

Smarter Policing:

Tracking the Influence of New Information Technology in Rio de Janeiro

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The command and control center of the UPP in Rocinha

Technological advancements are changing the architecture of police-society relations around the world. New modes of oversight, whether applied by public security entities or citizens, are dramatically transforming the way policing is conducted. This is especially the case in digitally connected cities in the North and South. Surprisingly little is known, however, about how technology can be used to drive reform in police institutions including in Rio de Janeiro, where the relationships between police and residents are characterized by mistrust. A key objective of the Smart Policing project, a partnership of the Igarapé Institute and the Polícia Militar do Estado do Rio de Janeiro (PMERJ), is to explore ways to enhance police accountability through technology. The following *Strategic Note* considers how the recently installed pacification police units (Unidades de Polícia Pacificadora or UPP) are using technology to recapture urban territory from drug trafficking groups while simultaneously expanding trust and reciprocity with citizens. It examines how technological innovations at the street level, including mobile phone applications, can potentially strengthen the integrity of police work and the social contract.

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Introduction

Many cities across Latin America and the Caribbean are struggling to contain, prevent and reduce organized and interpersonal violence.¹ Indeed, the region experiences amongst the highest rates of real and perceived insecurity in the world. While manifested in many ways, chronic violence is routinely linked to non-state armed groups that have pursued a monopoly over illicit economies, fortifying control over urban spaces in the process. Often characterized by the absence of routine public services and marked by social exclusion, these spaces have in turn played a decisive role in destabilizing cities.

An especially critical aspect of the challenge of urban violence is the often complex relationship between the state and citizens. More specifically, in many neighborhoods characterized by different types of violence, there are highly antagonistic interactions between police officers and local residents. Reports of the police overuse of force and violations abound. Dilemmas in policing typically revolve around questions of police integrity, capacity and willingness to intervene. In addition to being coopted by powerful criminal groups, police are often perceived as violent, extortive and dismissive of the wider public interest.²

Notwithstanding these many challenges, there are some poignant examples of real improvements in policing in Latin America and the Caribbean. The recent experiences of Rio de Janeiro are a case in point: the city is undergoing an unprecedented shift in public security policy.³ Specifically, a new pacification program appears to be making a pronounced impact on diminishing violence in key parts of the city. In 2008, the state of Rio de Janeiro, in conjunction with the city and with the Military Police (PMERJ), created the *Unidades de Policia Pacificadora* (UPP).⁴ The UPP seeks to retake urban spaces from the heavily armed domination of drug trafficking organizations that have controlled many of the poorer communities in the city for decades.⁵

The experiment in urban policing in Rio de Janeiro coincides with another major shift underway in Brazil and indeed around the world. Information communication technologies (ICTs) – the internet, 3G and 4G cell networks, wifi, and smartphone innovations – are pervasive. Like so many other cities, Rio de Janeiro is witnessing a dramatic increase in Internet penetration and is among one of the top consumers of social media in the world.⁶ While a digital divide persists, access to digital technologies is also increasingly prominent in lower income neighborhoods and within police institutions. The use of technology promises to decisively transform the ways in which residents and police communicate and collaborate.

1 For an entry point into the research, consult UNODC (2011), Arias and Goldstein (2010), Kees and Kruijt (2009) and Moser and McIlwaine (2004).

2 See Hinton (2006) and Denyer Willis (2014-forthcoming).

3 See Muggah (2013a, 2013b).

4 The UPP project is officially defined by two government Decretos. This first, (Decreto nº 41.650, de 21 de janeiro de 2009) is broad and somewhat vague. The second (Nº. 42.787 DE 06 DE JANEIRO DE 2011) carves out a place for the UPP police and its model of 'proximity policing' within the institutional and operational structure of the PMERJ.

5 See World Bank (2012).

6 See Muggah and Diniz (2013a) and www.openempowerment.org.



This *Strategic Note* considers some of the implications of this technological revolution for police reform in Rio de Janeiro. It draws on field research undertaken by the Igarapé Institute between November 2012 and July 2013 with UPP units in selected favelas of Rio de Janeiro. The paper features initial observations related to the current use of technology by the UPP and also considers how technological innovation can potentially enhance police-community relations. Key findings are that:

- While ICTs are increasingly prominent amongst the UPP and examples of innovation are emerging, their present application is for most part decentralized, fragmented and individualistic;
- There is support among police associated with the UPP for the use of ICTs to improve police accountability in cases of malfeasance and for managing police acquittal in cases of spurious allegations;
- The introduction of ICTs for police in contexts such as Rio de Janeiro must be sensitive to the real ground-level conditions of street policing including their constraints and the ethically complex demands of their daily work.

