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POLICE INNOVATIONS, 'SECRET SQUIRRELS' AND ACCOUNTABILITY: EMPIRICALLY STUDYING INTELLIGENCE-LED POLICING IN CANADA

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In an environment of fiscal constraint and growing fear of catastrophic events, police services are turning to intelligence and analytic technologies to conduct aggressive information gathering and risk analysis. The present study uses 86 in-depth interviews and participant observation to explore the integration and utilization of intelligence-led policing (ILP) in a Canadian context. From this analysis, we identify how police cultures, organizational context and situational pace of policing constrain an intelligence-led framework. Further, we illustrate how police services have rhetorically *adopted ILP and* translated *it to mean accountability in a time of austerity. By translating ILP, Canadian police services have been able to redefine success within their services without necessarily attending to the outcomes of their practices.*

Keywords: accountability, crime analytics, intelligence-led policing, police cultures, police innovation, qualitative research

Introduction

The chief's office basically led a team that … was focusing on …. building an intelligence-based police service with crime analysis, GIS – some of those practices, trying to modernize us…we're trying to sophisticate and modernize police officers to an intelligence-led process where they're able to look at data combined with investigative information –intertwine it and collaborate it with the community to actually detect and solve more crime. (I02, Police Inspector)

The growing discussions concerning the economics of policing (Drummond *et al.* 2012; FCMa,b 2012) coupled with the impact of 9/11 and 'the continuing threat of catastrophic risk has significantly increased the pressure on governments to think and act pre-emptively. The trajectory towards anticipatory endeavour, risk assessment and intelligence gathering is accelerating' (Zedner 2007: 264). As a result, Canadian police services are turning to information technologies and innovations as a means 'to create smart, efficient processes and …to leverage technology to move away from reactive to proactive policing' (Police Chief 2011, Ontario Association of Law Enforcement Planners Meetings).

A pre-crime society is characterized by calculation, risk, surveillance, prevention and a pursuit of security (Zedner 2007: 262; see also Loader and Sparks 2002; Johnston and Shearing 2003; O'Malley 2004). Canadian investments in surveillance, CCTV, intelligence-led policing (ILP), community mobilization initiatives and offender registries are illustrative of this temporal shift to pre-crime (Zedner 2010). A 2014 report by the Police Executive Research Forum shows that 85 and 94 per cent of police chiefs

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are invested in crime analysis and directed patrol, respectively, and more agencies are adopting ILP.

While definitions of ILP are hard to find, we draw on the Global Intelligence Working Group's definition as 'the collection and analysis of information to produce an intelligence end product designed to inform law enforcement decision making at both the tactical and strategic levels' (Ratcliffe 2011: 81). It is believed that synthesizing, linking and spatially organizing data stored and compiled by police organizations will allow for the most informed and targeted allocation of police resources (Boyd and Crawford 2012). Thus, ILP is an organizational approach that emphasizes aggressive information gathering and risk analysis to 'target, prioritize and focus interventions' (Cope 2004: 199). Efforts to engage in ILP are described as substantially changing the practice of policing, away from an exclusive focus on reactive crime control, toward proactive security, surveillance and risk management (Ericson and Haggerty 1997; Maguire 2000; Lyon 2001, 2003; Murphy 2007; Manning 2008; Sanders and Hannem 2013; Sanders and Henderson 2013).

Central to the ILP movement is the use of information technology and crime analysis. As such, Canadian police services are centralizing their agencies through the implementation of shared technologies, such as records management systems (RMS), geographical information systems (GIS) and mobile data terminals (MDTs), as well as integration of intelligence and crime analysts. Through the advent of crime analytics and criminal intelligence, it is argued that ILP provides police the ability to 'scientifically' predict offender activities and 'objectively' direct police resources to prevent crime and disrupt offender activity (Beck and McCue 2009; Lavalle *et al.* 2011).

While crime analysis has attracted professional and academic attention, the majority of this scholarship is theoretical or methodological in nature with little in-depth qualitative assessment of the impact of these changes on police practices. In light of the ever-growing incorporation of scientific knowledge and technology in Canadian policing, it is of vital importance for criminologists to ethnographically study the ways in which police services construct knowledge about crime (Innes *et al.* 2005). As Innes *et al.* (2005: 39) note, 'the practical application of different forms of scientific knowledge and method in crime control is a subject that has been ignored by many criminologists'.

The present study, therefore, provides an ethnographic analysis on the scientification of crime control. To this end, 86 in-depth interviews were conducted with 30 crime analysts, 26 patrol officers and 30 officers/civilians working within police information technology bureaus from six different Canadian police services. Interviews were supplemented with 36 hours of observation in police ride-alongs and participant observation in three crime analytic workshops and two Canadian Association of Chiefs of Police (CACP) information management workshops.

In what follows, we first define social constructionism and ILP. We then outline our methodology and move to an analysis of the scientification of Canadian policing by exploring the integration and utilization of information technology and crime analytics. From this analysis, we identify significant cultural, organizational and situational challenges to the acceptance and utilization of ILP on the ground. Further, we illustrate how ILP has not been *adopted* per se but instead has been *translated* by police organizations as a protective measure to demonstrate *accountability*.

