A 'Third Umpire' for Policing in South Africa

Applying Body Cameras in the Western Cape

David Bruce and Sean Tait

CopCast dashboard. Photo: Bruno Siqueira

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Introduction[1]

Information and communication technologies (ICTs) are rapidly changing the way governments, public agencies and people interact. With the advent and spread of technologies – especially wireless connectivity and wearables – new forms of communication and information exchange are possible. In best case scenarios, these can expand the range of options and opportunities for civic engagement across political, economic and social dimensions.[2] Not surprisingly, technological innovations are having a profound effect on the form and content of policing.[3] But what are the possibilities for the use of these new technologies for improving law enforcement in the global South? A new initiative led by the Brazil-based Igarapé Institute is testing this question. It involves police and civil society groups in Brazil and South Africa and is exploring how new technologies can improve the oversight and accountability of police. The initiative is called "smart policing".

The basic goal of smart policing is to apply ICTs – especially open-source body cameras – to improve oversight and accountability of police in selected cities of Brazil and South Africa.

In South Africa, smart policing is already underway and supported by government agencies in Cape Town (since 2013) and Johannesburg (since 2014). This Strategic Paper considers the wider context of body-worn cameras from a distinctly South African perspective. It first provides a cursory review of the rise of new technologies in policing and public security provision. It then drills down on the initial findings emerging from pilot programs with distinct user groups in Cape Town.

Taken together, smart policing has enormous potential in South Africa, as well as other settings in Sub-Saharan Africa. The emphasis on open-source solutions offers a cost-effective alternative to closed private technologies. What is more, there is evidence of enthusiasm among senior and junior officers to deploy smart policing, as the paper makes clear. However, there are also many challenges to rolling-out body-worn cameras, not least the costs of managing and storing data, as well as wider questions about the role of recorded footage in investigations and criminal cases. These challenges are hardly unique to South Africa, but are important considerations moving forward.

2   See the Open Empowerment Initiative, accessed 25 August 2014, www.openempowerment.org.
3   Robert Muggah, "Cop Cams Go Global", *OpenDemocracy*, 17 July 2014, https://www.opendemocracy.net/robert-muggah/cop-cams-go-global; Robert Muggah. "How Cop Cams Can Help Ordinary Citizens", *Los Angeles Times*, 9 July 2014, http://www.latimes.com/opinion/op-ed/la-oe-muggah-technology-police-brazil-20140710-story.html.

Technological innovation in policing

As might be expected, since the design and deployment of ICTs are often resource-intensive, many technology-related innovations in policing have occurred in the global North. A number of governments and law enforcement agencies have placed considerable emphasis on optimizing the use of new technologies – in some cases directly to counter the increasingly sophisticated use of ICTs by individuals and groups involved in criminal activity. Some of the most sophisticated examples come from the United States. One of the most elaborate of these is the emergence of "real time crime" and other "data fusion" centers.

Said to be the first of its kind in the US, the New York Police Department's Real Time Crime Center (RTCC) opened in 2005 and is used to provide information to the police officers of the NYPD. The RTCC emerged as an extension of efforts to computerize data used as part of the COMPSTAT system, introduced in the NYPD in the mid-1990s.[4] The RTCC webpage describes the RTCC as applying "advanced technology to combat crime and equip the NYPD with the tools to meet the challenges of modern policing."[5] In 2007 it was described as having access to a Crime Data Warehouse consisting of over 5 million New York State criminal records, parole and probation files, over 20 million New York City criminal complaints, 911/311 calls and summonses, over 31 million national crime records and more than 33 billion public records.[6]

The RTCC is used to provide information rapidly to police officers "so they hit the ground running and can better identify and apprehend criminals. The system provides officers with information on criminal suspects, including recent address and telephone numbers, arrest and parole information and even nicknames and tattoos."[7] It is also used to download cell phone images from anywhere in the city and forward these pictures directly to field investigators.[8] The center sometimes issues information to detectives and officers in minutes, where the task of compiling this information might in the past have taken considerably longer.

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4   The Computerworld Honors Program, *Case Study: New York City Police Department - Crime Data Warehouse*. (New York: The Computerworld Honors Program, 2006). http://www.cwhonors.org/case_studies/NYPD.pdf.
5   New York City Police Foundation, "Real Time Crime Center", *New York City Police Foundation*. Accessed 25 August 2014, http://www.nycpolicefoundation.org/programs/real-time-crime-center/.
6   Irving Wladawsky-Berger, "The NYPD Real Time Crime Center", *Irving Wladawsky-Berger*, 4 June 2007, http://www.irvingwb.com/blog/2007/06/the_nypd_real_t.html.
7   Ibid.
8   Ibid.

The system is integrated with satellite images and maps of New York, using GIS (geographic information system) software and allowing the tracking of suspects to their known addresses. The GIS mapping integration also enables more effective resource allocation across the city and faster response time, rendering the emergency response network faster and more resource-efficient. The center provides a real-time picture of police resources throughout the city, enabling the NYPD to "analyze how personnel and resources are used at any given moment across the city." [9] A RTCC has also been established by the police department in Houston, Texas.[10]

The installation of closed circuit television (CCTV) and fixed cameras is now commonplace.

The RTCCs are similar in many respects to other data fusion centers, many of which are linked to the US Department of Homeland Security (DHS). These are described as allowing "for the exchange of information and intelligence among law enforcement and public safety agencies at the federal, state, and local levels with the goal of maximizing their ability to detect, prevent, investigate, and respond to criminal and terrorist activity."[11] While the impetus for the establishment of the centers was to pre-empt planned terrorist attacks, they are also used extensively for collating and analyzing information on crime.[12] A DHS webpage dated January 2014 lists 78 fusion centers in the US.[13]

The installation of closed circuit television (CCTV) and fixed cameras is now commonplace.[14] Though they are also used for other purposes, including in industrial plants and for traffic monitoring, they are most widely used for crime prevention and security. The latter includes use by police and other government agencies, in the business world and for home security.[15] An article published in CCTV Image magazine in 2011 estimated the number of cameras in the United Kingdom was 1.85 million.[16] As cameras become smaller, more robust, more reliable and cheaper to build and maintain, their application has also diversified. They are being deployed to assist with oversight, supervision, operational management and enhancing effectiveness, providing a real-time view of what is occurring in a remote location.[17]

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9   Ibid.

10   Wikipedia, "Real Time Crime Center" *Wikipedia, the Free Encyclopedia*, 21 May, 2014. http://en.wikipedia.org/w/index.php?title=Real_Time_Crime_Center&oldid=575783893.

11   David Lambert, "Intelligence-Led Policing in a Fusion Center", *FBI Law Enforcement Bulletin*, December 2010, http://leb.fbi.gov/2010/december/intelligence-led-policing-in-a-fusion-center.

12   Ibid.

13   Department of Homeland Security, "Fusion Center Locations and Contact Information," 31 January 2014, http://www.dhs.gov/fusion-center-locations-and-contact-information.

14   David Farrington and Brandon Welsh, "Effects of Closed Circuit Television Surveillance on Crime: A Systematic Review", *Campbell Systematic Reviews* 4 (17), 2 December 2008, http://campbellcollaboration.org/lib/project/49/.

15   Wikipedia, "Closed-Circuit Television", *Wikipedia, the Free Encyclopedia*, 25 August 2014, http://en.wikipedia.org/w/index.php?title=Closed-circuit_television&oldid=622765734.

16   Graeme Gerrard and Richard Thompson, "Two Million Cameras in the UK", *CCTV Image 42*, Winter 2011, http://www.securitynewsdesk.com/wp-content/uploads/2011/03/CCTV-Image-42-How-many-cameras-are-there-in-the-UK.pdf.

17   See for instance Graham Denyer Willis, Robert Muggah, Justin Kosslyn and Felipe Leusin, *Smarter Policing: Tracking the Influence of New Information Technology in Rio de Janeiro*. Igarapé Institute Strategic Note 10, November 2013, http://pt.igarape.org.br/wp-content/uploads/2013/10/Smarter_Policing_ing.pdf.

Monitoring cameras in Cape Town.
Photo: Damien du Toit/ Flickr

There are also various examples of new scanning devices, increasing the capability of police to detect contraband or even identify individuals armed with a weapon. There are many projects in various stages of piloting and testing, including the TruNarc Laser Drug Scanner and the Zebedee.