The *Strategic Note* is divided into five sections. In section one, we provide a short overview of our methodology. Section two provides a cursory overview of the UPP policing approach as well as details on the wider information revolution underway in Brazil. The third section features emerging empirical findings, with some reflections on how policing is influenced by ICTs. The final section outlines a number of ICT innovation possibilities and some insights on the “smart policing” project, an ongoing initiative of the Igarapé Institute.

Methodological considerations

There is an emerging literature on the policing practices of the PMERJ and UPP in Rio de Janeiro.⁷ Since 2008, if not before, a veritable growth industry has emerged examining the origins of the pacification model, the policies and practices of proximity and community policing, and the real and relative impacts of such interventions.⁸ In the process, the UPP model has been increasingly celebrated domestically and abroad. Indeed, a number of Brazilian states have replicated the model and police forces from countries in Central America and Africa are extracting lessons to apply at home.

Even so, there is virtually no empirical analysis of the ways in which the UPP are applying new technologies, including ICTs, in the course of their work. This *Strategic Note* is intended to begin filling this knowledge gap. It is based on intensive field research including visits to five UPP units between November 2012 and July 2013, consisting of some 85 hours of interviews (see Figure 1). These visits involved a combination of methods, including the accompaniment of police on foot and in vehicle patrols, holding unstructured conversations with unit commanders, and observing police practice while on the job.⁹

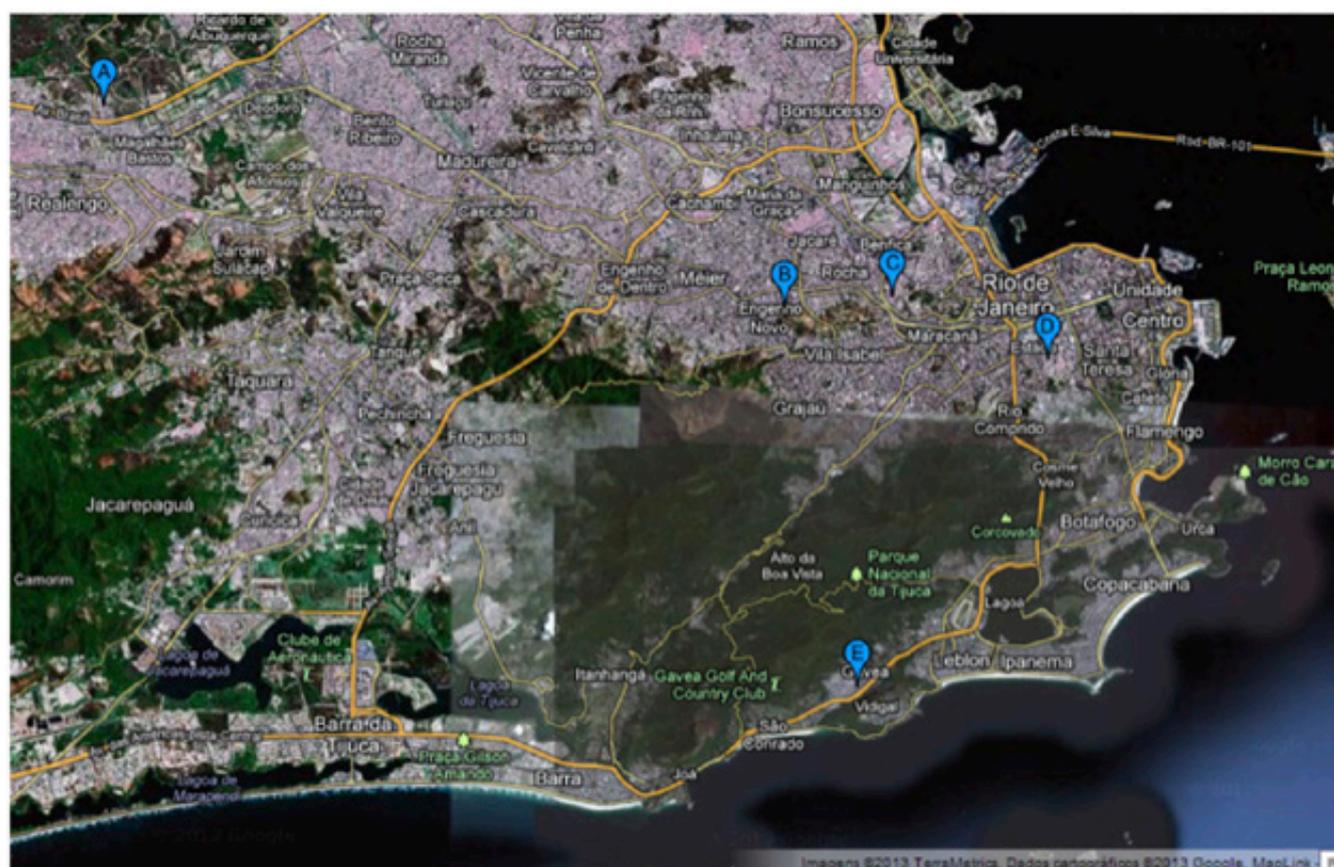
7 See Michaels (2012), Cano (2012), Soares (2011), Muggah and Souza (2012) and Muniz (n/d). Consult <http://riorealblog.files.wordpress.com/2012/07/relatc3b3riofinalcaf13.pdf>.

