The Use of Artificial Intelligence in Law Enforcement

A comparative study of the American Experience

A Winston Churchill Fellowship Report
from Gary Beautridge, 2020

WINSTON CHURCHILL MEMORIAL TRUST

Kent Police

Contents

Acknowledgements 3

About the author 4

Itinerary 5

Introduction, aims and background 6

San Francisco Police 9

New Orleans Police 15

Memphis Police 19

Boston Police 22

Recommendations summary 27

Conclusions 28

Memphis PD Real Time Crime Centre

Acknowledgements

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I would also like to thank the Police Departments and academic institutions in the USA that hosted my visit. Their hospitality, kindness, and insight into the subject matter I was researching was exceptional, and my gratitude to them knows no bounds.

But particular thanks must go to my wife Bev. The period of my Fellowship visit is the longest we have ever been apart, and I am so grateful for her love, support and encouragement. Policing is impossible without the full support of your family.

Finally, thank you to Kent Police for their support in allowing the opportunity to take up this Fellowship. Chief Constable Alan Pughsley, QPM, has been at the forefront of innovation and research, and has developed Kent Police to the point where they are truly in the vanguard of Evidence Based Policing nationally. I see this Fellowship as an extension of that approach.

Gary Beautridge
Head of Performance and Crime Standards,
Kent Police

Chief Constable Alan Pughsley QPM with Gary Beautridge

About the author

Gary Beautridge served as a police officer for almost 35 years, predominantly as a detective. He retired as Assistant Chief Constable, with responsibility for the Kent and Essex Serious Crime Directorate. He served twice as a Divisional Commander; from 2002 to 2004 at Canterbury, then from 2005 to 2008 at North Kent. He went on to become a Chief Officer in Kent, where he served until his retirement in 2014. During his time as a Chief Officer, he was national policing lead for communications data.

In 2014, he took up post as a senior civil servant at the Home Office with national responsibility for the acquisition and exploitation of communications data, and business change in relation to the lawful interception of communications. This period saw him heavily involved in governmental considerations in respect of legislative changes required to safeguard individual freedoms linked to the police and security services use of communications data.

Gary returned to Kent Police in 2015, where he has held a number of roles, including Head of Operational and Information Security, Force Crime and Incident Registrar, and Head of Performance and Crime Standards. He has also been an Associate of the College of Policing, where he has delivered command training for detectives, and has been a visiting scholar at Canterbury Christchurch University.

He holds a Masters Degree from Cambridge University in Applied Criminology and Police Management and graduated from the Association of Chief Police Officers Strategic Command Course in 2008.

Gary Beautridge

Itinerary – 15 September 2019 to 31 October 2019

1. University of California, Berkeley

2. San Francisco Police Department

3. New Orleans Police department

4. Memphis Police Department

5. Shelby County Sheriff's Department

6. Northeastern University, Boston

7. Harvard University, Boston

8. Boston Police Department

Introduction, aims and background

Many public commentaries in respect of the police use of Artificial Intelligence (AI), suggest it is unregulated, not transparent, and that there is a lack of research about the consequences of its use.

A recent Royal United Services Institute report proposes that the Home Office, which oversees policing, should develop codes of practice around experimentation with AI. It also suggests police bodies, such as the College of Policing, should create guidance for telling people impacted by AI-led decision making that the systems have been used and that machine learning (ML) algorithms should always be overseen by humans. This guidance has not, to date, been delivered.

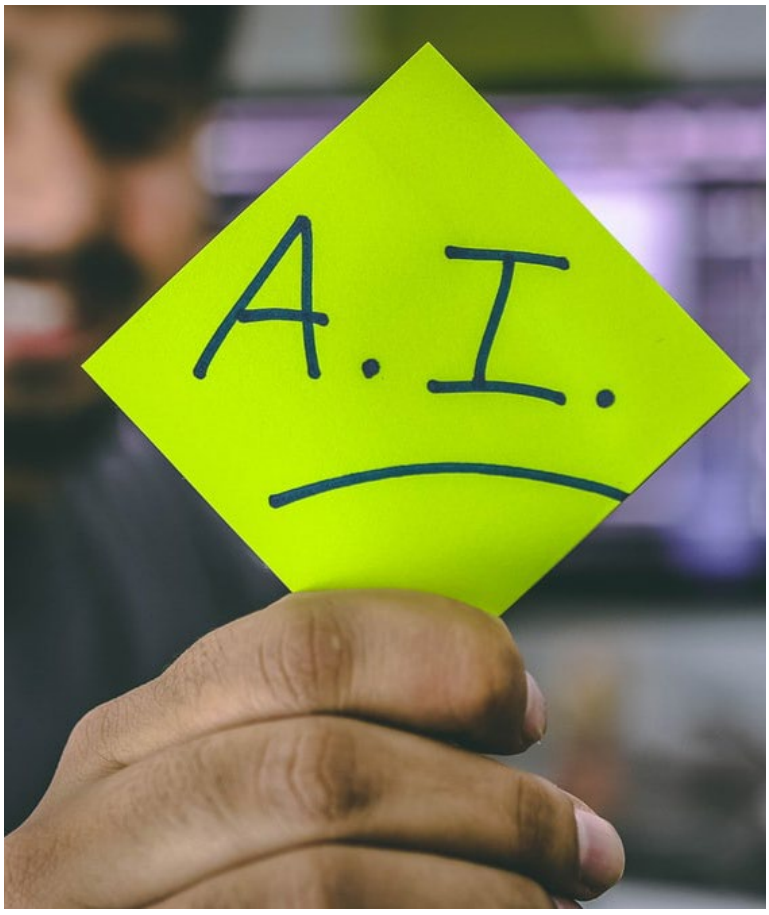
The most basic question for the public is whether the police are already employing AI and, if so, what kind. Recent research has unearthed the dangers of hidden bias in AI systems. The introduction of such bias should raise alarms when applied to a criminal justice system that often focusses disproportionately on racial minorities and the poor. However, research proves that AI systems could provide public safety benefits superior to other traditional approaches to policing. Striking the right balance is key.

