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Risk prediction and decision making in policing – Humans, Algorithms and Data. (A study of processes at Bedfordshire, Hertfordshire and Cambridgeshire police)

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Abstract My inductive interpretivist study focusses on understanding of the police process of information collection/acquisition, management and exploitation during risk assessments and decision making in the counties of Bedfordshire, Cambridgeshire and Hertfordshire located outside the metropolitan area. It is examining the role of humans in the production (through interactions with staff in police control rooms), generation (during day to day policing) and creation (through intelligence collected via community policing and detectives investigating focused criminal issues) of information through ethnography. It is focussed on gathering narratives and perspectives to enable an understanding of the information cycle in policing and nature (culture, context, practices, processes) of information collection, management, use and exploitation and determining how these shape the use and exploitation of data generated. It also considers the critical issues related to use of information for risk assessment and decision making in policing using advanced metrics or statistics, algorithms and other advanced technologies.

Introduction

My doctoral research concentrates on three closely related police forces that have a resource sharing agreement and operate unified information and communication technology (ICT) solutions, armed policing units, dog units, firearms and explosives licencing, road policing, major crimes, police support and scientific services. Together, they operate a single integrated collaborative enterprise resource management system. They have worked over the last 5 years to implement their single ICT solution called Athena which works in conjunction with STORM command and control software (Black, 2017).

My work explores working cultures, strategies and the impact of modern technologies on compliance with legislation and guidance on evidence such as the police and criminal evidence act of 1984 (PACE) and the management of police information within the confines of the policing environment from worldviews of police officers (NPIA & ACPO, 2010). I am seeking clarity and understanding of what, who, why, how and when does communication occur. I am particularly interested in understanding the social aspects of creation and representation of information systems as a means of understanding how technologies alter or create human activities. I focus on the flow and flux of information, interaction with technological artefacts and the social context in which this all happens by inductively exploring information use, information sharing, information storage and the context in which data sharing, collection and exploitation occur engaging member checking and incorporating systems thinking for validation.

Research Questions

My research questions seek understanding of the human role in the lifecycle of information including the innovative technologies related to and/or used for risk assessment and decision making with limited disruption to the natural setting.

a. How do police officers understand their own role and the role of ICTs in the collection, storage and exploitation of information for the purpose of risk assessment and decision making?
b. How aware are police officers of the critical implications that information and communication technologies have on the execution of duty including ethical issues, fairness, balanced and appropriate risk assessment and decision making with respect to citizens?
c. How do police officers feel about predictive tools that use historical data for mining, artificial intelligence, predictive policing, machine learning or for artificial decision making?
d. What are the concerns about the future of data use for identifying, assessing or detecting risk and making decisions from the perspectives of police officers and how will this affect their practices?
e. How are all the above impacted by the COVID-19 pandemic event?

Methodological approach

My inductive interpretive research paradigm approach enquires and seeks socially constructed meanings which emerge from observed phenomena and I am gaining understanding of the relationships in policing (Wilson & Chaddha, 2010). I am experiencing the role of powershifts and human nature in processes alongside functional technologies in policing (Balcioglu & Pala, 2015; Radovan, 2013). This is allowing me to derive a robust range of perspectives while iteratively subjecting my data to evaluation to draw out themed conclusions to hold against various concepts and theories to increase or enhance understanding (Babones, 2015; Klein & Myers, 1999; Walsham, 2017).

Work/Findings to date

Intelligence led policing guides the way policing is conducted at these police forces and they predominantly use the information and intelligence they gather to maximise resources and deter or prevent crime. I have so far observed the intricacies around how information passes through the tacit-tacit to tacit-non tacit loop from humans to data (which is expected to be meaningful, accurate and prejudice/bias free), from the worldviews of police officers across ranks. Policing work involves the need to acquire and share and routinely distribute information which has been shown to be a crucial element of agile working (Bider & Jalali, 2014). I have noted how little time there is to make decisions on the fly using agile working processes.

So far, my role as an observer-participant has enabled me to gain more understanding and reminded me of how emotionally, physically and mentally taxing the role of policing is. I have found that the way information is supplied, acquired, shared and used in policing influences risk assessment and decision making. Technologies are 'adequate' but not very advanced for communication and information dependent, complex, multifaceted and challenging work. There are some limitations, such as chronic disruptions to/unreliability of communication networks, clunky, and complex systems with limited uptimes leading to inevitable dependency on legacy systems and lost manhours. There are feasibility issues related to using handheld devices to access and/or facilitate response work on the fly. I have observed malleability and resilience of police officers as they interact and adapt to the new and old technological artefacts in their workplace. There are also concerns about and around the intended plans by the home office to move airwave communications to mobile 4 and 5G networks, which retroactively relate to the extant problems with introducing new technologies and the experiences police officers have of forced technology adoptions.

There are potential benefits such as better accountability, swifter crime investigation and evidence collection through the use of body worn cameras, centralised database systems with wider information sharing capabilities across three policing counties and easier information retrieval and intelligence recording. Additionally, I have noted use of EBIT a predictive tool used for decision making with respect to investigations and collaborative working including joint response activities which involves sharing and interaction between police officers, ambulance and paramedic services and fire services that demonstrate that communication and sharing of information between officers and these services is critical. Beyond this the concerns regarding persistently diminishing funding which I first observed four years ago as an early stage researcher remain. Significant policing resources are expended on receiving,

recording, monitoring, reporting and sharing information as a direct result of being used as a service of first, last and convenient resort by health and social care agencies.

Next Steps

My field immersion was ongoing until 10th of March, at which time after 177 hours in field person to person contact with the public was suspended. In light of the current pandemic, I am continuing with digital ethnographic tools and I have extended my research questions to include a supplementary question that contextualises research conducted during the pandemic. This will enable me to collect insights related to my research and account for/include insights about the unique conditions during my research.

Expected Contributions

The views, perspectives and opinions from the police gained through my research will highlight and enable closer evaluation of the interlocking of people, policy and public service with respect to use and governance of data, communication practices, information flows, management of information and balanced risk evaluation, risk management and decision making. It will highlight processes, habits and practices and promote understanding of people, policy and policing in the process of risk evaluation, risk management and decision making and provide insights and narratives from the worldviews and perspectives of those who do the work, giving a voice to police officers.

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