8 See Soares et al (2011).

9 It was pursued on the basis of a formal agreement between the PMERJ and Igarapé Institute.

A particular focus of the Igarapé Institute research team was on assessing the types of ICTs used by police and how police employed technology in practice. A special consideration related to the ways in which ICT tools were used as part of a “formal” purposive strategy by the police, or more “informally” at the individual level. A goal of this research was to better understand the everyday use of technology as, *inter alia*, a means of communication, a mechanism to organize, analyze and interpret data, a tool to satisfy personal preferences or a critical device to ensure more streamlined institutional accountability. The research is also being used to inform the development of new ICTs by the Igarapé Institute and the UPP to enhance police accountability and performance.

Figure 1. Field visit sites* (November 2012 to July 2013)



A- Batan B- Sao Joao C- Mangueira D- Complexo do Sao Carlos E- Rocinha

Specifically, research was undertaken in order to shape the design and implication of a new smartphone application for police use by the UPP units. The intention was to better understand trends and patterns in technology use by police and community residents. A parallel objective was to better apprehend the dynamics of public and privately delivered ICTs as well as wider structural shifts in how police were “absorbing” new tools (or not). The information presented here is therefore practice-oriented, focusing as it does on identifying solutions for practical challenges. While not making robust social science claims, the paper is nevertheless of potential use to scholars and practitioners interested in the wider impacts of technology on public security provision more generally.



New policing models and ICTs

While its goals are variously defined, Rio de Janeiro's UPP intervention is intended to re-assert state control over territory ostensibly controlled by non-state armed groups.¹⁰ In theory, the UPP first clears and occupies areas, then stabilizes and holds them, and is followed by social and economic reconstruction led by a combination of public and private entities.¹¹ It was launched in 2008 and has expanded across the city, including in areas featuring critical infrastructure for the forthcoming 2014 World Cup and 2016 Olympics. The initiative has been the subject of intense debate and scrutiny, though public opinion continues to remain generally favorable.

A key challenge confronting the UPP is how to manage stability in areas controlled by a range of complex organized armed groups. Indeed, in Rio de Janeiro there are many of such actors, each of them exhibiting distinct motivations, organizational structures, and patterns of coercion. Most of these groups are deeply invested in drug trafficking with analysts frequently referring to the 'big three' gangs, the *Comando Vermelho (C.V.)*, the *Amigos dos Amigos (A.D.A.)*, and the *Terceiro Comando (T.C.)*. There are also other newer entities – comprised of off-duty and former police – known colloquially as the *milícias* (militias).¹² All of these groups dominate certain parts of the city, particularly selected favelas, though the patterns of control are dynamic. It is their informal "governance" of these favelas that has been the target of the UPP strategy.

The UPP is about more than just occupying and stabilizing so-called under-governed spaces, as formidable an enterprise as this may sound. Indeed, it represents a calculated effort to dramatically reform the doctrine of policing and ultimately the behavior and attitudes of the PMERJ themselves. Together with the Rio de Janeiro State Public Security Secretary, PMERJ commanders have devised a fundamentally new community-based approach to policing designed to strengthen the bonds of trust and reciprocity between citizens and the newly introduced UPP. This new model of policing focuses on prevention and seeks to decrease the distance between citizens and the state via "proximity policing" and community engagement programs, which include everything from community meetings to ballet classes.