The Human Rights organisation, Liberty, has criticised the use of AI in policing in a paper titled 'Policing by Machine', on the following grounds:

- The 'black box' algorithms using 'historical big data' are too hard to scrutinise.
- Officers may/will be reluctant to overrule an algorithm through fear of getting in wrong and someone committing a serious crime and the officer being held to account.
- Predictive mapping – 'relies on problematic historical arrest data and encourage over-policing of marginalised communities'.
- Individual risk assessment programmes – 'encourage discriminatory profiling'.

The paper argues that predictive mapping leads to discriminatory practices such as higher arrest rates of BAME because of over-policing of areas where these individuals may reside.

To add 'fuel to the fire', Britain's most senior police officer, Commissioner Cressida Dick, has gone on record in a speech delivered at the Lowy Institute think tank in Sydney, Australia, stating Britain risks sleepwalking into a 'ghastly, Orwellian, omniscient police state' unless it addresses the ethical dilemmas posed by new technologies such as facial recognition and artificial intelligence. She further stated that while the digital age presented numerous opportunities to help in the fight against crime it was vital there was a strict legal framework to ensure it was not used inappropriately. Ms Dick said it was important to remember that the role of technology and data was to enable humans "to make better decisions'.



In response to the challenges faced, UK law enforcement has developed a new framework to assist police forces when considering the introduction of AI/ML technologies. The framework argues for two proposals – (I) 'Experimental' proportionality and (II) a risk assessment process called 'ALGO-CARE' within which algorithms should operate. (ALGO-CARE: Advisory, Lawful, Granularity, Ownership – Challengeable, Accuracy, Responsible, Explainable).

Against this backdrop, the British media have shown an increasing interest in the police use of AI, and their reporting of it is beginning to raise public concern. They have widely reported on three such policing innovations:

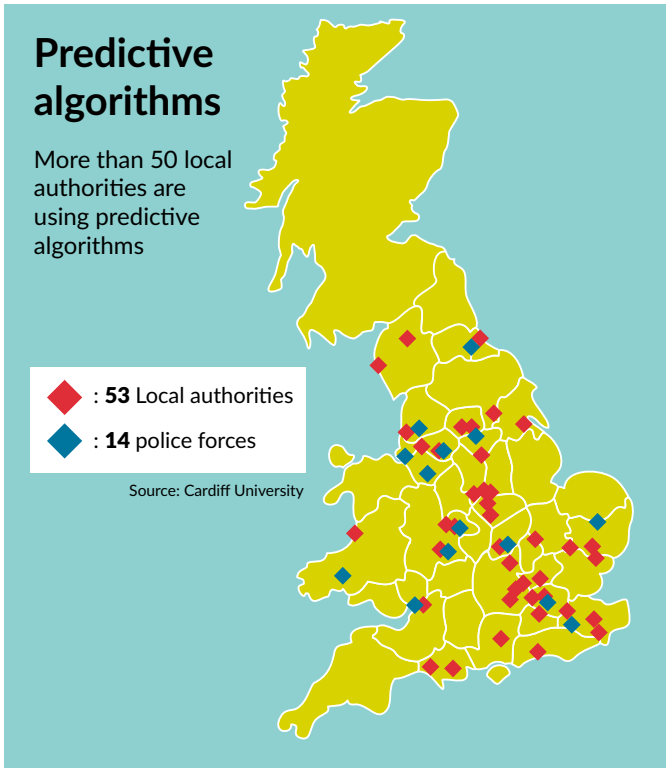
1. Durham Police's HART Model – Public/Media reaction

HART is an AI system which predicts whether a suspect is at low, moderate or high risk of further offending as a gateway to rehabilitation, as part of the Checkpoint Programme (for moderates). The algorithm is based on 'random forests' and uses data from categories including age, gender, offending history and so on. A national publication, Wired, reported on 1st March 2018 that 'UK police are using AI to inform custodial decisions – but it could be discriminating against the poor'. This article was picked up by other national media outlets, and widely reported. As a consequence, Durham moderated some of the fields used within the overall algorithm.

As a counter balance to the public criticism, Professor Lawrence Sherman from Cambridge University stated, 'The need for good prediction is not just about identifying the dangerous people. It's also about identifying people who definitely are not dangerous. For every case of a suspect on bail who kills someone, there are tens of thousands of non-violent suspects who are locked up longer than necessary.'