- *The TruNarc device is able to scan for the presence of illegal narcotics in containers or bags. A small screen on the device displays the results. If illicit substances or cutting agents are detected, a small certificate containing the results is printed out on the spot. This can subsequently be used as legal evidence in court.[18]*

- *The Zebedee has been developed for the purpose of creating a three dimensional map of crime scenes. Zebedee uses a LiDAR (Light Detection and Ranging) scanner, 'which measures distance by illuminating an object with a laser and then analyzing the reflected light. This scanner sits on a spring-mount, which bobbles around as the user – or police officer in this case – walks through a location'.[19] Collected data can then be used to create a 3D map.[20]*

- *Another example is a "high-tech radar scanner" that can locate concealed weapons in real-time using radar waves and complex computer programs. The technology is designed to scan individuals passing through areas such as public spaces, gates or entrances in a crowd and to alert officials as soon as a threat is detected.[21]*

An example of "crowdsourcing" being used to mobilize information for law enforcement is the Vancouver, British Columbia, police department's response to riots in 2011. Dozens of people were injured in wanton violence that erupted after the Vancouver ice hockey team lost the championship series. A website maintained by the

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18   Matt Brogan, "New Australian Police Technology: The Good, the Bad, and the Privacy Invasion", *Techly*, 17 March 2014, http://www.techly.com.au/2014/03/17/new-australian-police-technology-good-bad-privacy-invasion/.
19   This results in a complete scan of an area, including hard-to-reach areas, such as cliff edges, deep gullies, dense bush land and other spots that are usually difficult to view or access.
20   Brogan, op cit.
21   Manchester Metropolitan University, "Radar Scanner Detects Hidden Guns, Knives and Explosives: MMU Scientists' Machine Set to Make World Safer", News & Events, Manchester Metropolitan University", 13 November 2013, http://www.mmu.ac.uk/news/news-items/2211/.

police asked people to identify those involved in the rioting from photographs, and to contribute pictures or video taken during the riot to identify participants and perpetrators. By December 2012, the riot investigators team had recommended 1,040 criminal charges against 315 suspected rioters.[22]

Personal digital assistants, tablets and smartphones

Some of the more exciting and accessible innovations involve the introduction and adaptation of devices such as personal digital assistants, smartphones and tablets to everyday policing tasks. For example, in 2013 the London Metropolitan Police Service ran a pilot program with 3,500 personal digital assistants (PDAs). These were used to document statements from victims of crime. They allowed officers to work more efficiently, as they only need to capture information once, and enabled officers to access crime information while on patrol. [23]

Likewise, the New South Wales (NSW) Police in Australia are now using iPad minis for traffic policing. The iPads are used to quickly look up a vehicle's registration, a driver's license or other important information. Officers can issue citations and email them as a pdf to the offending driver at the scene. Those involved in the technical support for the project estimate that it will save NSW police about 240,000 police hours and $1.2 million per year.

In some cases, smartphone apps are used in combination with other biometric technology. A new application introduced in South Australia earlier this year enables police to scan the fingerprints of suspects. A digital print is collected using a small scanning device, which is marginally larger than a credit card. An Android app installed on the police officer's smartphone then cross-references the scan against the national police database, Crimtrac. If a match is found, information such as criminal record, bail conditions and outstanding warrants is then routed to the officer's phone. The data supplied may also include additional warning information, such as a suspect's potential for violent behavior or likelihood of drug possession.[24]

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22   Steven Livingston, "Africa's Information Revolution: Implications for Crime, Policing, and Citizen Security", Africa Centre for Strategic Studies, November 2013, pp. 26-27, http://africacenter.org/wp-content/uploads/2013/10/ARP5-Africas-Information-Revolution1.pdf.
23   London Assembly, Budget and Performance Committee, "Smart Policing: How the Metropolitan Police Service Can Make Better Use of Technology", August 2013, p. 23, http://www.london.gov.uk/sites/default/files/Police%20technology%20report%20-%20Final%20version.pdf.
24   Brogan, op. cit.

Vehicle-mounted and body cameras

Alongside, and in some cases pre-dating, the introduction of these various types of mobile ICT devices, has been a trend towards the increased use of video cameras in policing. Since the introduction of fixed CCTV cameras in the 1980s and 1990s, police have increasingly embraced the use of vehicle mounted cameras, often referred to as dash-cams (dashboard cameras), in police vehicles.[25] By 2007, 66% of local police departments in the US were using video cameras. 61% of the video cameras were in police cars, 13% were for fixed-site surveillance, and 9% for mobile surveillance. The estimated 71,000 in-car cameras in use in 2007 was about 22,000 (45%) more than in 2003.[26] Many police vehicles in the US and elsewhere are also now equipped with cameras linked to Automated License Plate Recognition (ALPR) technology.[27]

In Orange County, California, the sheriff's department mounted video cameras on its patrol cars so that the resulting arrest footage could be used, when necessary, to protect against false accusations of excessive force. Not surprisingly, those tapes have also been used against the police officers themselves. For example, in June 2014, Robert Delgiudice, who was beaten by police for resisting arrest, had his case dismissed when the video showed that the officer had lied in his police report and preliminary hearing testimony. In the words of the Orange County deputy public defender who argued Delgiudice's case: "The cameras bring accountability."[28]

However, the major shift in recent years has been towards the use of body cameras.

However, the major shift in recent years has been towards the use of body cameras (also called uniform cameras or cop cams). In the US, these cameras are now widespread. Major police departments, including the Los Angeles Police Department,[29] and police departments in Fort Worth, Las Vegas and New Orleans, have deployed wearable police cameras.[30] The use of body cameras by police received a major boost in December 2014 in the wake of the controversy that followed the killing of 18-year old Michael Brown in Ferguson, Missouri, by a Ferguson police officer. Amid sustained protests in

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25   Ashley Fantz, "No Dashcams in Ferguson: One Less Tool in Michael Brown Shooting Investigation", *CNN*, 14 August 2014, http://www.cnn.com/2014/08/14/us/ferguson-dashcams/index.html.
26   Brian A. Reaves, "Local Police Departments, 2007", U.S. Department of Justice, Bureau of Justice Statistics, December 2010, http://www.bjs.gov/content/pub/pdf/lpd07.pdf.
27   Peter Murray, "Big Brother Can Drive - Police Car-Mounted Cameras Scan 10,000 License Plates Per Hour", *Singularity Hub*, 5 April 2011, http://singularityhub.com/2011/05/04/big-brother-can-drive-police-car-mounted-cameras-scan-10000-license-plate-per-hour/.
28   Adam L. Penenberg, "The Surveillance Society", *Wired*, Issue 9.12, December 2001, http://archive.wired.com/wired/archive/9.12/surveillance_pr.html.
29   Kelly Goff, "Officials Report Positive Reviews of LAPD's on-Body Cameras", *Los Angeles Daily News*, 11 March 2014, http://www.dailynews.com/general-news/20140311/officials-report-positive-reviews-of-lapds-on-body-cameras.
30   Joe Silver, "Big Brother Is Watching: London Police to Wear Cameras", *Wired UK*, 8 May 2014, http://www.wired.co.uk/news/archive/2014-05/08/london-met-wear-cameras.

Ferguson and across the nation, President Barack Obama signed an executive order which earmarked $75 million for the purchase of 50,000 body cameras by police departments in the US.[31]

In February of 2014, the Hampshire police in England announced that it would equip all frontline police officers with body cameras. The London Metropolitan Police followed in May with the launch of a one-year pilot project in which police will test 500 body cameras[32] in ten London boroughs.[33] In Australia, authorities decided to equip police in New South Wales with body cameras[34] while in December 2013 the Victoria police announced the introduction of a trial program using the cameras.[35]

Body cameras may be affixed to the head, glasses or vests. Their use is often motivated by a drive to enhance police efficiency and effectiveness, as well as improving police accountability. Law enforcement agencies contend that this translates into improved safety for communities. The president of the New South Wales Police Association made this observation:

Video captures events in a way that can't be represented on paper in the same detail and it has been shown the presence of this type of video can often defuse potentially violent situations without the need for force to be used. It will also show police dealing with difficult and dangerous situations every day and...provide clearer evidence when it's been alleged that police got things wrong. That has to be in both our own and the community's interest.[36]

A US Police Foundation study found that body-worn cameras would raise police officers' awareness that they were being monitored and therefore "…increase their compliance to rules of conduct, especially around use of force." During a recent experiment testing such cameras in Rialto, California, a study found that there was a "more than a 50% reduction in the total number of incidents of use-of-force compared to control-conditions." There were nearly ten times more citizens' complaints in the 12 months prior to the test than during the experiment period.[37]

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31   Russell Brandom, "Obama Announces Funding for 50,000 Police Body Cameras", *The Verge*, 1 December 2014, http://www.theverge.com/2014/12/1/7314685/after-ferguson-obama-announces-funding-for-police-body-cameras.
32   Silver, op. cit.
33   BBC News, "Metropolitan Officers Start Wearing Body Cameras", *BBC News*, 8 May 2014, http://www.bbc.com/news/uk-england-london-27313500.
34   Australian Associated Press, "NSW Government to Spend $4m on Body Cameras for Frontline Police", *The Guardian*, 18 May 2014, http://www.theguardian.com/world/2014/may/18/nsw-government-to-spend-4m-on-body-cameras-for-frontline-police.
35   Caroline Zielinski, "Victoria Police Video Camera Trial Begins", *The Age*, 24 December 2013, http://m.theage.com.au/victoria/victoria-police-video-camera-trial-begins-20131224-2zvg7.html.
36   Australian Associated Press, op. cit.
37   Tony Farrar, "Self-Awareness to Being Watched and Socially-Desirable Behavior: A Field Experiment on the Effect of Body-Worn Cameras on Police Use-of-Force", *Police Foundation,* March 2013, p. 9, http://www.policefoundation.org/content/body-worn-camera.