One of the central objectives of the UPP is to decrease the distance –physical and social– between Brazilian citizens and their police force. In practical terms, this requires that policing pivots away from car-based patrols to patrolling the street on foot. It implies more patrols, greater visibility of the police within communities, and significant numbers of police operating in spaces historically considered violent and governed by gangs. Unusually, UPP commanders and officers may also seek to establish trust with local residents by handing out their emails and telephone numbers, encouraging residents to contact them personally and thus reducing the communication barriers between them.

¹⁰ See, for example, <https://twitter.com/pacificacao>, <https://www.facebook.com/pacificacao>, and <http://uppsocial.org/> for more information from the UPP about the program.

¹¹ See Muggah and Souza (2012).

¹² For more on *milícias*, see Cano and Duarte (2011).

With the support of the private sector and political operators, the number of UPP units has grown rapidly.¹³ As of July 2013, there were some 32 UPP units in the city, providing security services to at least 370,000 residents.¹⁴ Most of the UPP interventions are concentrated primarily in the city center as well as the wealthier neighborhoods of the south zone. Official statements by the Public Security Secretary have emphasized that the UPP will be extended across the city¹⁵ and commanders within the PMERJ expect that the model will one day supplant the conventional practices of policing in much of Rio de Janeiro. According to a 2013 strategic plan the UPP units are expected to expand until at least until 2018, though many are hopeful that it will continue indefinitely.

There is of course some skepticism and concern about the UPP project. On the one hand, it is sometimes seen as an invasive enterprise that further stigmatizes poorer communities.¹⁶ While there is general support for the UPP in many favelas, others resist the model owing to concerns that some in the PMERJ are still corrupt, violent and implicated in the drug trade. In one or two “pacified” communities gunfights occur between police and drug traffickers with alarming regularity. At least eight UPP police have been killed in the last two years.¹⁷ What is more, since the UPP is not focused on drugs per se, but rather improving personal security, critics argue that it is only a temporary solution since drug trafficking groups continue to exert influence over communities. Notwithstanding fears that the policy could implode, there is general consensus that the UPP project holds promise, and that it has improved public security practice substantially.

The UPP project also coincides with a period of massive technological change in Brazil. New uses of technology, such as the City of Rio de Janeiro’s Operations Center and the Rio de Janeiro State Command and Control Center, integrate hundreds of video cameras, environment and temperature monitors, traffic patterns and many other tools in an effort to centralize and respond more effectively to demands and shocks in the city.¹⁸ They also coordinate public services such as federal and state police, fire, ambulances, traffic engineers, as responders to real or potential crises, especially surrounding the upcoming hosting of the World Cup and the Olympics.¹⁹

Police institutions, for their part, are also building on more accessibility to technology. As Muggah and Diniz point out, rapid increases in public internet use by up to 40 per cent over the past decade are generating new challenges for police who are now required to respond in real time.²⁰ But growing infrastructure networks, especially in terms of broadband internet and 3G and 4G internet may also give rise to the possibility for more innovation and opportunity to resolve the challenges facing police.

13 For a broad and substantive overview, see Adam Isacson’s blog post at the Washington Office on Latin America: http://www.wola.org/rio_de_janeiro_s_pacification_program.

14 It is worth noting that there are some 800 favelas in Rio with an estimated 1.2 million people. For background and sequence, see: <http://g1.globo.com/rio-de-janeiro/noticia/2012/10/rio-tem-28-upps-e-vai-ganhar-mais-duas-ate-janeiro-de-2013.html>.

15 See <http://www.jb.com.br/rio/noticias/2012/04/10/beltrame-expansao-e-consolidacao-de-novas-upps-serao-tarefa-dificil/>.

16 For a review of the UPP effort consult <http://www.insightcrime.org/news-analysis/new-rio-de-janeiro-police-force-reduces-favela-violence-study> and Muggah and Szabo (2013).

17 See <http://extra.globo.com/casos-de-policia/upp-mais-da-metade-dos-policiais-mortos-em-servico-este-ano-estava-em-areas-pacificadas-6122927.html> and <http://extra.globo.com/casos-de-policia/policia-de-upp-assassinado-com-mais-de-20-tiros-de-fuzil-na-porta-de-casa-foi-terceiro-pm-morto-em-24-horas-8147319.html>.