2. Kent Police's E-BIT Model – Public/Media reaction

E-BIT is an Evidence-Based Investigation Tool that uses an algorithm based on set factors that aid a decision maker to determine solvability of crime. The New Scientist, 8 January 2019 reported, 'A UK Police Force is Dropping Tricky Cases on Advice of an Algorithm'. It raised concerns that it could 'bake in some human biases and lead to some solvable cased being ignored'. Concerns include the fact that algorithms are trained on historical data which may contain biases which the algorithm then replicates and reinforces. This story was then reported on nationally by Sky News. Joanna Redden, co-director of Cardiff University's Data Justice Laboratory when interviewed stated, 'Some of these systems come with a range of risks and can harm individuals but also society more generally by increasing unfairness and inequality. Despite this, these systems are being introduced without public consultation and without efforts to measure what the effects of these systems might be on those who get caught up in them.' The Sky News article also included this schematic:



Kent Police's use of EBIT is currently being academically evaluated, but no report to-date has been published.

3. Norfolk Police's Burglary Solvability Algorithm – Public/Media reaction

Norfolk Police have developed an algorithm based on using data from thousands of burglary crimes and formulated around 29 data points including 'solvability', to determine which crime scenes will be visited, and which crimes will be investigated. As with all the above algorithms, human intervention can override any decision. Norfolk Police have defended the algorithm's use and that officers would not 'blindly' follow its decisions. Both the Mail on Sunday, and the BBC News widely reported on this innovation as 'The Great Burglary Cop-Out: Norfolk Police leave it to a COMPUTER to decide if it's worthwhile investigating house break-ins despite spike in crime'.

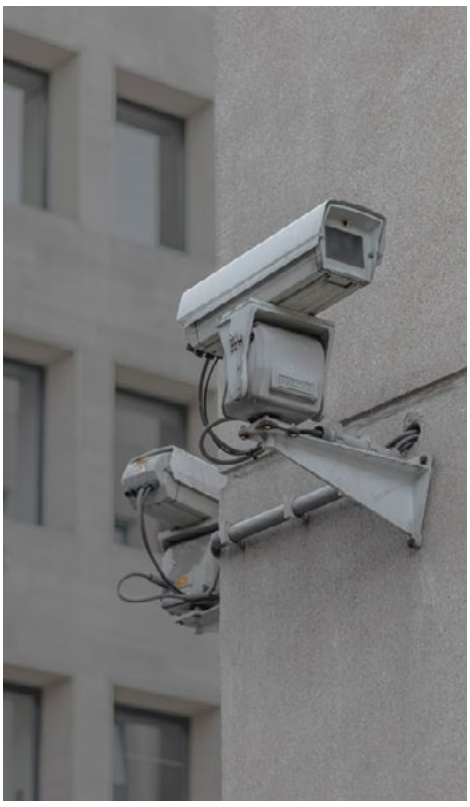
The article is massively scathing with the following comments typical of the rest of the article: 'Police won't investigate burglaries if a computer tells them not to bother trying to catch the culprit – in a move that has been slammed as a shocking insult to victims. Before doing any detailed detective work, officers are simply closing cases after the machine calculates the chances of making an arrest and recovering treasured stolen goods. Hundreds of burglary investigations have been quietly closed by Norfolk Constabulary this year using the controversial technique, without victims ever being told.' Norfolk Police's use of this tool is currently being academically evaluated, but no report to-date has been published.

American companies such as Palantir, Ripjar and LexisNexis are among the talked-about names known to be marketing their systems to the police and security services in the UK. The Home Office are hoping to harness the power of data analytics to make our communities safer. American company PredPol has had its predictive technology trialled by Kent Police, after being hailed as a success in San Francisco, California. The UK's most senior counter-terrorism officer has hinted at an increasing role for AI in monitoring thousands of people on terrorism watch lists.

Use of predictive policing and offender management algorithms is far more widespread in the USA than in the UK. In the USA the use of such technology is increasingly controversial, with claims it unfairly penalises black people and those from deprived backgrounds. In 2016, investigative journalism website ProPublica published a detailed analysis showing how Compas, an algorithmic tool used for predicting defendants' reoffending rates, was disproportionately likely to misclassify black defendants as future criminals. The technology was demonstrated as having wrongly labelled them in this way at almost twice the rate of their white counterparts.

The New York Times (Marcus, G. and Davis, E.) 6th September 2019, in 'How to Build Artificial Intelligence We Can Trust', argues for a paradigm shift from creating AI systems which get better over time from 'deep learning' by 'better detecting statistical patterns in data sets' and instead be created from the outset with three embedded concepts, namely 'time, space and causality'. The article draws the links that 'dystopian speculation' is actually drawn from basic AI systems without these three understandings and they argue that, 'If all you can calculate is statistical correlation, you can't conceptualise harm.' The article conclude as follows, 'We face a choice. We can stick with today's approach to A.I. and greatly restrict what the machines are allowed to do. Or we can shift our approach to A.I. in the hope of developing machines that have a rich enough conceptual understanding of the world that we need not fear their operation. Anything else would be too risky.'

Lack of openness has also been an issue. In New Orleans the existence of a hitherto unknown partnership between that city's police department and Palantir was revealed by an investigative journalist who questioned why the tie-up had never been properly disclosed. As part of its relationship with the New Orleans Police Department (NOPD), Palantir reportedly deployed a predictive policing system without even members of the city council knowing about it.