Technological innovation in the Global South

In Africa, as elsewhere, ICTs are not the exclusive domain of law enforcement. For instance, reports have emerged in Kenya indicating that traffic police are exploiting ICT functionalities in order to be able to reduce the chances of their being caught for corruption. Officers allegedly avoid receiving money directly from operators, since the bank notes could be treated and serialized to preserve evidence. Some analysts contend that certain corrupt officers receive bribes via mobile phone-based technology. It was indeed discovered that traffic officers were regularly received money through cashing agents of mobile phone companies.

However, in various African settings, there are examples of the use of ICTs to improve oversight over law enforcement and enhance citizen engagement in public security.[38] Technologically-enabled collective action offers a viable near-term complement to traditional crime fighting efforts. ICT makes it easier for community groups and NGOs to take action against crime and to publicise instances of police incompetence and corruption.[39]

Some examples from African countries include:

- Ushahidi, an open-source software platform, was founded by Kenyan technologists following the 2007 general election to record and map episodes of electoral violence using mobile phones, Geographic Information Systems (GIS) and global positioning satellites (GPS). In 2011, for instance, The Reclaim Naja initiative relied on crowdsourcing and the Ushahidi platform to monitor elections in Nigeria. Reports of events or activities relevant to the Nigerian elections were reported by text or voice messages.[40] Reclaim Naija continued to perform electoral monitoring in Nigeria in 2014.

- Crowdsourced monitoring systems also allow citizens to submit anonymous reports of petty bribes. One example is www.ipaidabribe.com, operated by a nonprofit organization called Janaagraha in India. In Nigeria, Ushahidi software has also been used in a platform called StoptheBribes! (StB), a CLEEN Foundation initiative. The system crowdsources information on bribe solicitations by the police in Lagos. It asks citizens to submit SMS messages outlining the occurrence of a bribe, "providing the time, place, amount of the bribe and the name(s) and badge number(s) of offending officer(s)."[41]

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38   See, for example, Mads Frilander, Jamie Lundine, David Kutalek and Luchetu Likaka, "New Technologies for Improving Old Public Security Challenges in Nairobi", *Igarapé Institute Strategic Note* 15, June 2014, http://igarape.org.br/new-technologies-for-improving-old-public-security-challenges-in-nairobi/.

39   Livingston, op. cit., p. 34.

40   Ibid., p. 27.

41   Ibid., p. 33.

• The iSafety project, developed by the Safety Lab, is an innovation test center focused on safety and security in the Western Cape province in South Africa and funded by the Western Cape provincial government. The project makes use of an Android-based mobile technology platform for data collection during fieldwork. Currently the iSafety app is being used in a project with Ceasefire[42] in the suburb of Hanover Park in Cape Town to assist in the collection and secure storage of data to improve the impact and effectiveness of their gang intervention work. The system records the GPS location of the user at regular intervals to map out their movements during their shift. When the user wants to log an event or incident, they use the platform to record and log it. This information, along with the GPS location of where the incidence was logged, is automatically recorded and uploaded to the cloud.

• The Crime and Justice Program of the Institute for Security Studies in South Africa monitors crime as part of its effort to improve public safety and the performance of police agencies. Towards this end it has established Crime Map Viewer. This is a public GIS platform that allows citizens to see police crime statistics for each police precinct in South Africa.[43] In 2011, Nairobi's Korogocho informal settlement launched a crime-mapping program with World Bank support to monitor conflict, crime and violence. Another crime-monitoring platform is Liberia's Early Warning and Response Network (LERN).[44]

• CCTV has also been used extensively by local governments in South Africa in order to monitor safety and enhance responsiveness to crime and violence.

In Latin America and the Caribbean, there are numerous examples of the application and development of new digital tools to prevent and reduce crime and violence. Some of the most far-reaching initiatives, in countries like Brazil, Colombia, and Mexico, involve efforts to harvest and analyze large quantities of raw data using COMPSTAT-style systems that "combine traditional surveillance measures with geo-referenced data collection from conventional administrative data sources, as well as citizen and police reporting."[45] In Brazil, São Paulo's Secretary for Public Security (SSP-SP) initiated an effort to modernize the state's information gathering capacity in 1999. In order to enhance policing capabilities in this city of some 20 million inhabitants, the office launched Infocrim. The system registers data from police reports in a central database that updates automatically every other hour. The system features information on the types of crimes committed, their location and the time they occurred, the nature of the incident, as well as other variables. The

42   The project is associated with the Chicago based anti-gang violence program, previously known as CeaseFire and now known as Cure Violence. See "CeaseFire Project Training with Chicago Experts Set to Begin – Joint Media Statement by Minister Plato and City of Cape Town Mayco Member JP Smith," Western Cape Government, 10 October 2011, http://www.westerncape.gov.za/news/ceasefire-project-training-chicago-experts-set-begin.
43   Livingston, op. cit., p. 28.
44   Ibid., p. 30.
45   Muggah and Diniz, op. cit., pp. 7-8.

system is online and generates real-time interactive maps. Supporters credit it with aiding in the reduction of annual homicide rates, from 12,800 in 1999 to some 7,200 in 2005.[46]

Mexico, Colombia and some Central American countries are also developing similar types of digital platforms to enhance surveillance capacities while also promoting accountability within police forces. For example, the Federal Secretary of Public Security of Mexico City drew on New York City's COMPSTAT process in 2008 to upgrade its capacities. The Police Performance Evaluation Room (Sala de Evaluación del Desempeño Policial) introduced a digitized system to evaluate the capital's tens of thousands of policemen (COMPSTAT 2012). In Colombia, Bogota's police force initiated a unified information system on violence and crime (CUIVD) in 1995, similarly adopting COMPSTAT principles.[47] At the regional level, there are also emerging indications of governments seeking to share and even align data on criminal violence.[48]

At the governmental level, there have been efforts to enhance the technological capacities of law-enforcement entities (both military and civil police) and courts, including improving the use and connectivity of surveillance cameras, increasing the quality of mobile communication systems and installing GPS and tablets in patrol vehicles.[49] In Rio de Janeiro, for example, digitally-enhanced oversight is aiding authorities in selected favelas where Police Pacification Units (Unidades de Polícia Pacificadora, or UPP) are operational:

> In Rocinha, a favela with an estimated 120,000 residents, concerns with continued drug violence persisted in spite of the installation of a UPP. To improve monitoring, the Public Security Secretary established 80 high definition cameras with 24-hour capacity. The cameras are spread throughout Rocinha and also draw on face recognition technology. The images from these cameras are displayed on 12 flat panel televisions that broadcast ten video feeds each. Each of these cameras is visible from another in order to prevent vandalism.[50]

There are also a number of ICT initiatives in Latin America and the Caribbean that rely on citizen participation using "multi-dimensional forms of information capture and dissemination." As in many of the African examples, these activities tend to combine "spatial and temporal analysis" of violence or other trends "while also seeking to use this data to improve the accountability and responsiveness of state institutions."[51] One example is a group called Citivox which has "worked with private companies, nongovernmental groups, and the city authorities of

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46   Ibid., p. 8.
47   Ibid.
48   Ibid., p. 9.
49   Ibid., p.7.
50   Willis et al., op. cit., p. 9
51   Muggah and Diniz, op. cit., p. 10.