Making Sense of ILP

An intelligence-led framework integrates 'the "old knowledge" of policing, such as criminal informants and information gleaned from suspect interviews, with the "new knowledge" of policing, crime analysis and the surveillance of national databases' (Ratcliffe *et al.* 2014: 1). Within an ILP framework, crime analysis is the 'systematic study of crime and disorder problems as well as other police-related issues…to assist the police in criminal apprehension, crime and disorder reduction, crime prevention, and evaluation' (Boba Santos 2013: 3). It is believed that the very success of an ILP framework rests in police innovations and advanced crime analytics (Taylor *et al.* 2007). As a result of the growing faith and reliance on technology, there is a *perception* that the uses of policing innovations enhance efficiency, effectiveness and police accountability (Chan 2001; Manning 2008). However, there has been little empirical analysis of these policing innovations (Griffiths 2014).

Adopting a contextual constructionist perspective (Loseke and Best 2003), and drawing on research in the social construction of technology (Oudshoorn and Pinch 2003), we examine how police personnel, including police officers, administrators and crime and intelligence analysts, make sense of and enact ILP. Social constructionists 'focus on the social, political and cultural processes' by which actors make sense of what is happening in their social environment (Hannigan 1995: 30). They argue that to understand how people make sense of organizational reforms requires a focus on the interpretive actions and understandings of the people within the structural contexts and material realities that influence, shape and guide them (Best 1995, 2004; Holstein and Gubrium 2003).

Organizational philosophies, such as ILP, are brought to life by the meaning officers ascribe to technologies, policies, practices and reforms (Chan 2007). When police personnel are faced with organizational change, such as policing reforms, they attempt to 'make sense' of the uncertainties and 'enact their interpretations into the world to give it a sense of order… Through making sense of their world, agents socially create a world that in turn becomes a "real" world that "constrains actions and orientations": as Weick sees it, sensemaking is "the feedstock for institutionalization" (1995: 36)' (Chan 2007: 326). Thus, in order to study ILP reform, it is imperative to be attentive to the technological, organizational and cultural contexts in which it operates.

Many organizational studies have had difficulty conceptualizing the role technologies play because they have not been able to distinguish between the technical and the social without treating them as distinct entities (Clarke 1991). However, technology is a social object that has a material as well as symbolic aspect (Sanders 2014). The way in which users adopt and make use of technology 'brings it into the life of the society' (Wagner-Pacifici and Schwartz 1991: 416). Studies of police reform and innovation must be attentive to its organizational members' interpretations ('technological frames') of police technology because where the technological frames of key groups 'are significantly different, difficulties and conflict around the development, use, and change of technology may result' (Orlikowski and Gash 1994: 174; see also Chan 2007). Thus, it 'requires an examination of the relationships between technology and the … organization to be *ethnographically rich* and textured, and somewhat reticent to accept evidence that does not acknowledge this ground in the contingencies and routines of … work' (Manning 2013: 2510).

A small body of ethnographic literature examines police technologies in use and illuminates the ways that technologies have led to organizational changes (Meehan 1998). These studies have also uncovered the ways in which external psychological, social, political and/or cultural factors are implicated in how technologies affect social life (Chan 2001: 143; see also Manning 1992; 2001*a*; 2003; 2008; Meehan 1998; Cope 2004). For example, research on police RMS uncovers the ways in which organizational policies and ideologies, as well as the normative behaviour of officers, shape technological adoption and use (Sanders and Henderson 2013). Further, while information technology may provide the technical capacity for effective crime prevention, closer examination of its application demonstrates that the scarcity of resources stifles that potential (Dunworth 2000; Chan 2001; Manning 2001*a*; 2001*b*; Ratcliffe 2002).

Central to the ILP movement is the crime and intelligence analysis function: 'the primary means by which limited police resources can be deployed in a productive manner to better address community problems and ultimately reduce crime' (Taylor *et al.* 2007: 167; see also Osborne and Wernicke 2003). With the growing attention and reliance on crime analysis to fulfil the ILP framework, police services have turned to people with specialized analytical skills to address their new policing mission. Crime analysts synthesize data about crime to 'de-contextualize and … de-personalize crime data in order to develop an overview of the nature of crime problems' that enables the prediction and management of those problems (Cope 2004: 199). While there is a growing academic interest in crime analysis, the vast majority of this research focuses on the mechanics of how to conduct various types of analysis (Taylor *et al.* 2007) with little attention to the everyday activities of these workers and their role in constructing knowledge on crime control. The lack of research on crime and intelligence analysis is surprising considering their central role within ILP (Ratcliffe 2011).

Manning's (2008) seminal ethnographic study of crime analysis and mapping in three cities concludes that little has changed in the routines and practices of policing as a result of the intelligence technologies that have been implemented (see also Willis and Mastrofski 2011). Cope (2004) conducted qualitative research on analysts' perceptions of their work and their integration and fit within two police forces in the United Kingdom. They found that (1) the contribution analysts make to the police service are limited because of data quality issues and a lack of analytical understanding by police officers and (2) there is a perceived lack of fit and integration between crime analysts and the organization (Cope 2004; see also Ratcliffe 2002; 2004; Taylor *et al.* 2007: 157). Similarly, Darroch and Mazerolle (2012) found that one of the most important factors to ILP innovation uptake in New Zealand police departments was the organizational fit and support by high levels of leadership.