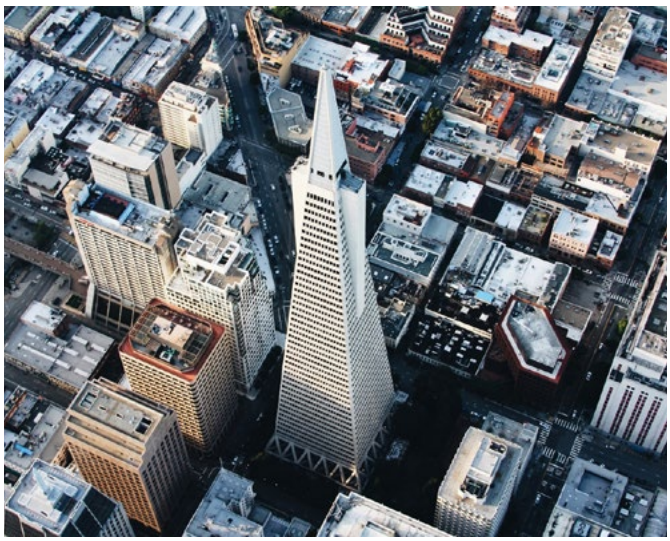
In the USA, significant resource is being deployed by both the National Institute of Justice and the Department of Homeland Security on the use of AI/ML in terrorism prevention. They are focused on three broad areas:

- Public Safety and Imagery analysis – Americans are differently placed to the UK due to different issues (not necessarily ahead of the UK).
- ALPR (Automated Licence Place Readers). Some places have very sophisticated capability, and other places less so.
- Facial recognition.

This paper therefore attempts to analyse AI innovations in terms of consultation, effectiveness, impact and public reaction set within the American legal context, by visiting different jurisdictions within the USA, and to bring back those lessons for the benefit of UK law enforcement.

San Francisco Police, Oakland and UC Berkeley

San Francisco is the cultural, commercial and financial centre of Northern California. It is the 15th most populous city in the United States with an estimated population of 890,000. San Francisco, per head of population, has more billionaires than any other city in the world, but is also a crime 'hot spot' in California, with a crime rate 120% higher than the California average, and 141% higher than the national average. The issue of effective policing and public safety features heavily as a political priority, but is juxtaposed with civil liberties and privacy considerations. As a consequence, police innovations and use of technology is subject to considerable scrutiny. Oakland is the largest city in the East Bay region of the San Francisco Bay Area, and the eighth most populated city in California, with a population of 430,000.



In 2018, the San Francisco-based Human Rights Data Analysis Group released the results of a study that examined how well PredPol's crime-mapping program performed when tasked with predicting rates of drug use in different areas of Oakland, one of the cities in the San Francisco Bay area. Crime maps produced by PredPol's software, which relies on police data, were compared against maps showing estimated drug use based on a combination of public health survey information and demography statistics. While maps of the latter type revealed drug use in Oakland was likely to be fairly widespread across all neighbourhoods and classes, PredPol's maps suggested it was concentrated mostly in parts of the city known to be home to mostly non-white and low-income residents. The study's authors, William Isaac and Kristian Lum, have warned that predictive policing technology could result in a 'feedback loop' developing. If police choose to concentrate many new patrols in areas that have historically been subject to their attentions, they may be more likely to record more crimes as taking place in those areas compared with in neighbouring ones. This in turn could lead to yet more resources being deployed in these same, historically 'overpoliced', areas, thereby resulting in more crimes again being recorded there, and so on ad infinitum. In other words, the software may at best merely tell police what they already know and at worst it could end up reinforcing discriminatory habits.

To test this theory, I was fortunate enough to be able to secure interviews with three leading academics prior to discussing the matter with the two Deputy Chief's from the San Francisco Police Department.

Interview with Professor Jennifer Skeem

Professor Jennifer Skeem is an American psychologist and the Mack Distinguished Professor in the UC Berkeley School of Social Welfare, where she is also the Associate Dean of Research. She is also a professor at the University of California, Berkeley's Goldman School of Public Policy. Prof Skeem has been involved with the development of public policy and public engagement throughout California, and the below are the views (condensed) she expressed during the meeting I had with her.

Professor Jennifer Skeem

The dual aspects of public policy and public engagement should be based on science and careful discussion, but often, disproportionate emphasis is applied to one or the other where feelings run high, or a subject matter is trending. Trends are often linked to the prominence of the matter in the media or social media. This impacts disproportionately on where public attention is focussed, as concerns of the public are often dictated by current news.

San Francisco Police, Oakland and UC Berkeley continued

The USA, and particularly California, are in another period of civil rights, so a huge amount of attention is focussed on historical disparities, especially race, which seems to be a USA specific issue. The history of slavery is very much on people's minds. When you intersect that with how economic disparities have increased in recent years there is a lot of public concern about perpetuating bias. When we are talking about using algorithms or algorithmic decision making to help with policing or sentencing, or anything related to the justice system, because in the USA a black man is 6 times more likely to be incarcerated than a young white man. In the main, the judicial system manages without the benefit of risk assessment, but there is still a prominent concern. Legal scholars have expressed concern that relying too much on risk assessment or algorithms will further make it biased and exacerbate those disparities. However, it is an empirical decision because we are in a place where disparities exist.