Monterrey, Mexico, to track electoral violence" using a tool that enables real-time reporting using crowdsourcing methods.[52]

Another example, initially launched in Rio de Janeiro in 1995 and subsequently scaled-up across Brazil, is intended to "help community residents inform the police anonymously about actual or suspected crimes."[53] There are also initiatives that function independently of state institutions and serve as a means of distributing information about crime and

violence amongst members of the public, both in Latin America and the Caribbean[54] and elsewhere.[55] Though the examples are less numerous, there are also emerging instances of "ICT use connecting state entities and civilians to prevent and reduce violence."[56]

The Smart Policing project is being implemented between 2013 and 2015 in Brazil, Kenya and South Africa. Photo: Wikimedia

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52   Ibid.
53   Ibid.
54   Ibid., p. 11.
55   For a South African example, see Angelique Serrao, "Cold Cases Can Be Solved - eBlockwatch", *Independent Online*, 13 October 2014, http://www.iol.co.za/news/crime-courts/cold-cases-can-be-solved-eblockwatch-1.1764148#.VHWelzSUctA.
56   Muggah and Diniz, op. cit., p. 9.

The Smart Policing project

The Smart Policing initiative was launched in 2013 to improve police accountability and strengthen public safety in low- and middle-income settings of Brazil, Kenya and South Africa. Police in Brazil, South Africa and Kenya have regularly come under public scrutiny for their excessive use of force.[57] As such, there are opportunities for technology to play a role in strengthening police-community relations (by creating oversight) and strengthening police operations (by generating crime and operational data). For its part, Smart Policing consists of an Android application for smartphones that tracks video, audio and GPS coordinates passively and in real-time. The project is coordinated by the Igarapé Institute, and includes partnerships with the Military Police of Rio de Janeiro (PMERJ). It also includes collaboration with counterparts such as the Western Cape Provincial Government and the African Policing Civilian Oversight Forum (APCOF) in Cape Town, the Danish Demining Group (DDG) and the Spatial Collective in Nairobi. Smart Policing focuses on Brazil and South Africa in 2015-2016.

Smart Policing works by first downloading a specially-designed app to a mobile smartphone used by a patrol officer. The app includes an administrative interface accessible only by senior commanders. This app converts a smartphone (or any device running Android) into a mobile CCTV by streaming the video to a remote monitor to record and monitor police-civilian interactions. The commander can use the app to track multiple officers on a single interactive heat-map. The video from the camera can also be stored up to 90 days for later analysis, facilitating performance reviews and background checks of the activities of individual users. This technology also gathers GPS data, which can be used to inform policing responses and for directing officer movements.

In Rio de Janeiro, Smart Policing is being applied by the Military Police of Rio de Janeiro and its UPP to improve oversight and operations. Among the arguments in favor of the use of cameras is that police often feel "unjustly framed by residents…when issues of police use of force arise. The word of the community – verified or not – about police abuse often takes precedence, sidelining the police interpretation of events. The result is a police force that is often perceived as untrustworthy, abusive and confrontational – diminishing trust and reciprocity."[58] The filming of police interactions with civilians and suspects can potentially

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57   Robert Muggah and Ilona Szabó de Carvalho, "Fear and Backsliding in Rio", *The New York Times*, 15 April 2014, http://www.nytimes.com/2014/04/16/opinion/fear-and-backsliding-in-rio.html; see also Robert Muggah, "Are Brazil's Police Reformable?", *Huffington Post*, 15 April 2014, http://www.huffingtonpost.com/robert-muggah/are-brazils-police-reform_b_5154621.html.
58   Willis et al., op. cit., p. 11.

The filming of police interactions with civilians and suspects can potentially reduce police brutality and create another layer of police oversight.

reduce police brutality and create another layer of police oversight, while simultaneously collecting evidence that can be used in court or investigations at a later stage, as well as to contest unfair allegations against the police. In contrast with other body-worn cameras that use closed circuit systems, the use of open-source code and a smartphone-based platform also allows "secondary innovations that may be of particular value for policing violent environments," like parts of Rio de Janeiro, Cape Town and Nairobi. "One such innovation is the ability to detect when a phone goes from vertical to horizontal, thus indicating and sending an automatic digital alarm of a potentially wounded user of the device."[59]

There are several advantages to using Smart Policing in the Rio de Janeiro context. On the one hand, the autonomous recording of routine police patrols can serve as a safeguard against erroneous or murky allegations. Such data could be automatically and remotely uploaded to secure servers for review at a later date, and particularly in response to citizen complaints. During acute emergencies,

a live stream of video and audio is also feasible, allowing superiors to remotely observe a particularly important case in real-time. On the other hand, these recordings can also affect police behavior in such a way as to curb violent conduct. In other words, video could play a role in the pacification of police themselves, a stated goal of the UPP program. These multiple benefits could have distinctly positive outcomes for police behavior, accountability and citizen trust in police over the long term.[60]

Part of the thinking behind the Smart Policing app is that it should be "technology that police want to use."[61] Observers of the technology contend that the app may encourage more effective policing in hazardous environments:

> Police have access to partial and unreliable voice communication, even when calling for back-up during emergencies. What is more, police that are not physically sitting in their stations have virtually no ability to check criminal records, are unaware of where their colleagues are located, and have little means to check on a possible suspect remotely. An unintended consequence is that police are also provided with more discretionary space – which is due to (and exacerbates) limited supervision and oversight."[62]

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59   Ibid.
60   Ibid.
61   Robert Muggah, "Smart Phones and Smarter Law Enforcement", *Google Ideas – Conflict in a Connected World*, 24 August 2013, http://www.youtube.com/watch?v=KJ0im58A35w&feature=youtube_gdata_player.
62   Willis et al., op cit., pp. 7-8.

Even the most basic policing relies heavily on individual creativity and ingenuity. And as commendable as this may be, the absence of an adequate technological and communications infrastructure has negative repercussions. At a minimum, police are physically more at risk and thus tentative in their policing strategies. Technology can therefore improve physical safety, encourage more thorough patrolling and enhance accountability and oversight.[63] Privacy, on the other hand, is protected, as information will only be seen by officials with privileged and controlled access.[64]

Piloting Smart Policing

The Smart Policing app is currently being tested in South Africa. It is being piloted with a diverse range of use groups, including traffic police and neighborhood watch groups in a township setting. The expectation in both contexts is the same: to increase the oversight and accountability of policing activities. The South African pilot program was initiated in 2014 in conjunction with the Western Cape Provincial Government (WCPG) Department of Community Safety (DOCS), the Provincial Traffic Department and the Violence Prevention though Urban Upgrade (VPUU). It is supported by the Igarapé Institute and APCOF, a non-governmental organization. There are expectations of expanding the testing

in 2015-2016 to the Johannesburg, with the Johannesburg City Safety Program, under which the Johannesburg Metropolitan Police Department falls, having expressed interest.

The focus on provincial and city-level authorities is intentional. Indeed, the tests since 2013 in Cape Town were preceded by a series of discussions and approaches to the South African Police Services (SAPS) and the Cape Town Metro Police. While there was considerable interest, SAPS and the Cape Town Metro Police declined to be involved.

The initial trials since 2013 have been spearheaded by the Civilian Secretary for Police in the Western Cape and forms part of the civilian oversight/community watch work of the Western Cape DOCS. Expectations are high that Smart Policing can help the policing in the Western Cape become more responsive to community safety needs, especially by building on the success of the CCTV cameras and by creating a mobile and easily deployable system to track the actions and behavior of law enforcement officers.[65] According to Gideon Morris, the Provincial Secretary for Police, the focus of the pilot was "to get the technology stable enough and to try and expand the use of it once they know that the prototype is working fully. Once this had been achieved the discussion with SAPS will be resumed."[66]

63   Ibid., p. 8.
64   Muggah, op. cit.
65   Author interview with Gideon Morris, 2 July 2014.
66   Ibid.

Provincial Traffic Department

The Provincial Traffic Department oversees the Smart Policing pilot with selected patrol officers. Its senior representatives see potential merit in providing additional security for officers who work alone and in conditions which lack rapid back-up support. The streaming of live footage to control centers provides managers with a real-time view of what is happening in the field, improving response times. The live stream capability of the app also provides information to help manage officers, as well as responses to accident scenes. Where previously an officer submitted a verbal description of incidents to their commanders, the app allows for a live video and an immediate visual of the incident. What is more, South Africa´s comparatively robust cell phone coverage will allow personnel in remote locations to connect with their base and enable a wider use of functions.

The streaming of live footage to control centers provides managers with a real-time view of what is happening in the field, improving response times.

The South African pilot program was deliberately modest in its scope and scale, involving a one-month test period in 2014. The scope of the program was determined by the financial constraints associated with management, equipment, connectivity and data hosting costs. Five handsets, along with data and storage capacity, were provided over a month of testing. The Department of Transport nominated five traffic police officials to participate, covering the major arterial and national road network routes into the City of Cape Town: from Sir Lowry's Pass on the N2 into the CBD; the N7 highway up to Malmesbury; the N1 highway up to the Huguenot Tunnel; the R27, the West Coast Road; and the R300 highway from Mitchell's Plain to Bellville.