18 See http://www.nytimes.com/2012/03/04/business/ibm-takes-smarter-cities-concept-to-rio-de-janeiro.html?pagewanted=all&_r=0 and <http://www.centrodeoperacoes.rio.gov.br>.

19 See <http://www.copa2014.gov.br/pt-br/noticia/governo-do-rio-de-janeiro-inaugura-centro-de-comando-e-controle>.

20 See Muggah and Diniz (2013a).



UPP engagement with technology

Given the sheer spatial and social heterogeneity of Rio de Janeiro it is hardly surprising that the UPP experience is diverse and dynamic. Owing to their distinct histories and experiences, each neighborhood presents diverse opportunities and challenges for newly-installed UPPs. In some communities, UPP interventions have been decidedly unproblematic and faced little obstruction.²¹ In others, attempts by the UPP to arrest suspects have led massive forms of – occasionally violent – resistance.²² Not surprisingly, each UPP is also distinct, whether a function of the number of police assigned to each unit, the numbers of police deployed on patrols, the patterns of patrolling applied, or the types of weaponry and defensive equipment used.

There is no “ideal type” UPP. For example, the Mangueira UPP has experienced sharp increases in police deployments to confront attacks from armed groups and there are mounting concerns that operations there are under threat. The number of officers in other UPP sites such as Cantagalo and Macacos, by contrast, has remained more or less constant. In other neighborhoods, like Batan, more police have joined the unit because adjacent areas have been pacified and annexed under that UPP’s control. In calmer UPP sites such as Dona Marta, handguns (as opposed to assault rifles) are virtually the only weapon carried by police.²³ Figure 2 summarizes some of the patrol characteristics, age, the name of the previous armed group and severity of violence in the UPPs considered in this *Note*.

Despite these variations across UPP sites, virtually all of them struggle to engage with ICTs in a coherent way. A structural challenge is the general unreliability of existing communications infrastructure. The cellular phone network is underdeveloped and coverage is highly uneven, characterized by known (and unknown) “black-out” spots in hilly and vertical terrains where most favelas are located. The official PMERJ channel of communication, the two-way radio, can also be unreliable, especially when the terrain is uneven. Part of the reason for this is that the PMERJ were unable to install radio repeaters in favelas because the drug trafficking groups controlling those areas immediately tore them down. For the most part, official radios are used when police are leaving their station to patrol or in the context of specific operations. As a result, most officers tend to rely on their own personal mobile phones, most of which are serviced by Nextel voice-radio, which often do not have the capacity to send or receive digital data.²⁴ As a result, the tendency among officers is toward more informal and personalized forms of interaction rather than formal and secure communications.

Yet for all the spontaneous innovation at the local level, police in cars, motorcycles, bicycles or on foot are still only modestly drawing on ICTs in the course of their work. As noted above, 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

21 Batan is one example of a calm UPP. It is in the process of expanding to adjacent areas previous under the control of other groups: <http://www.ofluminense.com.br/editorias/policia/governador-sergio-cabral-inaugura-upp-para-reforcar-patrolhamento-no-batan>.

22 Mob violence has occurred regularly in Mangueira. For one instance, <http://www.youtube.com/watch?v=g2QQf89ttrln>.

23 The decision instance see, the local commander with his or her superiors. In unstable UPPs, officers carry military grade 7.62mm assault rifles or similar weapons as a show of force against the weaponry used by the vestiges of armed groups present in the community.

24 Nextel cell phones combine regular telephone service with the option to use phones, at a reduced cost, as hand held radios. The quality of the latter is substantially cheaper, and has become a standard form of communication between police both on and off the job.

have little means to check on a possible suspect remotely. As a result, 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. An unintended consequence is that police are also provided with more discretionary space – which is due to (and exacerbates) limited, supervision and oversight.