Lastly, research on crime analysis has uncovered the artful work completed by crime analysts who employ subjective decision making to overcome the ambiguities and inconsistencies found within police records, demonstrating how crime data 'is an artefact of police practices "on the ground", rather than some objective, indexical measure of the extent of offending' (Innes *et al.* 2005: 40, see also Monaghan and Walby 2012; Fraser and Atkinson 2014). Such research illuminates the social processes involved in the construction of crime data and raises questions concerning the 'objective' and 'scientific' nature of analytic products and subsequent constructions of risk. Not withstanding the significance of the empirical research that has been conducted to date, the majority is based in the United States and United Kingdom, where police practices, policies,

training and education are different. Thus, the present study provides one of the first ethnographic explorations of ILP in Canada and contributes to an understanding of how end-users, such as crime analysts and police officers, shape the ground-level outcomes of ILP innovation (Willis and Mastrofski 2011: 35; see also Sanders and Hannem 2012; Sanders 2014).

Methodology

In order to study how police personnel make sense of ILP, while analytically attending to the technological, situational and cultural complexities of policing, we employed ethnographic methods (Young 1991; Marks 2004; Thacher 2008). Upon receiving ethics clearance from Wilfrid Laurier University, we conducted 86 in-depth interviews with 30 crime/intelligence analysts, 26 patrol officers and 30 officers/civilians working within police information technology bureaus from six different police services across Canada. In order to maintain the anonymity and confidentiality of those who generously donated their time for the study, we refer to the services broadly as 'Canadian' services. Policing represents a 'bounded and formal institution' with its own set of rules that govern action and membership (Mulder and Whiteley 1997). This bounded site creates numerous obstacles to research access. As such, permission into the research field was acquired in differing ways.

For three services, permission was first acquired through a personal contact and then through the police research office. Once the research proposal was 'passed' by the research office, the original contact arranged organizational support and participation in the study. In these cases, the call for participation was largely managed by the 'gate keeper' (i.e., original contact), but once the research was underway, the lead researcher continued to recruit and interview other relevant actors. For two services, access was acquired strictly through the police research office. The research office then became responsible for advertising the research and providing contact information to both potential participants and the research team. For the sixth and final service, access was acquired through the police chief who supported the study and informed those working within crime analysis and IT that the service was participating. This level of approval provided wider access to the service and its members. Within all services, interviews and observations were acquired through a mix of purposive and snowball sampling.

Interviews ranged from 45 minutes to 3 hours, with the average being 1.5 hours in length. All interviews were tape-recorded and transcribed verbatim. In order to develop a thick description of how policing innovations and crime analysis are understood and utilized, interviews were supplemented with 36 hours of observation in patrol policing and participant observation in three crime analytic workshops (2011 Association of Law Enforcement Planners Meeting, 2012 National Institutes of Justice Crime Mapping Conference and 2013 Regional Crime Analyst training workshop) and two (2013, 2014) CACP workshops on police information technology and information management. The regional crime analyst workshop was one day, while the remaining workshops were three days long and involved attendance at the formal training sessions as well as the informal social networking events.

Adopting a constructivist grounded theory approach, we analysed field notes, technology training manuals and interview transcripts, identifying and connecting themes related to ILP, information technology, crime analysis and police–public interaction

(Charmaz 2006). Using writing as an analytic device (Richardson 2000; Charmaz 2006), we conducted thematic and analytical coding to identify coherent interpretations of ILP work processes. While numerous police services have intelligence departments—where crime and intelligence analysis is central to its functioning—we chose to study the integration and utilization of policing innovations and crime analysis across the organization, including patrol because the heart of policing is the work of the patrol officer (Bittner 1979). For example, 'ideas about the what, why, and how of [police] work is surrounded by and protected by beliefs about [patrol]' (Manning 2013). As such, we believe the very success of an ILP framework rests on its adoption and utilization by patrol.

Policing Technologies and Intelligence-led Practices

At the 2014 CACP information management workshop, a Canadian police inspector exclaimed, 'the reality is we have become an information technology-driven business… that is what really drives us at times' (I02, Inspector). In what follows, we provide an organizational description of policing information technologies, specifically GIS, RMS and MDTs.

GIS enable police departments to analyse data and chart data points spatially (Manning 2008). GIS converts geocoded addresses/locations to spatial representations; 'variations in density by location, types of crimes, or days of the week can be mapped, as can offenders' residences, and patterns of co-offending' (Manning 2001*b*: 90). The use of GIS and analytics is exemplified in one service's reliance on the 'R5', which means having 'the Right People in the Right Places at the Right Times in the Right Numbers doing the Right Things' (CACP information management workshop, field notes). As the following police officer explains:

> …you can be fairly current when you are sending guys out doing … intelligence-led policing. Here's the data, this is the problem, and this is what's occurring. Let's patrol this area a little more or lets set up surveillance. That's great at the patrol level. For us, that might mean looking at resources and how we're stretching them and how we might transfer one platoon or put somebody into another downtown in the beats (I10, police IT)

The police officer above notes the value of GIS and crime analytics for ILP and strategic and tactical decision making. Analytics derived from GIS are perceived as 'important for capturing police deployment and creating statistics on the amount of crime in different jurisdictions and zones…[in order] to *predict* the next crimes to occur in those areas' (I20, GIS specialist, *emphasis added*). Data used in GIS are acquired through the police RMS.