A Project Oversight Committee (POC) managed the project. Senior officials in the Western Cape Provincial Government departments of Community Safety and Transport and from APCOF, acting as project facilitators, made up the POC. The role of the POC was to monitor and assess the project progress and evaluate the impact of the intervention; the POCs recommendations will be based on these elements. The early stages of the pilot program involved the procurement of the handsets, contracting the data hosting services, setting up the required software and testing usability. Meetings with officials of the Provincial Traffic department provided an opportunity to demonstrate the Smart Policing app in action. The pilot began in September 2014 with phones mounted on dashboards.[67] There were regular meetings to discuss and report on the practicalities of the smartphone in operation, including protocols for officer

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67   Delivery of the handsets was scheduled for 27 June 2014 at the Gene Louw Traffic College in Brackenfell. However, initial glitches in the app resulted in this hand-over and training being postponed to 8 July 2014. Project testing was delayed again and finally commenced on 2 September 2014, with the devices mounted in traffic vehicles.

conduct. Mobile car phone chargers were added to the list of equipment procured for the program along with dashboard mounts for use in the vehicles of the officers, 32 gigabyte memory cards and wi-fi enabled uploading devices.

Regular adjustments were made to the Smart Policing app by the Igarapé Institute in consultation with Western Cape counterparts. This included the design of a centralized app distribution system which enabled all phones with the application to be updated remotely or notified automatically to update their versions. Working with another IT service provider for the Western Cape Department of Community Safety, Igarapé was able to use additional ports to finalize the server configurations, facilitating functionality. This process of intensive iterative interaction between Brazilian and South African counterparts was time-intensive but ultimately successful in ensuring the best customization of the solution.

At the same time, the POC also began conceptualizing fields for the categorization of data. The committee agreed on the need to tag footage on the user interface against selected categories, including: Moving Violations, Drunk in Charge (DIC), Accident Scenes, Peak Traffic Control, Pursuits and Road Blocks. This functionality still needs to be fully developed, but remains critical in terms of subsequent retrieval and use of stored data. The POC also recommended the inclusion of other functionalities, such as pre-programmed emergency numbers.

The Smart Policing pilot is being administered in conjunction with another fixed camera pilot project. The Provincial Traffic Department recently launched an initiative to test the use of Revealmedia R53-SX cameras. These cameras are mounted to officers' shirts and collect data over long periods, but lack a live streaming function. Records must be downloaded after the officer returns to the police station. While lacking the open-source component of Smart Policing and its inter-operability with smartphones, the fixed camera pilot programs have registered some initial positive results. For example, they have generated evidence for drunk-driving arrests and related civilian interactions.

Smart Policing beig tested in a police vehicle in Cape Town. Photo: Sean Tait

The pilot program with the Western Cape traffic department differs from that in Rio de Janeiro. While in both cases the Smart Policing device is a cell phone, in Rio the phone is used as a body camera while in the South African pilot program it is mounted on the dashboard of the traffic patrol vehicle (or in the kiosk used by the VPUU project). The reason for this is that traffic police in South Africa do not have a bullet-proof vest to which the phone can be attached. In addition, the battery life of the phones (while recording audio-visual material) is limited to two hours without a charger.

An initial monitoring review was conducted in Cape Town in October 2014. Law enforcement officials noted that when a citizen realizes that an officer is wearing a camera, suspects tend to be more respectful and calm during routine traffic checks. What is more, the app generates a record of the interaction, which may be used in court or to defend against allegations of police brutality.[68] Although the review raised some concerns about the hardware, the real challenge for the South African policing environment is data management. Indeed, South Africa has among the most expensive cell phone coverage rates in the world; the costs of constant live data streaming are thus prohibitive. In one instance, an officer reported that when his data for the month was depleted he was unable to capture an important accident scene. This said, officers generally felt that the device improved their confidence while conducting face-to-face interactions in the field. They also feel safer knowing that whatever happens, the entire incident is recorded and will be addressed appropriately by their superiors should the need arise to access the recording.

A number of positive cases emerged during the Cape Town testing of Smart Policing. For example, an officer reported that he was involved in an incident with a motorist who was using a cellular phone while driving. The motorist denied any wrongdoing despite being informed that both officers had witnessed him violating the law. The officer reported that the motorist was prepared to argue with both officers. The motorist questioned the officer on why he was so certain that he had been speaking on the phone. When the officer showed him the device and told him that the entire incident was recorded, the motorist immediately relented, changed his tone and admitted guilt. The officer reported that he suffered no further verbal abuse while he ticketed the motorist and the ensuing silence was a welcome change. He only wished that he had had sufficient data on the phone to record the incident. "The phone served its purpose then and proved very valuable to me," he added.

In another incident, an officer reported that he was called to a situation where a group of people wanted to barbeque meat on Brackenfell Boulevard. The officer arrived on the scene and found a very hostile crowd to whom the Fire Chief was explaining the Fire Regulations applicable to the scenario. The group was given one hour to extinguish the fire and was still remonstrating when the officer informed them that the incident was being recorded. Upon looking into the camera phone they saw the recording and were advised that should they fail to extinguish the fire within the hour, the footage would be used as evidence in the subsequent court case. The fire was extinguished immediately.

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68   Author interview with Gideon Morris, July 2, 2014.

The additional layer of oversight was well received by police personnel. One officer reported that he used the phone only to record incidents in conflict situations and is his way of managing his data allocation. In the past, he wrote citations on the rear boot (trunk) of his car. Now he issues citations on the bonnet (hood) so that the entire incident is captured on camera. "It acts as my supervisor," he said. "I tell the motorist that my supervisor is watching the entire process via live video streaming. People seldom feel the need to negotiate when they know they are being watched."

Overall, there is evidence that the use of body cameras can generate a net positive effect in improving police-citizen interactions. Officers believe the smartphone application should be extended to smaller stations that do not have a Control Room and where officers work alone. This type of technology would be valuable in these contexts. The findings here are similar to those generated in other tests in North America and Western Europe. In support of the continuation of the pilot program, the Western Cape Government has allocated funds to continue testing for an additional six months.

Violence Prevention through Urban Upgrading (VPUU)

A second Smart Policing pilot program is being developed in cooperation with the Violence Prevention through Urban Upgrading project (VPUU). The VPUU is a community development project in Khayelitsha and other townships that works to prevent violence through investment in physical and social infrastructure. It pursues these goals through "place-making" – creating safe and inviting public spaces in urban areas. The VPUU, in partnership with DOCS and the City of Cape Town, recently initiated a community safety initiative in Khayelitsha.

Smart Policing is being tested by mounting the phone and the app in a fixed location where locals regularly congregate where it is intended to serve the same purpose as CCTV cameras typically do. In addition, the VPUU is providing selected community monitors with the Smart Policing app to use in community patrolling. Additional functionality is being explored to link the app with other initiatives focused on identifying infrastructure and maintenance needs in the community and tagging them using geocoded coordinates. The information they gather will form a crucial part of safety auditing, monitoring service delivery and will help to hold service providers accountable. Both pilot programs will be evaluated against a range of indicators including usability, impact and costs.

Challenges and opportunities in implementing smarter policing in South Africa

Accountability and review

In South Africa, there is a great need for improving police accountability. The Independent Police Investigative Directorate (IPID; previously the Independent Complaints Directorate), the main official body responsible for dealing with alleged crimes committed by the police, has recorded a steady increase in "brutality related" complaints against the police. Over the past decade, these having risen from 282 in 2001-2002 to 4,097 in 2012-2013, an increase of 1,353 per cent.[69]

However, despite the fact that there is an IPID and various other mechanisms for oversight and accountability, investigations are frequently unable to resolve disputes of fact between complainants and police officers. For example, the Khayelitsha commission of Inquiry expressed its concern that, despite the fact that there were a variety of agencies responsible for investigating complaints against police, complaints were often found to be "unfounded" or "unsubstantiated", as they came down to a question of the word of the complainant against that of the police officer.[70]

Smart Policing could be helpful in addressing problems of accountability related to alleged acts of brutality and other abuses by police, as wearing body cameras can discourage police officers from engaging in behavior that may expose them to charges of brutality. As mentioned above, a frequently cited study with the Rialto police department in California recorded significant declines in the use of force compared to control-conditions and a dramatic drop in the number of complaints against police during the period of the experiment as compared to 12

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69   Gareth Newham, "Exploring Police Performance and Police Brutality in South Africa", in Thenjiwe Meyiwa, Muxe Nkondo, Margaret Chitiga-Mabugu, Moses Sithole and Francis Nyamnjoh (eds.), *State of the Nation 2014*, pp. 253–70, Praetoria, South Africa: Human Sciences Research Council, 2014.
70   The Commission of Inquiry into Policing in Khayelitsha. "Towards a Safer Khayelitsha - Report of the Commission of Inquiry into Allegations of Police Inefficiency and a Breakdown in Relations between SAPS and the Community of Khayelitsha", August 2014, pp. 412-420, http://www.saflii.org/khayelitshacommissionreport.pdf

months prior.[71] In addition to their potential deterrent effect, body cameras also provide visual and audio records of events that allow for a more definitive reading of the veracity of a complaint.