Figure 2. Stability and Patrol Characteristics of UPPs Under Study

UPP	Established	Previous control	Patrol modalities	Security	Police casualties
Mangueira	2011	C.V.	Foot, vehicle, motorcycle	Poor	Yes ²⁴
Batan	2009	Militia	Vehicle, foot, motorcycle	Good	No
Sao Joao	2011	C.V.	Foot	Poor	Yes ²⁵
Rocinha	2012	A.D.A.	Foot, motorcycle, vehicle	Poor	Yes ²⁶
Sao Carlos	2011	A.D.A.	Foot, vehicle	Poor	Yes ²⁷

Technology can thus improve physical safety, embolden more thorough patrolling, and can enhance accountability and oversight. A number of efforts have been pursued to enhance the availability and use of ICTs within the PMERJ and the UPP specifically. In particular, a number of intriguing experiments have been pursued by different police agencies applying video oversight, including in vehicles monitoring police and their immediate environment as well as in the context of special operations.²⁵ For example, the information technology division of the PMERJ recently contracted-out the design of a specialized tablet for police vehicles. Named “Cecoco”, the initiative includes a web-based system to allow police to submit criminal incident reports remotely as well as a geo-locational capacity to monitor other police vehicles.

There are several drawbacks to the Cecoco system – not least the fact that it’s vehicle-mounted tablets reinforce traditional vehicle-based policing rather than foot-based proximity policing. Early feedback from police indicates that the vehicle-based tablets have not been as effective as was hoped. In spite of special measures to enhance their effectiveness²⁹, tablets often fail to connect with any network. As a result, the much anticipated features of the tablet

24 See <http://noticias.r7.com/rio-de-janeiro/noticias/policiais-da-upp-da-mangueira-sao-feridos-durante-abordagem-20121207.html>.

25 See <http://extra.globo.com/casos-de-policia/pms-de-upp-sao-atacados-no-morro-sao-joao-no-meier-7986468.html>.

26 See <http://noticias.band.uol.com.br/primeirojornal/conteudo.asp?id=100000533352>.

27 See <http://noticias.r7.com/rio-de-janeiro/noticias/policial-da-upp-sao-carlos-e-baleado-em-patrolhamento-no-morro-do-querosene-20120507.html>.

29 The vehicle tablets feature two phone chips from the major cell networks, allowing for greater connectivity depending on levels of reception.



are lost completely. During most visits to UPP sites, Igarapé Institute researchers found that the Cecoco map was not working owing to glitches in the system or limited connectivity. Police frequently commented on their unreliability, ironically using it as yet another hard surface on which to draft their reports by hand.

Figure 3. The Command and Control Center of UPP Rocinha



The command and control center of the UPP in Rocinha

Source: Graham Denyer Willis

A more promising technological initiative is the introduction of digitally enhanced oversight in selected UPP areas. 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. With their high-powered and high-resolution zoom, these cameras are spread throughout Rocinha and also draw on face recognition technology. The images from these cameras (see Figure 3) are displayed on 12 flat panel televisions that broadcast ten video feeds each.³⁰ Each of these cameras is visible from another in order to prevent vandalism.

³⁰ This video data is recorded and stored on file in a server and database room on-site in the same building as the Command. There are substantial challenges in relation to storing large volumes of data.

Opportunities for enhancing ICT use by the UPP

While novel, the incremental nature of ICT adoption by the PMERJ presents a challenge for the implementation of the UPP. Nevertheless, there are also important opportunities owing to rapid advances in telecommunications networks, cloud computing and the pervasive nature of handheld devices like smart phones and tablets. This can potentially allow police officers to develop, store, and analyze data, with appropriate oversight, in ways hitherto unimagined. There are many instances of individual police officers developing creative solutions to specific challenges in neighborhoods – such as developing geo-spatial tools to plot crime incidents – where UPPs are present. And while offering great opportunities, there continues to be difficulty in scaling-up these efforts up and to utilize them more strategically.



UPP officer in Rocinha using a smart phone

More positively, Rio de Janeiro's residents are today better prepared than ever to monitor police behavior and publicize violations and abuses on social networks, including Facebook, YouTube, Twitter and other platforms. Mass protests in Brazil in June 2013 underlined the ways in which new media was used to broadcast police brutality, particularly in Rio de Janeiro and Sao Paulo.³¹ To be sure, the filming of police, whether by mobile phones or public security cameras, decreases their discretionary space, potentially constraining their decision to resort to repression or other abusive behavior. A related challenge is that short video clips are often subjected to selective editing that can portray an ambiguous situation (involving police overuse of force) in the worst possible light.