In the USA, now in an era where significant distrust of the police exists. Worry is that with systems such as PredPol, we will over police people and places that have been historically disadvantaged and will exacerbate all of the disparity problems. The public want an efficient police, but not too efficient or focussed. Public are nervous about how the police target their resources. But that said, there is a long history of good science showing a lot of selection taking place already.

There has been a lot of controversy around the use of risk assessment in front end sentencing. Judges need to consider a person's dangerousness in sentencing. Many in the justice system say ignore risk assessment, and instead look backwards at the type of crime to determine sentence, but that ignores reality. Judges do need to consider dangerousness. You either structure human decision making or replace with algorithms to identify dangerous people. Algorithms need to be much more transparent so people know the variables going into the equation, so you can challenge them, and they are open for public debate. You cannot do that when the variables may be based on the intuition that sits in somebodies mind.

The increasing use of risk assessment algorithms in the criminal justice system has generated enormous controversy. Advocates emphasize that algorithms are more transparent, consistent, and accurate in predicting re-offending than judges' unaided intuition, while sceptics worry that algorithms will increase racial and socioeconomic disparities in incarceration. Ultimately, however, judges make decisions—not algorithms. In the present study, real judges with criminal sentencing experience participated in a controlled experiment to test whether the provision of risk assessment information interacts with a defendant's socioeconomic class to influence sentencing decisions. Results revealed that risk assessment information reduced the likelihood of incarceration for relatively affluent defendants, but the same risk assessment information increased the likelihood of incarceration for relatively poor defendants. This finding held after controlling for the sex, race, political orientation, and jurisdiction of the judge. It appears that under some circumstances, risk assessment information can increase sentencing disparities.

After a distinctly punitive era, a period of reform in juvenile crime regulation has begun. Practical urgency has fuelled interest in both crime reduction and research on the prediction and malleability of criminal behaviour. In this rapidly changing context, high-risk juveniles – the small proportion of the population where crime becomes concentrated – present a challenge. Research indicates that these are precisely the individuals to treat intensively to maximize crime reduction, but there are barriers to doing so. Mitigation principles (during early adolescence, ages 10-13) and institutional placement or criminal court processing (during mid-late adolescence, ages 14-18) can prevent these juveniles from receiving interventions that would best protect public safety. It is the view of Prof Skeem that early adolescence offers unique opportunities for risk reduction that could (with modifications) be realized in the juvenile justice system in cooperation with other social institutions.

There is difficulty in making material open. One problem is that California is an enormous state, mostly run in localities. Having conversations early on with all stakeholders is a highly complex set of arrangements, but important in getting anything meaningful achieved. The success rate in achieving this in California is not good. The odds of change being accepted depends on addressing the concerns in an open and transparent way. There is a requirement for agencies to be specific, and a deep distrust of 'Black Box' algorithms. Add to this that there is growing evidence that simple open rules can be as effective as Black Box algorithms. The next thing that is important, and is an issue the public demand, is paying attention to what happens with implementation, as accuracy is a big issue. Do unintended consequences arise? It is the California experience that if there is a variable contributing to a disproportionate outcome, it is normally criminal history.

Risk assessment should be used to screen out high volume cases that should not be allocated.

Interview with Professor Jonathan Simon


Professor Jonathan Simon

Professor Jonathan Simon is the Associate Dean of the Jurisprudence and Social Policy Program at the UC Berkeley School of Law, author of Governing Through Crime: How the War on Crime Transformed American Democracy and Created a Culture of Fear and Poor Discipline: Parole and the Social Control of the Underclass, 1890-1990, co-editor of Punishment & Society, associate editor of Law & Society Review, and a professor of Law, Jurisprudence and Social Policy, and Legal Studies, and the below are the views (condensed) he expressed during the meeting I had with him.

Prof Simon's view is that in domestic law enforcement, there is a lack of use of real science, but it needs public amplification for legitimacy. Using old arrest policies is a poor use of Criminal Justice resources. The most advanced sector is bail. At a cost of $30m, California State has developed an advanced algorithm to predict whether a defendant will appear at court or not, or commit more crimes. There are no legal impediments to its use, but there are public concerns. It sets up a structure where Judges are advised about future risk prediction when sentencing defendants. Having initially supported the Bill, he withdrew support for 3 reasons:

1. Misinformation. There has been an over concentration of policing in the last 30-40 years. The 'War on Crime' period generated a period of mass imprisonment, and the fear is that racialized concentration of policing, of the like seen in the 90's, will see a return to young black men being pulled off the streets. This will lead to a haunted legacy, so safeguards must be built in.
2. Proprietary nature of algorithms should be subject of examination.
3. The Probation Service have responsibility for managing the service. There needs better consideration of path dependency, with a wider responsibility for managing risk.

Also, he is not sure on consequences for crime rates. The USA is still in a period of low crime relative to the late 20th century, but crime rates are not dropping as quickly now. People are now being released more quickly. Sheriff's now run non municipal police and prisons. They can make long sentences reduce quickly.

His current work is focused around three major areas of interest. The first area concerns the role of crime and criminal justice in shaping the larger framework of law and governance in the United States. His book, 'Governing through Crime: How the War on Crime Transformed American Democracy and Created a Culture of Fear', describes this influence across American state and society. In further work he examines how engagement in social systems of criminal justice and crime risk prevention affects the lives and choices of ordinary Americans including the working poor and immigrants. The second area concerns the way risk is operationalised in late modern law and society. The third interest concerns the intellectual history of law and the social sciences in their interaction.