The police RMS provides officers with access to city and rural addresses; crime and non-criminal caution/hazard data entered by police call-takers or officers; unlimited links to incidents, persons, vehicles and property and access to the Canadian Police Information Centre (Niche 2006). As one IT coordinator explains, '... it is unbelievable the amount of information that [patrol] can access, useful information from … a driver's license history, all [the driver's] contacts when [he / she] was last stopped in [the city], who stopped [the driver], and who was with [the driver]' (I25, IT coordinator). RMS is perceived as an 'investigative tool for storing personal information and cautions about different addresses so that officers can know how many times they have

been to a particular address, the demeanour and previous behaviour of people at that address' (I21, RMS manager). The ability to mine data from RMS is described as a tool for proactive ILP because it provides officers with:

> a good picture of what [they] are responding to so [they] can do work before [they] get there. So [they] can go in and pull information out, … [they] can run that person's name and get everything [they] can know about that person … before they get there, things that are important to them (I25, police officer).

Police records are accessible to patrol officers through their MDTs.

MDTs (laptops found in patrol vehicles) 'provide information to the fingertips of officers to increase situational awareness' and enable patrol officers to 'predict crime, not solve crime' (CACP information management workshop, field notes). Many MDTs have 'dashboards' that allow officers to map particular crime data in their specific patrol zones. As one Canadian police chief explained, 'our dashboards provide officers with the capability to map actionable intelligence' – mapping out occurrences (such as sexual assaults, sex offenders). In fact, officers are doing a lot of dashboarding for themselves, such as impaired driving dashboards (CACP field notes).

The accumulation of data stored, compiled and accessible on these technologies is perceived as enabling proactive, predictive practices. For example, the following crime analyst describes a situation wherein he informed patrol officers about his analysis on theft from vehicles which led to an arrest as well as officer support for crime analysis:

> [We had] some theft from vehicles and [I could] see they're happening, [I could] see when they're happening and [was] aware they [were] happening, and [I had] a couple of suspects. [I] go to [patrol] and say 'this is what I'm seeing' and…they go 'okay, well we've got some time so we'll try it out'. They go and they arrest the guy in five minutes and then the whole group of them that were there are like winners. They're like bought in, they are totally into it. (I04, Crime Analyst)

Above, the crime analyst provides an example of proactive policing that has been informed from the analysis of stored police data. There are a number of interesting insights from the quote above. First, the perception of proactive policing provided in the quotes and discussions above raises questions about the concept 'proactive'.[1] The officers, we argue, are not acting 'proactively' to prevent or thwart crime but are instead reacting to crimes that have already occurred. Thus, while 'proactive' has been adopted in the organizational discourse, *situationally* it is just another example of reactive policing. Second, the analyst draws attention to the cultural importance of being the one to solve the crime (they're all winners) and to acquire organizational support (They're… bought in, they are totally into it). Thus, while the potential for ILP is available, the extent to which police services engage in it, we argue, is shaped by the cultural, organizational and operational contexts of police work.

Occupational culture: The 'hunters' and secret squirrel stuff

Police organizations are 'notorious for being empires and it is at [their] own detriment' (I26, officer). As one officer explains, 'there is not a chance in hell that I will ever see certain agencies sharing information with others. The only means of [information

[1] We wish to thank James Sheptycki for this insight.

sharing] is *verbal* in many of these cases because these departments are extremely paranoid, and with good reason' (I25, officer). During participant observation, a district crime analyst described the difficulty she faced acquiring real-time information from her patrol officers because her 'hunters', the patrol officers who spend their time 'digging for intel and working with informants', are not willing to formally (through written reports) or informally share their information with her. The 'hunters', the analyst explained, 'didn't want other patrol officers "heating up" their "fishing holes"' (field notes).

This culture of secrecy was not only identified among uniform officers but was also present among some crime analysts:

> Even within analysis there is a culture of not sharing. You know, people want to be the one's to make the big score or arrest. They want to be rewarded so they will often not share…not all analysts are open….There really are silos of information – these silos can be units / departments within policing, but there are also silos among crime analysts. (I03, Crime Analyst)

Many analysts identified that it was easier to access certain *types* of data, such as criminal incidents, but the 'intelligence data' such as 'confidential informants and street checks… the secret squirrel stuff' are not always accessible to them or shared with them by officers or other analysts (I18, Crime Analyst). Analysts, therefore, are provided 'with as much or as little information as the service wants' (I14, Crime Analyst), and accessing information 'is about meandering through these obstacles, and some of these obstacles are people' (I21, Crime Analyst). As such, 'policing is a culture of entitlement, and changing that culture from an "I" to a "we" is something challenging' (Ontario Association of Law Enforcement Planners Meeting 2013, field notes). Services 'holding onto information or [being] afraid to share information' illustrates that services 'really didn't buy into intelligence based policing because [they] have all these information silos and it's hard as an analyst to find [information]' (I11, Crime Analyst).