A particularly tricky issue relates to the spontaneous recording of police behavior – by citizens or the police themselves. Indeed, most video recorded by citizens of police tends to be partial and poor quality. Precisely what may have occurred before and after a violent incident advertised on a YouTube video is

often excluded. While such videos can offer important insights that strengthen state-citizen accountability, they may also obscure more than they reveal or tell a one-sided story. A widely publicized YouTube video of UPP officers of Mangueira is illustrative. The four minute clip begins in the middle of what appears to be a mob confronting police. The police are outnumbered and look disorganized in the face of shouting from residents about violence, inviting speculation from the viewer.³²

³¹ See <http://thelede.blogs.nytimes.com/2013/06/18/protests-expand-in-brazil-fueled-by-video-of-police-brutality/>.

³² See <http://www.youtube.com/watch?v=g2QQf89tIrl>.



There are opportunities to use video oversight and other ICTs in a more effective, organized and coherent manner. During the Igarapé Institute-led research, a commanding officer of Mangueira actively supported the use of video and audio recording of police while on patrol. This is because the UPP feel routinely and unjustly framed by residents there when issues of police use of force arise. The word of the community – verified or not – about police abuse often takes precedent, 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. This dynamic also makes the UPP less likely to believe citizen complaints even when a UPP officer is genuinely at fault.

Specifically, police recording of video and audio using ICTs may offer a novel way of enhancing accountability while also strengthening relations with communities. Indeed, this is already occurring in North America, where body worn cameras (BWC) have started to make operational inroads.³³ Most of these BWC innovations are affixed to the head, glasses or vests and are closed circuit.³⁴ They do not benefit from smartphone based platforms that allow significant secondary innovations that may be of particular value for policing violent environments like Rio de Janeiro. 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.

On the one hand, the autonomous recording of routine police patrols could serve both as a protective device for police from 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 minute by minute. On the other hand, these recordings could audit police behavior in such a way as to curb violent behavior. In other words, video could play a role in the pacification of police themselves, a stated goal of the UPP program. These twofold benefits could have distinctly positive outcomes for police behavior, accountability and citizen trust in police over the long run.

Of course, police are not always too eager to have their power restricted. A basic requirement of developing new oversight technologies includes incentivizing police to themselves record visual and audio feeds in the course of their patrols. Fortunately, the ubiquity, portability and functionality of mobile phones, particularly smartphones, can play a crucial if under-recognized role. Smartphones allow for the use of multiple applications and regular access to the Internet. A smartphone can at once record ambient audio and video, while serving as a means to access other data, such as criminal records and other databases, geo-referenced maps of the location of other police, and any other number of possible tools to help street-level police to do their job more effectively and efficiently. The possibility to remotely consult criminal records, to call on and monitor officer support, or to rapidly file a report could serve to offset the feeling of having one's job performance constantly monitored.³⁵

33 See <http://www.cbc.ca/news/canada/story/2013/07/30/f-police-body-worn-video.html> and <http://www.policymic.com/articles/33143/will-on-body-police-cameras-increase-police-accountability-and-decrease-brutality>.

34 See http://www.nytimes.com/2013/04/07/business/wearable-video-cameras-for-police-officers.html?pagewanted=all&_r=1&.

35 Another option, in situations where there is specific concern about safety, would be for the police officer on the street to choose to live-stream his video to a website remotely monitored by the local commander. This functionality would provide them both with an extra measure of security, and allow local commanders to be directly connected with police during important events in real-time.

Notwithstanding the opportunities of video and audio oversight, a number of major obstacles remain. From an ethical perspective, the prospect of using cameras to record daily activity present issues associated with the protection of privacy – both that of police and of citizens. Meanwhile, from a sociological perspective, there are also concerns about how communities will react to being monitored by “big brother”, particularly given the historical reputation and legacy of military police forces in Brazil, and Rio in particular. And while some of these anxieties can be alleviated through deploying face-blurring techniques or education campaigns, they will persist regardless, and for good reason.

Other challenges are distinctly contextual and institutional. For example, a commander from one of the UPPs pointed-out one of the potential side effects of autonomous police oversight. In Rio de Janeiro, the risk of confrontations between police and armed groups is very real. Patrols in cramped back alleys and dense residential blocks are pursued in the knowledge that an attack could occur at any moment. It does not compare to the day-to-day operations of police forces in otherwise stable settings. As such, the addition of another layer of scrutiny could lead to counter-productive adaptation.