In the USA policing is very fragmented, and too much discretion is given over the use of powers. This discretion covers the use of force, arrest etc., based on training, biases, and local practices. As a citizen in the USA, your wellbeing is in danger over how you are confronted, and the propensity of some police to too readily use force, especially lethal force.

In Oakland in the 90's, there were 40,000 arrests per year in an area with a population of 300,000. Last year there were 9000 arrests and crime rates were lower. There is a move in the USA to step down from the overuse of police resources, as it is an approach that has not always worked, and has sometimes generated long term dysfunctional consequences.

More important than bail reform is arrest reform. If you are not arrested, you are not in the judicial system. The USA wants an efficient police, but not too efficient. They want balance in the system. Historically LAPD in the 50's were super-efficient, technologically advanced, and had a good brand, being technocratic and efficient. But they were seen as an army by black neighbourhoods, and those negative perceptions still persist. Americans complain about real things to the wrong people.

We are now all raw material in surveillance capitalism. People don't blame corporations, they blame the police for using the data. Ubiquitous spreading of data impacts on peoples private lives. Need public education about this. PEEL principles have stood the test of time, but we have a different society now to the 1830's. Now a huge proportion of calls to the San Francisco PD are mental health issues; homelessness, mental health etc. There is a real interest in starting to become more algorithmic.

People's expectations of the police are realistic.

Interview with San Francisco Police Department – Deputy Chiefs David Lazar & Greg McEachern

David Lazar is the Deputy Chief of the San Francisco Police Department with responsibility for Detectives and all aspects of crime investigation and intelligence. Greg McEachern is the Deputy Chief of the San Francisco Police Department with responsibility for uniformed operations. The below are the views (condensed) they expressed during the meeting I had with them.


David Lazar, Gary Beautridge and Greg McEachem

San Francisco is the first city in the USA to have imposed on it new surveillance ordinance prohibiting the use of facial recognition technology. This legislation was passed by the San Francisco Board of Supervisors, who have a responsibility for the efficient and effective running of the police.

The police are heavily regulated by the Board of Supervisors, who are very protective of individual freedoms. This sometimes causes frustrations for the police, as they are aware that most middle ground citizens in the USA want the police to have access to everything that may make communities safer. There is a clear geographic difference in how new technologies are perceived in the USA. On the East Coast there is more of an acceptance of the use of technology that is ethically challenging, such as AI powered tools like facial recognition. However, that acceptance has disappeared by the time it hits the West Coast, where civil liberties are defended far more aggressively. This defence is encapsulated within the membership of governing bodies who oversee the police, and have a more liberal view, and are protective of civil liberties. There is huge wealth in California, and where there is wealth people want to support legislation to help policing, but also want to strike a balance with human rights.

In San Francisco, the American Civil Liberties Union (ACLU), came to a supervisor on the Board of Governors, and presented to that person their concerns over the accuracy and use of facial recognition. This individual then got other Board members on side, and the next thing, facial recognition was banned. It is a loss, and we know New York City is having some excellent results with its use. The majority of the story is that it miss identifies African Americans more than others. The ACLU are also aware that this 'victory' in San Francisco will spread across California, and then east across the rest of the USA, so was a strategic push on their behalf. As soon as San Francisco made this decision, Oakland, the city next to San Francisco, dispensed with facial recognition technology, even though they were not compelled to do so. In August 2019, the state of California voted to get rid of facial recognition technology across the whole state.

The ACLU are very proactive in wanting to know about all of the tools used that identify people, and how they are used. The police need to explain what the tool is, how it is used, and that it is not part of some racial profiling exercise.

Within the San Francisco Police Department, there is no formal arrangement for engagement with the ACLU. They deal direct with the Board of Governors, of which there are 11 separate governors. The ACLU hire lawyers to do their work.

Both Deputy Chiefs felt there was a need for oversight and intrusion of police technologies, especially the use of algorithms and machine learning, and there is insufficient regulation currently. Furthermore, relationships with oversight bodies could be improved. Currently, the police adopt new working practices/technologies without

referral to Board of Governors, and it is only when a problem arises that the Board will make an intervention. The police and the Board do not have that level of working trust for engagements such as this to work. Both Deputy Chiefs would be very supportive of an Ethics Engagement Panel (or similar), made up of defence lawyers, community groups, academics and oversight groups, in order to discuss policing related issues.

Low level acquisitive crime is a significant issue for the SFPD. Crime in the city is high, especially vehicle and other property crime. A further problem exacerbating the resource pressures being felt on the front line, is the significant abstraction of staff to deal with mental health issues. There are a large number of homeless people in San Francisco, in part created because what was once seen as low price high occupancy property in poorer areas of the city, is now being 'bought up' by wealthy people coming to the area, partly fuelled by the wealth created in silicon valley. A further 'knock on' for SFPD, is that police officers cannot afford to live in the city or surrounding areas, and have to travel substantial distances to get to work. This makes recruitment and retention very difficult. SFPD have the highest rates of pay in the USA for patrolmen, circa $100,000 pa, but even this high salary has not attracted sufficient recruits to fill vacancies.