For ILP to work effectively, information must be electronically stored and shared within and across police services. As described earlier, RMS, accessible through the officers' MDTs, are to provide officers with access to criminal and non-criminal information associated with a person, place or vehicle. However, when a patrol officer pulls a person over and notices that this person was recently stopped and charged in a neighbouring city, the RMS 'doesn't actually bring up the report … it gives … report numbers, contact people and occurrences' (police ride along, field notes). The officer must then call the other officer identified on the report and request permission to see it, limiting the ability to make informed, proactive policing decisions in the moment.

The occupational culture of information hoarding, we argue, has shaped the use and functioning of police innovations. Although RMS have been installed and shared police databases have been created, such as the police information portal (PIP), to facilitate information sharing among police services, the occupational norm of secrecy shapes technological functioning. For example, the amount and type of information accessible on PIP is determined and governed by each police service, leading 'some of the services [to] allow more views of occurrences [while] others don't' (I04, Crime analyst). For instance, one of Canada's largest police services 'is on PIP but [none of their] reports are on PIP. And each service has the right to publish reports if they want. [The largest service] publishes nothing. You have to always contact them for their reports' (I18, Crime Analyst). As a result, access to police data and information is challenging and

the state of the data management is not great…There is no centralized records management system. … There are sort of band-aid solutions that are in the works or that have been rolled out at various times to try to unify the various systems. But nothing really has succeeded. (I22, Crime Analyst)

Working within a culture of secrecy with 'orphaned databases … analysts have a very, very difficult time. You really have to know … the systems within and where people store their information. And that's almost a corporate / historical memory bank' (I19, Crime Analyst).

Although ILP is based on a platform of partnerships and collaboration, ILP in the Canadian setting is,

… really lacking. … because we have to go through so many borders and walls and everything. We're all police …we need this information, so why do we have to jump a fence to get it…I don't understand why all our services can't talk… (I09, Patrol Officer)

Information sharing, therefore, was perceived to be 'a big brick wall to try to break through' (I04, Crime Analyst). The occupational culture of policing, we argue, shapes the construction of crime knowledge and poses challenges to ILP practices by rendering information sharing to be 'no where near where it should be' (I19, Officer).

Organizational contexts: Acquiring support and buy-in

The organizational structure of policing, 'where people are moved around a lot' (I04, Crime Analyst), also pose challenges for crime analysts because '…who you have in your section today may not be the person you have in your section tomorrow' (I19, Crime Analyst). As one analyst explains, policing is:

forever changing and people are being moved. Often the dynamic leaders – who have an ILP vision-get promoted…Then we have a new group of leaders who need to be educated on crime analysis and intelligence-led policing. We really need the right people who see value in crime analysis in order to put our training and function to good use. (I03, Crime analyst)

Of interest in the quote above is the attention placed on management being knowledgeable on analytics. Challenges for acquiring organizational support and buy-in were well documented by participants. In fact, the lack of knowledge, education and analytic training provided to police was identified as a manifestation of a broader resistance to the utilization of crime analytics. For example, police officers do not acquire crime analysis training and there are less than a handful of crime analysis courses offered in Canada. As such, it was not uncommon for analysts to say that patrol officers 'don't understand what analysts do and treats them like bean counters and people who know how to do nice pictures' (I19, Crime Analyst).

During a police ride-along, I asked the two officers I was shadowing about their perspective and understanding of crime analysis:

The one officer asked me, 'what is crime analysis'? "Are these maps (pointing at a map with 12 green dots showing theft, dated 2007) analytic products?" 'Well', I said, 'what do you think?' They both said no because it is old data. As they stepped closer to examine the map, to which both noted they had not paid attention to the 'things' on the walls, they stared at it for a long minute and then turned and said, "what are we to take away from these maps?" I then asked the officers if they use the crime mapping software available on their MDTs. Neither officer had received training on the technology,

nor did they know how to use it. We spent the next 15 minutes playing with the software on the MDT and, together, were unable to figure out how to do a search by sexual assault for their patrol zone. (field note)

Officers' lack of technical and theoretical understanding about crime analysis has left analysts having to provide simple counts of crimes, 'bean counting' (I03, Crime Analyst), instead of sophisticated crime analytics. The need to make 'pretty pictures' was frequently discussed by analysts:

We are not actually doing analysis, we are taking information and making it pretty and giving it back. So it's like we're producing maps as opposed to producing bulletins of whatever, but there is no thinking involved, it's strictly desktop publishing. (I14, Crime Analyst)

As another analyst explains:

If I had a stat monkey that could deflect a lot of the call for service analysis stuff that we have to do, if we could get into the real meat and potatoes of analysis…[we are] certainly not being used to [our] fullest capacity. (I02, Crime Analyst)

Thus, the organizational context of policing, specifically training, tenure and promotion, renders analysts having to spend their time 'convincing people [they] know what [they're] doing and what [they] can do for them' (I02, Crime analyst). This is particularly true 'because no service does a briefing day on what the analyst can do for you' (I01, Crime Analyst). As such, analysts are left having to 'sell themselves' (I01, I04, I14, I18, Crime Analysts) and build 'a client base' (I01, I03, I04, I05, I06, Crime Analysts) to acquire organizational support instead of doing analytics and it 'ties back into the fact that … [they don't] have crime analysis training' (I05, Crime Analyst).

