn-camera-20151112.pdf>
- U.S. Department of Justice. 2015. Department of Justice report regarding the criminal investigation into the shooting death of Michael Brown by Ferguson, Missouri police officer Darren Wilson. Washington, D.C.: U.S. Government Printing Office. Retrieved from [https://www.justice.gov/sites/default/files/opa/press-releases/attachments/2015/03/04/doj\\_report\\_on\\_shooting\\_of\\_michael\\_brown\\_1.pdf](https://www.justice.gov/sites/default/files/opa/press-releases/attachments/2015/03/04/doj_report_on_shooting_of_michael_brown_1.pdf)
- Wainwright, D. W., & Waring, T. S. (2007). The application and adaptation of a diffusion of innovation framework for information systems research in NHS general medical practice. *Journal of Information Technology*, 22(1), 44-58.
- Weisburd, D., & Lum, C. (2005). The diffusion of computerized crime mapping in policing: Linking research and practice. *Police Practice and Research*, 6(5), 419-434.
- Wejnert, B. (2002). Integrating models of diffusion of innovations: A conceptual framework. *Annual Review of Sociology*, 28(1), 297–326.
- White, Michael D., and Aili Malm. 2020.

- Cops, Cameras, and Crisis: The Potential and the Perils of Police Body-Worn Cameras.  
New York University Press.
- White, M. D., Todak, N., & Gaub, J. E. (2017). Assessing citizen perceptions of body-worn cameras after encounters with police. *Policing: An International Journal*, 40(4), 689–703
- White, Michael D., Natalie Todak, and Janne E. Gaub. 2018. Examining Body-Worn Camera Integration and Acceptance Among Police Officers, Citizens, and External Stakeholders. *Criminology & Public Policy*, 17 (3): 649-677.
- Willis, J. J. (2019). Police technology. In M. Deflem (ed.), *The Handbook of Social Control*, (221-234). Wiley Blackwell.
- Willis, J. J., & Mastrofski, S. D. (2011). Innovations in policing: Meanings, structures, and processes. *Annual Review of Law and Social Science*, 7(1), 309-334.
- Willis, J. J., & Mastrofski, S. D. (2017). Understanding the culture of craft: lessons from two police agencies. *Journal of Crime and Justice*, 40(1), 84-100.
- Wood, Stacy. 2016. Police Body Cameras: Emotional Mediation and the Economies of Visuality. In *Emotions, Technology, and Design* (edited by Sharon Y. Tettegah and Safiya Umoja Noble), 227-239. Academic Press.
- Wy, G.C., Gaub, J.E. & Koen, M.C. (2021). The Impacts of Body-Worn Cameras: An Examination of Police Specialty Unit Perceptions through Diffusion of Innovations. *American Journal of Criminal Justice*. <https://doi.org/10.1007/s12103-021-09624-x>