Interview with Professor Jack Glaser

Jack Glaser is a social psychologist whose primary research interest is in stereotyping, prejudice, and discrimination. He studies these intergroup biases at multiple levels of analysis, from reaction time measures of implicit bias to extreme manifestations like hate crime. He is also interested in the police practice of racial profiling, especially as it relates to the psychology of stereotyping, and the self-fulfilling effects of such stereotype-based discrimination. Another area of interest is in electoral politics and political ideology, and the below are the views (condensed) he expressed during the meeting I had with him.


Professor Jack Glaser

Police must be careful in using any technology or tactic that exacerbates any issue of race, or they make themselves vulnerable to a self-selecting philosophy. Algorithms sometimes look race neutral, but nevertheless still have bias. Sometimes establishing this is difficult because of the proprietary nature of the algorithm. This is a big risk in establishing public confidence. The correct empirical approach is to continuously monitor and adjust the algorithm to ensure it is not exaggerating or exacerbating stereotypes, causing an abuse of the system, even if it is giving policing 'benefit'.

In this complex and technically difficult area, the police should take an approach akin to affirmative action; they should take affirmative action to ensure people are being treated fairly, and monitor this to see what the effect is. Police organisations need to develop a deeper understanding of the difference between racial profiling and crime profiling. Hot Spots policing causes disproportionate outcomes to those living in that locality. Any affirmative approach may exacerbate inequality. Monitoring is a rational and reasonable way to do this.

The persecution of African Americans has left the 'scar of race' on American society, and is key to the soul of the country. There needs to be greater examination via something akin to an ethics board of police tactics and techniques to legitimise their use. The challenge would be maintaining it, and establishing sufficient trust.

Psychological science overwhelmingly demonstrates that Americans, including police officers, implicitly associate Black people with weapons, crime, and aggression. Even police officers who embrace egalitarian values, when directed to make large numbers of pedestrian or traffic stops, are likely to make decisions that are biased by these stereotypes. Additionally, straightforward mathematical simulations demonstrate that the influence of race in determinations of suspicion will create or exaggerate criminal justice disparities. Arguments that aggressive policing strategies like stop and frisk deter crime need to contend with potential unintended consequences, like reverse deterrence and alienation. Analyses of policing data indicate that racially discriminatory outcomes are greatest under high discretion, and that reductions in discretion effectively mitigate discrimination without increasing crime.

The use of AI/ML must be conscious of the influence of bias, and every effort needs to be made to minimise or eradicate this.

San Francisco Police, Oakland and UC Berkeley continued

Recommendation 1

Forces should consider developing a 'key messaging' strategy to inform their public of the role of Artificial Intelligence/Machine Learning in day to day policing, emphasising its value to the core mission of protecting vulnerable people, and making the best use of finite public resource.

Recommendation 2

Unless there are over-riding security concerns, the police should avoid using AI technology linked to proprietary data bases. Full details of AI technologies should be made available for public discourse.

Recommendation 3

Forces should appoint an Ethics Panel through which to consult about the introduction of new technologies/ tactics/techniques that may impact on public confidence. This should include plans for implementation, sustainment, and review. In respect of AI, considerations should incorporate the five major ethical concerns with algorithms, these being:

1. Inconclusive evidence leading to unjustified actions.
2. Inscrutable evidence leading to opacity.
3. Misguided evidence leading to bias.
4. Unfair outcomes leading to discrimination.
5. Transformative effects leading to challenges for autonomy and informational privacy.

Recommendation 4

A separate review should be undertaken of:

- The California State algorithm to predict defendants likelihood of appearing at court
- The risk assessment process used in California to guide judges in sentencing, and establish if either has value for the UK Criminal Justice system.

New Orleans

New Orleans is the largest city in the state of Louisiana, with an estimated population of 450,000. Serving as a major port, New Orleans is considered an economic and commercial hub for the USA. Its violent crime rate is several times above the national average. In 2019 there were 130 murders, which is the lowest level since the 1970's, but still one of the highest homicide rates in the USA. New Orleans Police Department does not enjoy a good reputation, and is currently under consent decree of the basis of misconduct.

During my visit, I was allowed to visit the weekly Violent Crime Meeting, view the Real Time Crime Centre, and have access to front line staff, the new Head of Analysis Claudette Millsap, and the Chief Prosecutor in the District Attorney's office, Mr Alexander Calenda.

The weekly Violent Crime Meeting is attended by membership from all policing districts, investigation branches, and chaired by the Deputy Chief. This meeting provided a real insight into the levels of extreme violence and gun related crime issues being tackled on a daily basis by law enforcement. The meeting provided an opportunity for departments to request information or intelligence, particularly when faced with new threats such as the emergence of machine pistols etc. Despite the best efforts of highly professional staff, the approach to dealing with serious crime seemed somewhat fragmented, with specific powers and techniques being the domain of other institutions such as the FBI or DEA. In addition, analytical capability/products, appeared to lag behind the state of those in British policing, particularly in the use of communications data and ANPR.