The benefits of body cameras go beyond discouraging abuses and strengthening the ability of accountability bodies to adjudicate complaints against police. For instance, one of the main recommendations of the Commission of Inquiry into policing in Khayelitsha was that police should adopt a "procedural justice model" that emphasizes "treating members of a community fairly and with respect."[72] The procedural justice model is motivated for on the basis of evidence that this kind of approach not only fosters "a good relationship between police and a community…but it also fosters respect for the rule of law itself."[73]

The use of body cameras could therefore support monitoring of efforts to implement procedural justice. Footage from day-to-day police-citizen interactions can not only be used for disciplinary measures, but can also serve as a self-assessment and training tool. Footage of exemplary police action can be used in order to illustrate "good practice" to other police officers. Managers who are able to view street-level interactions can use this to discuss and reflect with officers about how to best respond to the challenges that they face in the field. In addition, the GPS functionality which allows officers' movements to be plotted can be superimposed on crime maps and other activity data to assist in a more efficient deployment of resources.

Privacy and the denial of rights

Many observers and commentators are concerned that new developments in the field of ICT increase the potential for the emergence of a "big brother" state,   with the capacity to subject all aspects of the lives of civilians to scrutiny. Indeed, there is ample evidence that state security agencies, as well as large corporations, are able to use ICT extensively for purposes of gathering information about the movements, social interactions and personal habits of ordinary people. In the hands of an oppressive state, new technologies undoubtedly have massive potential to be used to advance overly-invasive surveillance and repressive practices.

While the technology revolution has increased the ease with which states can impinge upon civil liberties, the arguments in favor of body or vehicle mounted cameras are essentially that they will do the reverse – that is to say, strengthen scrutiny and accountability over the police – that these technologies can serve as a tool in the hands of police managers to hold rank-and-file police officers accountable in a more effective manner.

Although there is widespread support for the use of body cameras, there are also concerns that the cameras may undermine the individual privacy of members of the public. A key concern relates to access to

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71   Police Foundation. "Self-Awareness to Being Watched and Socially-Desirable Behavior: A Field Experiment on the Effect of Body-Worn Cameras on Police Use-of-Force", March 2013, p. 9. http://www.policefoundation.org/content/body-worn-camera.
72   The Commission of Inquiry into Policing in Khayelitsha, op. cit., p. 441.
73   Ibid.

and control of the audio-visual material that is generated by Smart Policing technology. These misgivings are well expressed in an online comment by a former police officer of Queens, New York, in response to one of a series of articles debating the merits of the introduction of body cameras. As he puts it:

> Do we want made public the tape that shows the fight we had with our wife in our own home? I got calls to these kinds of jobs all the time. Many times these were good people under stress who began something that got out of hand. Do you want that fight that shows you or the misses drunk, in a house that is a mess, with children crying because of the horrible fight their parents were having? She half naked and you with a black eye from the physical altercation. Perhaps this was the only time this would ever have happened. But now because this is possibly public property anyone can have it an[d] use it to embarrass you, or your children.[74]

Clearly much depends on the type of controls that are exercised over the generated audio-visual material. In the case of the Smart Policing project, there are grounds for reassurance that controls over the material will protect members of the public against gratuitous embarrassment. On a formal level, it is envisaged that the program will have built-in safeguards to protect the privacy of

citizens. These will consist of measures including the encryption of all stored data, separately stored channels for the video and audio streams and formalizing the process through which the public may request access to the data that has been recorded. But despite the safeguards there may still be legitimate concerns about whether they will prevent data from being used inappropriately. One could imagine a situation where a person is blackmailed using the threat that embarrassing audio-visual material will be revealed. Will it genuinely be possible to guarantee that police personnel are only able to access data for formal and legitimate purposes?

Another worry is that cameras may be used in an oppressive way as a means of intimidation to stifle legitimate dissent. "First of all, citizens should know when their actions are being recorded, potentially for use against them. But police can easily transform the act of notification into one of intimidation, using the power of the badge and camera combined to chill legitimate dissent or exercise of a citizen's right to refuse interrogation and search."[75] Police may use the cameras to take advantage of the relative lack of knowledge of many members of the public, as a means of threatening them into compliance on the basis that their allegedly "unlawful" dissent or resistance is being recorded and will be used as evidence against them. Smart Policing technology is therefore being implemented in an asymmetrical power dynamic in which the power of law enforcement is often far greater than that of the members of the public.

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74   Nancy La Vigne. Reader comment in response to article, "Body Cameras for Police Could Be One Smart Step", *The New York Times*, 23 October 2013, http://www.nytimes.com/roomfordebate/2013/10/22/should-police-wear-cameras/body-cameras-for-police-could-be-one-smart-step.

75   Andy Sellars, "Empower Civilians to Record the Police", *The New York Times*, 22 October 2013, http://www.nytimes.com/roomfordebate/2013/10/22/should-police-wear-cameras/empower-civilians-to-record-the-police.

While the potential exists to recalibrate these power relationships in favor of protecting civilians against police abuses, it may also have the more undesired effect of serving as a tool of intimidation within the context of these unequal power relations.

Obstacles to productive use of technology

The simple fact of having access to technology does not ensure that it will be used appropriately. A number of reports on policing in South Africa have revealed how the public acquisition of new technologies has not necessarily translated into these same technologies being used as advertised.

- A 2009 report by the Auditor General found that a sophisticated 10111 call-center had been opened in Gauteng in 2007. However, the audit found that state of the art AVL (automated vehicle location) technology that has been installed at the center and in over 4,000 vehicles was not, in fact, being used.[76]

- Problems with the use of CCTV cameras were highlighted by the findings of the recent commission of inquiry into policing in the township of Khayelitsha in Cape Town. At the time of the first phase of hearings of the commission, 6 of the 16 cameras in Khayelitsha were not functional, either because of fiber optic cable damage or power cable damage.[77] The Commission was informed that cable theft and illegal "tapping" of electricity from the power source are some of the causes of faults in the CCTV cameras, though it was suggested that the use of wireless technology could resolve some of these problems.[78]

- Along with problems with operational maintenance of the cameras, the commission also came to the conclusion, based on various testimonies, that footage from CCTV cameras was very rarely used by detectives in Khayelitsha for purposes of providing evidence in court. The commission's final report says that "the failure to use the CCTV footage is further evidence that the detectives in Khayelitsha generally make little use of investigative aids in carrying out their work of crime detection and investigation."[79]

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76   Auditor General South Africa, "Report of the Auditor-General to Parliament on a Performance Audit of Service Delivery at Police Stations and 10111 Call Centres at the South African Police Service", March 2009, p. 21, http://www.pmg.org.za/files/docs/09061010111_2.pdf.
77   According to the head of the City's Safety and Security Directorate, there are 330 cameras installed across the City for crime prevention and detection purposes, not including those used on the freeways. The cameras are monitored on a 24-hour basis. There are 16 CCTV cameras in various parts of Khayelitsha. These were installed roughly a decade back with funding from the national government.
78   The Commission of Inquiry into Policing in Khayelitsha, op. cit., pp. 371-372.
79   Ibid., pp. 372-373.

• The same Khayelitsha Commission report highlights other concerns associated with the use of information technology. Lieutenant Colonel Swart told the Commission that detectives had been issued notebooks (i.e. laptop computers), but that they had no 3G cards and that there was no wireless network in the police station, so the notebooks could not be used for email. Major General Fick told the Commission that SAPS does not have a policy that every SAPS member will have an email address, although this is not perceived to be a budgetary issue.[80]

• A wide number of issues relating to poorly maintained or under-utilized technology have also been highlighted by evidence presented before the recent commission of inquiry into the killings by police of 34 striking miners at Marikana in North West province on 16 August 2012.The evidence indicates that the camera mounted on the barrel of the one of the water cannons used in the operation "was not in proper working order because…its lens was so dirty as to make the footage it produced almost unintelligible," while "the crews of both water cannons had not received any meaningful training in the use of the water cannon cameras."[81] Similarly, the camera equipment on the two police helicopters was out of service and had been out of service for some time.[82]

The availability of technology, therefore, does not necessarily translate into its productive use. On one level, technology has to be maintained for it to be of use. This might seem to be so obvious a point as to appear completely banal but the effective use of technology is best supported by efficient bureaucracies. Where bureaucracy is in a state of disorganization, routine maintenance and management of equipment is not something that can be taken for granted.