Data quality, integrity and the situational challenge of policing

Officers' lack of understanding about crime analysis is further evident in their report writing skills. Reports are invaluable for an ILP approach because 'intelligence' is gleaned from police reports. The *amount* of detail an officer can provide and their ability to *properly* code a call for service impacts an analyst's ability to synthesize, analyse and collate data. As an Inspector explains, the data collected are 'so important because it drives our data-led intelligence – it is what drives us as a service' (I02, Inspector).

Concerns regarding data quality and integrity are a significant concern and challenge for crime analysts. As the following analyst explains,

The quality of the data that you get is often quite poor. And because there's *no real rigorous standards*…in terms of police reporting…reports can vary. Some…agencies insist that officers…fill out five pages, some will just jot down a note on a piece of paper. So the data is…poor quality…and there's the inherent problem in any kind of crime analysis [that] there's selective data and…missing data. (I19, Crime Analyst, *emphasis added*)

The analyst above highlights the lack of standardization and training, as well as selective reporting, which raises concerns regarding data quality and integrity. As one officer explains, 'this is where the information stored in the reports is vital because garbage in equals garbage out'. (I26, officer)

To further complicate report writing, some services do not allow their police constables to do direct entry reporting but instead have officers verbally dictate their reports over the phone to a secure line where civilians complete the data entry. During data collection, one service was over five months behind in their reporting, leaving one to question the ability of analysts, and officers, to engage in real-time analytics for ILP. Further, using a dictation process also incorporates more people—with differing understandings and perspectives on report writing—into the data entry process. With so many people inputting the data, many analysts argue that people:

> don't really have a sense of what the data really is and what the importance is. They might be a little casual in making sure of the accuracy or how they input that data … There are a number of uses for this data in results-driven policing. The message is sinking in that data accuracy is important, location accuracy is important. But if we have about 7000 … members here, it takes quite a bit of time to get the message out and people's behaviours to change. (I07, Crime Analyst)

The challenges of educating police personnel about the importance of data quality and integrity were regularly identified by research participants as a problem.

Although data provided on RMS are described as essential for the functioning of ILP, it quickly became apparent that educating officers on how to write reports for analytic purposes is lacking:

> The only thing that could help [crime mapping] would be the way that the officer takes a report. … it would be much more beneficial if the officer is *a little more detailed* in their observations, or even if there is a way to create some sort of consistency with the way one officer writes his report and another officer does it. Because there's simple things that even screw up the computer, if an officer doesn't put the crossroads the right way then it throws your mapping off a little bit. So the attention to that sort of stuff, those are the little nit-picky sorts of things that they really should be learning at the police college – but they don't. (I01, Crime Analyst)

Further, 'real-time' reporting is critical for ILP. Delays or inconsistencies in data input create challenges for analysts to do their job effectively. Although technologies have been installed to assist in capturing and coding real-time data, the situational pace of policing can make this challenging. For example, during an afternoon police ride-along, the two officers' being observed noted that they would complete the occurrence report 'next time they were on dayshift'. The officers explained that they often use dayshift, which occurs every four shift rotations, to 'catch up on writing reports' (police ride-along, field notes). This means that details of this incident would not be available in the RMS for the analyst to draw upon for several days or even weeks. The inconsistency of report writing coupled with officers' lack of analytical training raises important concerns about data integrity and quality. The analytic outputs produced, as well as used to guide strategic and tactical decision making, are questionable and raise significant socio-political concerns when the data inputted is poor or even inaccurate.[2]

It was frequently noted that the fast pace of patrol policing makes report writing challenging. As the following analyst explains,

> …there is always a need for more correct data. The thing is, if you make the system really… strict, it becomes difficult for the frontline officer to do things in a quick manner. …So there's pros and cons,

[2] Further research is needed on the socio-political implications (i.e., discriminatory profiling, civil liberty infringement) associated with police reporting practices and the construction of analytic products (Mythen and Walklate 2006; McCulloch and Pickering 2009; Ferguson 2012; Moses and Chan 2014).

people always want more … cleaner data, but when you're dealing with a policing environment, you can't always get that and at some point it becomes a detriment to an officer, that system will just be in its way. (I17, Crime Analyst)

Thus, the fast pace of police work constrains an officer's ability to engage in ILP because

the fact of the matter is that police agencies are often just too swamped with what's going on in their own jurisdictions to be able to actually incorporate in a meaningful way, intelligence-led policing. So they're forced into kind of a model of reactive policing as opposed to proactive policing in a lot of ways. (I22, Crime Analyst)

Although the organizational rhetoric surrounding police innovations, specifically information technology and crime analytics, support and champion an ILP vision, the present analysis identifies the ways in which the occupational culture, organizational context and situational pace of policing combine to constrain ILP practices.

