How the shift to predictive policing influences police work practices

Waardenburg, L.; Sergeeva, A.; Huysman, Marleen

2018

Link to publication in VU Research Portal

How the shift to predictive policing influences police work practices

3 authors:

Lauren Waardenburg
Vrije Universiteit Amsterdam
4 PUBLICATIONS   **1** CITATION

SEE PROFILE

Anastasia Sergeeva
Vrije Universiteit Amsterdam
21 PUBLICATIONS   **61** CITATIONS

SEE PROFILE

Marleen Huysman
Vrije Universiteit Amsterdam
122 PUBLICATIONS   **2,635** CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:

Crossover collaborations for digital innovation   View project

New Ways of Working   View project

How the shift to predictive policing influences police work practices

Lauren Waardenburg
Anastasia Sergeeva
Marleen Huysman

VU University Amsterdam

This is an inductive study in the beginning stages addressing the consequences of the shift to analytics technologies for daily work practices. The study is grounded in the empirical case of the shift to "predictive policing" – i.e., preventing crime by predicting criminal and deviant behavior through large-scale monitoring and data-analysis – within the Dutch Police. We specifically focus on examining the use of the "Criminal Anticipation System" (CAS), a predictive policing technology developed in-house by the Dutch Police and rolled out in four police stations in the Netherlands in 2014. By the end of 2017, 90 out of 168 Dutch police departments were using CAS and the police organization aims to use it across all 168 by the end of 2018 (Politie, 2017; NOS, 2017). The CAS uses an algorithm to identify patterns in historical crime data and develops a heat map that shows hotspots (blocks of 125 by 125 m^2) and hot times (blocks of four hours) of different crimes. This heat map is used for daily police work, providing directions the teams of police officers about where to go at what time to prevent a specific crime. The crimes included are so-called "patterned crimes", such as home burglaries that are repeatedly committed during the holiday season. Due to the calculating capacity of the computer system, every police station can select up to four patterned crime themes. For example, the observed police office selected: (1) youth hinder / gun possession, (2) theft / home burglary, (3) robbery, and (4) theft of cars or out of cars (e.g., navigation system, laptop). For this study, we limit our analysis and discussion of crime to these four categories of patterned crimes.

Previous research has looked at how data-driven police work resulted in changes on different levels of the police organization, such as surveillance (Brayne, 2017; Guzik, 2009; Joh, 2016), police culture (Weisburd, Mastrofski, McNally, Greenspan, & Willis, 2003), and criminal procedures (Ferguson, 2015). However, we know little about how the use of predictive policing algorithms influences police work practices. In line with this, we ask the following research question: *what are the consequences of the shift to analytics technologies for daily police work?* Our study responds to the calls for research on the consequences of data analytics for work and organizing (Faraj, Pachidi, & Sayegh, 2018; Orlikowski & Scott, 2016). Moreover, given that analytics technologies are increasingly used by organizations to improve decision making (McAfee & Brynjolfsson, 2012) and the efficiency and effectiveness of work (Davenport, Harris, & Morison, 2010), this study will provide an important step for understanding the actual use of these technologies in practice.

The primary data are ethnographic observations (so far, a total of 447 hours, including 99 briefings, 34 team meetings, and 19 interdisciplinary meetings) and in-depth interviews (so far, a total of 15 – including 4 police officers, 4 data scientists, 3 intelligence officers, and 4 team leaders), supplemented by archival data (such as 230 crime reports related to the use of predictive policing). The preliminary themes emerging from the data include: (1) the changing nature of expertise of intelligence officers and operational police officers in relation to algorithmic outputs (e.g., intelligence officers – behind computer screens – decide for operational police officers what themes are important to focus on in the streets for the next week), (2) the role of algorithms to understand crime (e.g., searching for patterns of criminal behavior that were previously indiscernible), and (3) the impact of digital traces on the occupational status of the intelligence officers (e.g., intelligence officers levelling with criminal investigators).

References

Brayne, S. (2017). Big Data Surveillance: The Case of Policing. *American Sociological Review*, 82: 977–1008.

Davenport, T. H., Harris, J. G., & Morison, R. (2010). *Analytics at work: Smarter decisions, better results.* Boston, MA: Harvard Business Press.

Faraj, S., Pachidi, S., & Sayegh, K. (2018). Working and organizing in the age of the learning algorithm. *Forthcoming in Information and Organization*.

Ferguson, A. G. (2015). Big data and predictive reasonable suspicion. *University of Pennsylvania Law Review,* 63: 327–410.

Guzik, K. (2009). Discrimination by design: Predictive data mining as security practice in the United States' 'War on Terrorism'. *Surveillance and Society,* 7:1–17.

Joh, E. E. (2016). The New Surveillance Discretion: Automated Suspicion, Big Data, and Policing. *Harvard Law and Policy Review,* 10: 15–42.

McAfee, A., & Brynjolfsson, E. (2012). Big data: The management revolution. *Harvard Business Review,* 90: 60–68.

NOS (2017). *Politie gaat misdaad voorspellen met nieuw systeem.* Retrieved January 03, 2018, from https://nos.nl/artikel/2173288-politie-gaat-misdaad-voorspellen-met-nieuw-systeem.html

Orlikowski, W. J., & Scott, S. (2016). Digital work: A research agenda. In B.E. Czarniawska (Ed.). *A research agenda for management and organization studies.* Cheltenham, UK: Edward Elgar.

Politie (2017). *Criminaliteits Anticipatie Systeem verder uitgerold bij Nationale Politie.* Retrieved January 03, 2018, from https://www.politie.nl/nieuws/2017/mei/15/05-cas.html

Weisburd, D., Mastrofski, S. D., McNally, A. M., Greenspan, R., & Willis, J. J. (2003). Reforming to preserve: COMPSTAT and strategic problem-solving in American policing. *Criminology and Public Policy,* 2: 421–456.