An issue that is implicitly raised by the introduction of new technology is that staffing needs to be reorganized to support productive use of this technology. The limited use of CCTV data highlighted by the Khayelitsha Commission echoes Chan's analysis of the use of technology in policing – that one of the obstacles to productive use of the technology is that personnel are already overburdened with responsibilities; the introduction of new technology as an additional obstacle for which they don't have time:

> An officer-in-charge explained that the new incident management system allows supervisors to check where their cars are, what they are doing, how far they have got in their crime report and whether they have done their job properly; however, this officer said that he doesn't really use the system, because he doesn't have time to do it.[83]

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80   Ibid., p. 400 (paragraph 183).
81   Marikana Commission of Inquiry Evidence Leaders. "In the Marikana Commission of Inquiry - Heads of Argument of Evidence Leaders", 27 October 2014, p. 616. http://www.marikanacomm.org.za/docs/201411-HoA-EvidenceLeaders.pdf.
82   Ibid., p. 613.
83   Janet B L Chan, "Police and New Technologies", in Tim Newburn (ed.), *Handbook of Policing*, 655–79. Cullompton, Devon, UK: Willan Publishing, 2003, p. 665.

Attempts to operationalize new technologies do not necessarily provide a "magic bullet" for resolving problems of accountability within police organizations. The introduction of these technologies cannot be separated from the more general needs to improve the efficiency of management systems, and their orientation towards accountability. As Chan notes, "[m]obilizing technology for better policing requires tying the development of technology to a strategy of planned organizational change."[84] More generally, the optimum benefits of new technology may only be realized if dedicated and appropriately skilled personnel are allocated to enable police organizations to reap the benefits of new technology. There must be political or managerial will not only to invest resources in new technology, but to ensure that police organizations are able to optimally benefit from the new resources.

Receptiveness of police to introduction of Smart Policing technology

The evidence from the pilot study is that rank-and-file traffic police officers who are using the Smart Policing app have responded to it quite positively. The primary reason for this appears to be that the app

assists police in obtaining cooperation and compliance. Chan observes that "officers are most enthusiastic about technologies that advance traditional law enforcement objectives of arrest and conviction."[85]

Police view the Smart Policing app as a useful tool to catalyze courteous and respectful interaction while also discouraging people from engaging in (unjustified) disputes of fact. One of the biggest tests a police officer encounters in day-to-day policing is learning to deal with incidents in which citizens directly challenge police authority. Indeed, it is often incidents in which police officers feel that they have been treated in a disrespectful way or where they are unable to establish their authority that lead to police violence. Insofar as police see the Smart Policing app as a tool that will enable them to reduce the level of disrespectful behavior that they face, it is likely that police will welcome the solution.

Intriguingly, the Smart Policing app may be able to be used in this way whether or not the interaction is actually being recorded or streamed. When police record an encounter, officers cannot play it back to the driver immediately after the event and so cannot show the alleged offender the video evidence. This was one of the primary concerns for traffic officers during the pilot project. Police wanted to avoid conflict with motorists and wanted to show them that he had footage (of a traffic infraction, e.g.) which justified a traffic citation. The hope was that the app would enable an officer to manage motorists who, after having committed a traffic violation,

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84   Ibid., pp. 674-5.
85   Ibid., p. 674.

then engage in an argument of fact. However, police are not able to use the material in this way, though they are able to access and review footage subsequently by means of a computer using his or her personal login details. In effect, the officer uses the threat of the material rather than the material itself.

The ideal model for introduction of the Smart Policing app, and other technology of this kind, is that police will buy into the idea that the adoption of this technology generally serves their interests and will assist them in carrying out their work more effectively. A dynamic of peer pressure might be established in which those police who are resistant or hostile to the technology are compelled to fit in with the dominant view. Although many police officers will welcome the new technology, it is safe to assume that introduction of the technology will meet some resistance from police. Curiously, rather than showing the potential advantages to police, many of the situations in which body cameras are being introduced are associated with scandal and controversy, such as in Ferguson, Missouri. In these situations, the overwhelming emphasis, emerging from public pressure, is on requiring police to adopt body cameras in order to discourage abuse and enhance accountability.

A significant degree of resistance was encountered from police in New York after an order from a federal judge, in August 2013, mandated that NYPD officers wear cameras to prevent abuses during stop-and-frisk activities. The response from the officers was "almost universally negative." Among the concerns raised by officers was "the ability of supervisors to go on fishing expeditions to try and find some grounds for discipline." Some police unions also suggested that requiring officers to wear body cameras constitutes a change in working conditions that must be approved through collective bargaining.[86]

There are numerous examples of incidents which demonstrate that police often dislike being photographed whilst carrying out their duties.

There are numerous examples of incidents which demonstrate that police often dislike being photographed whilst carrying out their duties. In New York in May 2014, an NYPD officer appeared to have forcibly prevented a cyclist who ran a red light from recording their subsequent interaction. This was despite the fact that the NYPD Patrol Guide states that "Members of the service will not interfere with the videotaping or the photographing of incidents in public places. Intentional interference such as blocking or obstructing cameras or harassing the photographer constitutes censorship." [87]

There have also been several examples in South Africa where police have interfered with people taking pictures of them. In August 2014, the Times newspaper

86   Paul Cassell, "Would a Body Camera Have Answered Questions about Michael Brown's Shooting?", *The Washington Post*, 21 August 2014, http://www.washingtonpost.com/news/volokh-conspiracy/wp/2014/08/21/would-a-body-camera-have-answered-questions-about-michael-browns-shooting/.
87   Silver, op. cit.

reported that one of their journalists had allegedly been assaulted and thrown into a police van after taking pictures of the Ekurhuleni metro police during a demonstration in Daveyton in Gauteng province.[88] An analogy may be made here with the international sporting environment where increasing use is made of technological "third umpires" (in cricket), a process through which referees are able to review incidents where rules may have been infringed on the field. Presumably a team that has an established commitment to "playing by the rules" would be much more welcoming of the introduction of this kind of technology, while a team that regularly and deliberately infringes the rules of the game will not welcome it.

Police brutality is a significant problem in South Africa and the use of (often unlawful) violence may be regarded as part of the "working method" of many police in South Africa. Similarly, police corruption is a major problem in South Africa, both in general and traffic policing. Using survey data, a study of corruption in the Johannesburg Metro Police Department[89] estimated that "upwards of 150,000 drivers in Johannesburg are asked to pay bribes annually."[90] Rather than welcoming the Smart Policing app as a tool for more effective policing, it is therefore likely that many police in South Africa will see it as unwelcome, as it could interfere with their ability to solicit and accept bribes from

members of the public. This may mean that they formally resist the introduction of the technology, or find ways of subverting its effective use.

Aligned with these issues is the fact that police department culture around the globe tends to favor secrecy rather than information sharing.[91] This was demonstrated amply during the recent commission of inquiry into the killing of miners at Marikana. Apparently untruthful evidence was presented to the commission by several senior police officers, including the SAPS national commissioner.[92] What is more, several critical pieces of evidence were withheld from the commission by the police.[93] There was also evidence of foul play by SAPS members who had planted weapons on the bodies of some of the miners after the shooting.[94]

The fact that there may be receptiveness to the technology on the part of the rank-and-file, does not necessarily imply that police managers will take the technology seriously as a mechanism for improving accountability. On the one hand, this may reflect their own lack of interest in the technology, particularly if they view either corruption or brutality as acceptable practices. However, even where there is the desire to impose accountability, police managers are frequently overburdened by the plethora of responsibilities imposed on

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88   Staff Reporter, "Cops Rough up Our Reporter", *The Times Live*, 25 August 2014. http://www.timeslive.co.za/thetimes/2014/08/25/cops-rough-up-our-reporter.

89   Metro Police departments are in many respects essentially "traffic police", though legislation empowers them with a crime prevention and by-law enforcement mandate.

90   Corruption Watch, "The Law for Sale: Endemic Corruption in the Johannesburg Metropolitan Police Department", 2012, p. 7, http://www.corruptionwatch.org.za/sites/default/files/finalreport24may.pdf.