Management by objectives and police accountability

In the present climate where discussions revolve around how policing 'costs and quality are unsustainable' (OALEP meetings 2013, field notes), police services have adopted a rhetoric of ILP. However, upon closer examination, it becomes apparent that they have *translated* ILP to mean something that they want—*accountability*. As one crime analyst explained, '…as an agency [we're] trying to be more accountable for what we do' (I6, Crime Analyst). Thus, ILP act as *protective measures* in this austere climate—providing police services with 'financial accountability to communities and police service boards' (OALEP meeting 2011, field notes). For example, analysts are tasked with providing data to both *justify* current human and financial resources as well as *illustrate* the need for additional investment. As the following analyst describes:

…We're doing this big resource allocation review… So as a unit my inspector wants to know, 'how am I going to argue [that] I need more man power?' and 'why is it that we're spending so much on over-time? Is it because we're writing more search warrants now? Is it because there are changes in case laws so now our DNA procedures are different?' You know, are we assigning more cases in this unit or is patrol taking more cases? So I will have to analyze our work flow as a unit and…our work performance and our work load. (I30, Crime Analyst)

Resource allocation has become dependent on providing a strong substantiation of need, and therefore, 'crime analysis is a necessity for managers to reach their goals' (I31, Crime Analyst). The integration of crime analysis was described as an 'initiative designed to bring accountability into policing, which [became] a requirement of the government a couple years ago' (I31, Crime Analyst). Thus, ILP appears to be integrated as a business plan for *justifying and being accountable* rather than *guiding or changing* its ground-level practices.

Many crime analysts also identified the important role communities hold in crime analytics because 'people get complaining and the chief gets pressured, or somebody you know gets pressured, and they kind of want us to do it, some analysis on it' (I11, Crime Analyst). Crime analysis, therefore, can be used to show accountability to the community because 'the chief's questions are very driven by community needs and requests and hot topics for sure' (I04, Crime Analyst). The expectations for crime

analysts, we argue, are not for sophisticated analysis that identifies and targets unknown crime problems or people, but instead

> a lot of times it is a statistics base, 'I want the stats on break and enters,' or 'the difference and comparisons from this month to last month'. Obviously there is a lot of responsibility to report back to police services boards with all of that information, and so it is stats driven. (I08, Crime Analyst)

Crime analytics, therefore, are important measures for external accountability.

The following quote by a crime analyst illustrates the organizational use of crime analytics for presenting and demonstrating accountability:

> if we are doing intelligence policing as an organization, we use data to track what's going on. … We report back to our service … [a]nd we will generally have meetings, monthly meetings and will provide results of what is going on in the community, so that they will know and react, or discuss the crime trends or what the Police Services are doing. (I07, Crime Analyst)

Maintaining performance measures is an essential because police services 'need to be accountable with decisions and maintain records so they can withstand scrutiny' (CACP, information management, field notes). By using analytics to 'withstand scrutiny' and justify tactical and strategic decisions, police chiefs are able to 'answer to the board what the officers are doing. [They] can quantify and employ the return on investment language back to [their] police services boards' (CACP information management workshop, field notes). As one crime analyst explains, the use of analytics for demonstrating organizational accountability is essential because 'as a police service … [we] want to direct [our] services in the most, in the best way possible… And everything comes down to money at the end of the day' (I06, crime analyst). Thus, police services have *translated* ILP to mean police accountability. They use ILP as a means to 'redefine success' (Sheptycki 2013) and demonstrate their 'outputs' instead of necessarily demonstrating or being accountable for their 'outcomes' (Garland 1996). In this way, ILP has been negotiated and translated in locality to redefine success and demonstrate accountability and compliance in order to be protected.

Conclusion

In an environment of fiscal constraint and increased public concern and expectations for security and public safety, police services are turning to intelligence and analytic technologies to conduct aggressive information gathering and risk analysis. The goal is to identify, target and prioritize police interventions in the pursuit of security. This shift towards anticipatory strategic 'pre-crime' has been quickly integrated into policing reforms, such as ILP and, we argue, has *legitimized* and *reinforced* the use of intelligence technologies in policing (Mythen and Walklate 2010; Zedner 2010). Further, we argue that the increasing use of crime science has created a *veil* of objectivity and accountability to police practices and a *perception* that such police innovations have changed the practice of policing.

The majority of research available on police innovations is largely theoretical in nature and provides a top-down perspective—often accepting the organizational rhetoric around the value and utility of technologies and innovations without examining their *in situ* adoption (see also Thacher 2008). However, if researchers are to develop

a detailed understanding of 'how contemporary social control strategies operate, then they must attend to the organizational norms, processes and working practices through which information is constructed as "intelligence"' (Innes *et al.* 2005: 42). The present analysis, therefore, demonstrates the value of ethnographic analyses for studying police innovation and organizational reform. As evidenced here, how one makes sense of and enacts ILP is shaped by the cultural, organizational and situational contexts of policing. Thus, to uncover the cultural norms, knowledge and craft of policing requires researchers to immerse themselves in the field of police practice (Marks 2004; Willis 2013).