Specifically, if police feel that recordings of their behavior are excessively restrictive, then they may be more inclined to avoid those situations where their behavior could be exposed. Police may be inhibited from entering certain areas, such as areas where drugs are trafficked (*boca do fumo*) or not responding to crime reports if there is indication that they are at risk. Many street level police already feel heavily surveilled from all angles, whether human rights organizations, internal affairs or citizens. Although the aim of video and audio oversight would be to encourage police to be diligent and balanced in their use and escalation of force, the potential for police to overcompensate and avoid problem areas altogether is very real.

It is also worth recalling that different types of police understand policing differently. Even within the police hierarchy, perceptions change the further one is removed from the street. Those closer to the ground have a firm grasp of the immediate challenges, demands and constraints of the operational environment. They understand that sometimes policing an environment where heavily armed gangs could be around the next corner requires a different tool-kit. They recognize that discretionary space is important. Policing, they say, isn't just as simple as responding to a call with a smile on their face. Distrustful communities, especially those still lorded over by armed groups, are often reticent to report most types of crime. This means that it is exceptionally challenging for someone removed from the demands of the street to understand the practical constraints of everyday policing.

A critical issue, and one that will be addressed in future *Strategic Notes* focused on the smart policing project, is how recorded video and audio data collected from front-line police should be managed and evaluated. The politics and policies of data management, access to records and control over wayward police should not be taken lightly, particularly since it is of direct concern for building citizen trust when troublesome incidents come to light. A more effective approach could potentially include a “graded” or “sequential” review of the data. Specifically, for serious incidents, a complete and thorough review could be undertaken in institutional channels by agencies like internal affairs or with the creation of a specific oversight committee. In less serious incidents, cases could be reviewed by the local UPP commander and in partnership with local oversight committee.

The involvement of communities in a transparent approach to overseeing data could potentially deepen interaction between police and communities. While sensitive and requiring considerable reflection, such a committee could be



composed of selected leaders of the community and key commanding officers within the appropriate police force. For day-to-day matters, the local commander would have complete access to the data, being allowed to use the material as necessary to make corrections in personnel, to rethink strategy and to make improvements on a routine basis. This day-to-day monitoring could easily be integrated into the video command center model, as currently exists in the Rocinha UPP of Rio de Janeiro.

Conclusions

The dramatic transformation of the information technology environment coupled with radical experiments in policing offer a laboratory for testing ways of improving police accountability in Rio de Janeiro. The emphasis of the UPP on foot patrols and increasing proximity with residents opens up new opportunities for deepening trust and reciprocity with local residents. This *Strategic Note* finds, however, that some technologies may be more appropriate than others. For example, the Cecoco and vehicular-based tablet, while innovative, are still unreliable. By way of contrast, fixed video cameras installed in Rio de Janeiro offer some possibilities for real time monitoring with a phenomenal level of resolution and have already been deployed effectively.

A focus on ICTs at the personal level also highlights a range of important opportunities to make policing smarter. Indeed, the widespread use of mobile phones by UPP officers, their familiarity and preparedness to use them, and the capacity of such devices to collect video and audio feeds forecasts a new era of accountability. The possible introduction of citizen committees to monitor specific types of incidents also reveals opportunities to improve trust between police and residents. A central challenge will be to ensure that these new innovations are “absorbed” and mainstreamed into the PMERJ, well known for its historical hesitance to embrace reform efforts.³⁶ Fortunately, within the PMERJ and also the public secretary for security’s office are a corpus of senior personnel who are actively exploring new ways of making policing more effective, secure and accountable to the public. They are fostering partnerships with technology companies and research groups to test out new tools. They are exploring how to create more appropriate metrics for crime prevention, since traditional police metrics advanced by the COMSTAT model (advanced in the United States) only measures police *responses* to crime.

The process of piloting, developing and continuously adapting new technologies is critical in order to gain traction given political pressures and their associated constraints and systems of empowerment. This is true both for making a technology attractive for the police that will use it, and well as for managing community perceptions. Ensuring that the perceived benefits outweigh the perceived downsides is essential for routine use within an institution that is widely mistrusted. For local residents, the consumers of the new public security paradigm being advanced by the UPP, such a technology must provide them with a reliable means of holding police to account. Since trust is a central tenet of the UPP project, such a technology will need to be both technologically innovative, but also motivated by an inclination for meaningful accountability.

³⁶ See Leeds (2007).

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