91   Chan, op. cit., p. 668.

92   Marikana Commission of Inquiry Evidence Leaders, op. cit., pp. 625-627.

93   Ibid.

94   Ibid.

them. Monitoring of audio-visual material generated by the smart policing app may not necessarily be something that senior police officers feel that they have the time for. As one commentator has observed:

> Drawing on lessons from police use of public surveillance cameras, we know that, under the right conditions, they can have the desired impact on human behavior, reducing crime and aiding in investigations. But cameras are most effective when they are routinely monitored so that they can be used to intervene on crimes in progress. Similarly, we would expect body cameras on officers to be most effective when officers believed that someone was actually viewing their interactions with the public. Whether routine or random, this review is most effective when conducted by supervisors who hold officers accountable for any evidence of misconduct captured on film. If that doesn't happen, then officers will come to view cameras as an empty threat, much as criminals view crime cameras that are not actively monitored. Far too often, technology is implemented without the planning or resources to ensure this type of monitoring and follow-through.[95]

In order for technologies of this kind to actually increase accountability, police management must be firmly oriented towards holding officers to professional standards of conduct. This is of course a necessary but not a sufficient condition for cameras to be used to improve accountability. What is also required is a bureaucracy that is efficient enough to ensure that monitoring technology is maintained in working order. In addition, the task of viewing audio-visual material is likely to be neglected if it is simply added to the list of police managers' responsibilities. Dedicated staffing is likely to be necessary to ensure that a random selection of the large volume of material generated is subject to scrutiny.

Police patrolling in Cape Town. Photo: Wikimedia

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95   La Vigne, op. cit.

Other impacts on police and policing

One of the key questions about body cameras is whether or not recording will occur throughout the shift or whether police will be able to choose specific times or instances for the recording and/or streaming of visual content. For instance, some commentators, such as the American Civil Liberties Union (ACLU), have argued the efficacy of police body-mounted cameras as a crime reduction and accountability tool will hinge on the enforcement of good policies and procedures including "preventing officers from being able to deactivate the cameras at their own discretion."[96]

At the moment, the Smart Policing model envisages that the camera be on throughout the shift, be it for passive or live streaming of video, audio and GPS. Due to the high costs of constantly streaming wi-fi and 3/4G connections, the option of selective streaming of data to the police head office is being explored in the Western Cape. Furthermore the inclusion of both audio and visual data during streaming frequently creates a "buffering" effect due to the volume of data being streamed. In the Western Cape the streaming function is being used exclusively for visual data.

As it stands, the technology allows for officers to activate and deactivate the streaming function. If selective streaming is allowed this would mean that, he or she would be able to activate streaming when encountering a situation where he or she feels monitoring may be needed. Also being explored is the possibility that the live streaming function could be activated from the management end so that police managers can monitor police action when they elect to do so, or perhaps observe a situation where police are believed to be in danger with a view to providing assistance.

Visual data may not therefore be streamed constantly to a head office for monitoring. But whether or not it proves to be possible for the technology to allow for managers to activate the streaming function, audio-visual data is nevertheless being recorded throughout the duration of the shift. Though improving police accountability is a desirable goal, it is reasonable to ask whether the degree of scrutiny and exposure that this implies is excessive. During one interview, an officer commented on how often he uses profanity on the job and expressed concern that this would be recorded and disciplinary action taken against him. In another interview, an officer said he was concerned about the device recording private conversations between him and his partner, and that his superiors would be able to use this against them at some future time.[97]

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96   Silver, op. cit.

97   Cheslan America, Weekly Supplementary Report: Smart Phone Application Demonstration Project: 19 September 2014.

One of the risks of the introduction of technology of this kind may therefore be a reduction in the quality of police record-keeping combined with a de-skilling of police as police increasingly rely on the audio-visual material to serve as their "memory."

Even so, audio-visual records may be more difficult to access. If accessing and translating video into narrative is time consuming, and video records are destroyed after a prescribed period of time, the end result may be that the records of events are less accessible and that there is less information overall about many of the incidents that police have been involved in. Furthermore, if there is a possibility that the audio-visual record may expose their memory of events as being unreliable, police may feel reluctant to produce written narratives about their own memory of incidents.[98] One of the risks of the introduction of technology of this kind may therefore be a reduction in the quality of police record-keeping combined with a de-skilling of police as police increasingly rely on the audio-visual material to serve as their "memory." Indeed, there are good reasons that:

body-cameras…shouldn't preclude the requirement that officers file a report that includes the legal justification for and context surrounding citizen stops, along with the ultimate outcome (like an arrest or a confiscation of weapons or drugs). Officers should be trained to conduct stops legally and respectfully, thereby minimizing the need for cameras altogether.[99]

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98   Along with this are questions about the possible impacts of pervasive use of audio-visual recording on other forms of record keeping. It would appear possible that the fact that audio-visual recording is taking place, may lead to a tendency on the part of police to feel that the keeping of diaries and comprehensive narrative reports of the incidents that they are involved in is not necessary or that these need only contain limited detail.
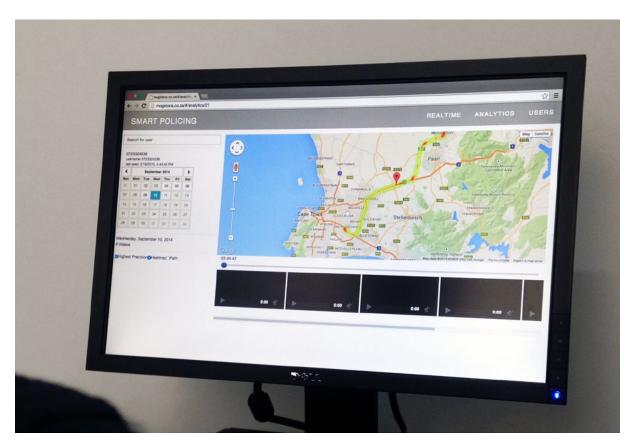
99   La Vigne, op. cit.

Conclusion

Evidence from pilots in Brazil and South Africa indicates the distinct possibility that Smart Policing may be well received by police. The available evidence suggests that this is because police will be able to assert that "you were" or "are" being filmed – both to discourage disrespectful behavior during citizen interactions, as well as to dissuade people from engaging in unjustified disputes. Ironically, the initial evidence of a positive disposition towards the app from police has arisen from the fact that it enables them to assert that an audio-visual recording of the incident has been made, whether or not this is in fact the case.

Although Smart Policing was positively received by user groups during the initial tests, it is still too early to say whether it will be embraced by all police officers. There are still anxieties about the loss of privacy generated by body cameras for on-duty officers. The fact that one's every word could potentially be subject to scrutiny may itself be an additional source of stress for police. For police officers who are involved in corruption or brutality, the use of the cameras is obviously also likely to be unwelcome. They can be expected to resist, or subvert, the use of the app or other similar technology. Though there is evidence of some support for Smart Policing technology amongst police who have been exposed to its use, this support should not be taken for granted. It may therefore be important to negotiate the introduction of Smart Policing technology in a manner which allows reservations which they may have about the use of the technology to be addressed.

Beyond questions of the acceptability of the technology to rank-and-file police members, it is not guaranteed that management will immediately invest time and energy in ensuring that the potential benefits of the technology are realised. Whether the technology has immediate or direct benefits for remote supervision of police operations is something that has yet to be fully demonstrated in the South African context. Police managers may understand the value of enhanced accountability but also see it as an additional burden rather than something that makes their jobs easier. Their energies may continue to be focused on other priorities, including crime fighting and administrative tasks, all of which could negatively impinge on the potential for the Smart Policing technology to be used to enhance accountability.

In order for the Smart Policing app, or other technology, to become fully established as a tool for evidence-gathering and accountability, it will require political and bureaucratic will. Specifically, there must be high-level priority attached to strengthening police accountability. This means investing in a policing environment where the principle of accountability is broadly accepted, and providing the financial support to police in order for them to dedicate human resources to ensuring the optimal use of the technology.

Smart Policing can have profound implications on future policing. The power of the police has in the past been based

not only on the capacity to use force but also on their subsequent ability to define how situations are understood. The availability of "live" information on what actually happens during confrontations between police and members of the public may weaken their power in relation to the latter. This will, however, also depend on establishing the bureaucratic systems to ensure that, in an appropriately regulated way, people whose alleged offences have been captured digitally, are able to access the material in their own defense.

Smart Policing may offer advantages to police, including an additional layer of protection and operational intelligence. There may also be possibilities for streamed video footage to be used during live operations, allowing the provision of instructions to those on the ground. It may also have benefits in providing insight during the training of new recruits. Ultimately, however, the degree to which the technology has the potential to genuinely be absorbed into and have a transformative effect on policing will depend, as Chan puts it, on "tying the development of technology to a strategy of planned organizational change."[100]

Smart Policing dashboard. Photo: Bruno Siqueira

100   Chan, op. cit.

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