Employing ethnographic methods, we illustrate how policing innovations—such as information technologies and crime analytics—are situationally contingent and are shaped by the everyday activities of police work (Barley 1986). The present analysis reaffirms the subjective nature of policing innovations and the ways in which organizational settings shape the use of such innovations (Chan 2001; Manning 2008; Sanders 2014). Thus, throwing money at technology will not solve problems or improve police practices in regards to information management, information sharing and crime analysis (see also Chan 2001; Manning 2008). Technology is often perceived and understood separate of its social, political and cultural make-up. However, as illustrated in the present study, police innovation is shaped, altered and impeded by the cultural, organizational and social contexts in which it operates.

The present analysis makes two important contributions to our understanding of police culture. First, the study provides evidence against the notion of a monolithic universal police culture (Van Maanen 1979; Crank 2004) by identifying the diversity of police cultures (such as analyst, IT, patrol cultures) that exist and operate simultaneously within one police organization (Chan 1997; Manning 2005; Ingram *et al.* 2013). Like Ingram *et al.* (2013: 367), we believe that workgroups (such as intelligence analysis, information technology, etc.), 'as organizational entities, … influence police culture'. As such, we believe that there is a critical need for a detailed analysis of the culture of crime analysis to better understand how the culture not only informs their practices but also enables or impedes collaborative working relationships with others.

Second, the study illustrates the importance police cultures play on organizational reform (see Manning and van Maanen 1978: 267; Brogden and Shearing 1993: 96; Chan 1999). Specifically, the study demonstrates how the adoption of police reform is shaped by its 'fit' within police cultures. Information and knowledge, as clearly evidenced through the claims and practices of patrol officers and crime analysts, are vulnerable to the occupational cultures and organizational structure of policing. Information within policing is power and a commodity that 'remains locked up inside the heads of detectives and analysts, retained for when that knowledge can become useful…when it is to the advantage of the individual rather than …the organization's crime reduction efforts' (Ratcliffe 2011: 98; see also Gill 2000). As evidenced in the quotes above, currency and power are linked to one's reputation for having knowledge because everyone wants to be 'the winner' (I04, Crime Analyst)—the one to solve the crime. Thus, there appears to be a conflict of cultural practices between police personnel, such as 'the hunters', who construct intelligence (secret squirrel data) as a secret practice and analysts who construct it as analytic outputs based on information sharing and communication. Such practices of secrecy have resulted in the imposition of hierarchies onto information technology networks that have created organizational information

pathologies that impede information sharing and collaboration (see also Sheptycki 2013).

How police personnel make sense of and enact ILP is shaped by the cultural, organizational and situational contexts of policing. Similar to previous research, our study identifies the importance of organizational buy-in and administrator support for the integration and utilization of crime analysis (Darroch and Mazerolle 2012). More interestingly, however, our study identifies the importance of attending to the ways in which police personnel of various ranks make sense of organizational reform. For example, our analysis highlights how police leaders and managers have rhetorically adopted ILP as a *protective measure*—for 'demonstrating accountability' and to 'quantify police practices'. This *translated* adoption of ILP by police leaders and managers, we believe, shapes officers' understandings and adoption if ILP practices on the ground. This is an interesting finding and one that warrants further examination.

Our research, like previous studies on crime analysis, has also demonstrated how crime analysts perceive their work and role in the organization to be poorly understood and appreciated (see also Ratcliffe 2002; 2004; Cope 2004; Innes *et al.* 2005; Taylor *et al.* 2007). The lack of knowledge regarding crime analysis, we argue, has rendered many analysts to engage in simple crime counting and mapping instead of advanced analytics. Further, officers' lack of knowledge and training in regards to crime analysis and police innovations (i.e., how to write reports and use IT efficiently) has not provided a new approach to crime control but has been adopted in line with traditional modes of policing.

While ILP has been *adopted*, upon closer examination, it becomes apparent that police services have *translated* it into something that they need in the present austere climate—*accountability*. Contemporary police organizations are 'fac[ing] formidable organizational problems, the most important being how to justify their claim to more and more of the tax payer's dollars' (Chambliss 1994: 191). As a result, ILP appears to be used as a risk analysis tool for the allocation of resources. The incorporation of crime science into policing, we contend, is illustrative of the incorporation of private sector performance indicators in policing (Garland 2001; Mawby 2002; Tanner and Meyer in press), which are now 'managed by objectives' (Purenne and Aust 2010; Sheptycki 2013). The growing demand to make occupational efficiency and performance measurable have not only transformed police relations with their employers but, we would argue, have also shaped how police personnel make sense of and enact police reform on the ground.[3] By translating ILP, Canadian police services have been able to redefine success within their services by demonstrating their outputs without necessarily attending to the outcomes of their practices—what Sheptycki (2013) refers to as the management mythology. As such, ILP has provided 'a changed rhetoric of rationality for policing, particularly in relation to the publicly stated goal of the police: the efficient suppression of crime', without altering the local and situational practices of police (Innes *et al.* 2005: 39; Manning 2008). In this way, ILP has been negotiated and translated in locality to redefine success and demonstrate accountability and compliance in order to be protected.

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