The NOPD, like most major cities in the USA, have developed a Real Time Crime Centre, through which they access CCTV cameras, license plate readers, and associated monitoring software. The RTCC offers real-time and investigatory assistance to public safety personnel. The RTCC does not use facial recognition software. The RTCC has installed over 340 cameras across the city, covering every neighbourhood. Cameras face the public and have lights that are either set to flash or to a steady burn. When a 911 call for service is made, cameras near the incident automatically spin up, allowing RTCC technicians to communicate what they see on the scene directly with the responding public safety personnel. Traffic cameras monitoring speed and red light violations are separate from the RTCC and are managed by the Department of Public Works. My personal observation was I liked the alerts and interactive mobile apps, but was unable to establish the process for alerting people to their presence and use in 'hot spots'. It was also impressive that the system overlays person, place, weather and events – this is important and advances a singular 'hot spots' approach and has been done in some studies (Santos and Santos 2016) and works. The RTCC unit/ centre is an interesting idea, having CCTV, ANPR etc. centred in one place. To have more meaningful tasking would be valuable in a UK policing environment, albeit there would be issues as CCTV operators are council owned, and house a lot of equipment. The RTCC uses a shot detection algorithm – a system trying to recognise sound patterns and determine whether a gunshot has taken place. Operators were able to provide evidence of the value of this system.

Lack of openness about the use of AI technology has been an issue in New Orleans. The existence of a hitherto unknown partnership between that city's police department and Palantir was revealed in 2018 by an investigative journalist who questioned why the tie-up had never been properly disclosed. As part of its relationship with the New Orleans Police Department (NOPD), Palantir deployed a predictive policing system without even members of the city council knowing about it. The system had been in use for 6 years prior to revelation. The Palantir system was used to help the police identify those offenders that would go on to commit crimes involving serious violence. In attempting to discuss the Palantir tool with local officers, I was unable to find one with any knowledge of its existence.

The Palantir system was removed after the case of Kentrill Hickerson raised serious concerns as to its use. During my Fellowship, I was fortunate enough to be able to interview the Defence Attorney of Mr Hickerson, Mr Kevin Volgeltanz, whilst in the company of the District Attorney that prosecuted the case, Mr Alex Calenda. The below summary is a condensed transcript of my interview with him.

New Orleans continued


Kevin Volgeltanz

'The only way to make sense of how Palantir eventually arose is to take you through the procedural background of the case. Palantir wasn't involved until after the trial so my client is Kentril Hickerson and I still represent this appeal. He was indicted with 19 other men in 2013 in New Orleans Parish Criminal Court is a state proceeding. The allegation against my client and the other men was they were part of what is called as a criminal street gang and a criminal enterprise but in everyday language they were a gang and that through the gang various criminality took place and specifically alleged that Kentril committed 4 acts in furtherance of a criminal enterprise – the murders or 2 separate individuals and a drug crime and what could be most easily explained as trying to convince a witness to accept responsibility for a crime that he allegedly denied. The charges they specifically brought against Kentril were conspiracy to commit murder, conspiracy to distribute cocaine and heroin. From a criminal defence and prosecution procedural perspective already a very interesting case that the District Attorney's office chose to charge Kentril with 3 conspiracy crimes when the actual facts put on in the trial that he personally committed murders and personally choice to distribute drugs but chose not to charge him with those personal crimes, but instead wanted to charge him to a conspiracy relating to those acts. There was a massive amount of discovery produced, think just shy of 9,000 pages of documents produced and then all of the defence lawyers were given an external hard drive with 100's of GB of data including video recording phone calls, images. It was an extraordinary undertaking to digest all that. There were a strategic reason why the DA office chose to prosecute this case as a 21st indictment and I think one was to enable them to not individually prune the discovery file with respect to each individual.

We were given a discovery document about every single person in the 21st indictment and under Louisiana State discovery rules, which are different to our federal state discovery rules, the prosecution has more leeway in packaging up and giving to it us – we did complain to our state judge that this was unacceptable to receive the discovery piece which didn't allow us to understand the evidence that they had against Mr Hickerson but the state court was not persuaded by that. In Federal court we may have been more successful with that argument. I believe that it was either 18 or 19 or the co-defendants all pleaded out, but not Mr Hickerson – he maintained throughout the entire course he was innocent and he would not take a plea so we went to trial and I believe that I now hold the record for the longest criminal jury trial in this section of New Orleans parish court – 11 day jury trial. 9 of the 11 days I would say the prosecution put on witnesses that did not offer any evidence against Mr Hickerson. Ultimately, what we now know, is that the strategy of their trial was to convince the jury that a street gang existed – they were violent, drug trafficking and after about 9 days all these witnesses that were just testifying to the nature of this gang. On the 10th/11th day finally the prosecution brought their star witnesses – 3 of them that finally said that Mr Hickerson was a member of the gang. What is not disputed, at no point during the trial, was there any visible evidence, surveillance evidence, forensic evidence, DNA evidence, any type of physical evidence introduced that links Mr Hickerson to either of the 2 murders or the other crimes. The sole evidence against Mr Hickerson that he in particular murdered these 2 individuals was put on by the final witness, Mr Knockholt and he testified that he was close by and in communication with Kentrel on the days of both these murders happened, although he did not personally witness and Mr Kentrel has reported back to Mr Knockholt that he killed them. Consequently, a lot of the most contentious cross examination of the trial was under the credibility of Mr Knockholt.

The Federal Government at the same time, was building a separate federal case against a related alleged gang called the thirty niners gang that had the same gang members as in this case but not Mr Hickerson, but because there was this massive collaboration between the Federal and State prosecution. For some of the individuals like Mr Knockholt, the Federal and State Governments were in global fear agreements with these individuals so that Mr Knockholt could be of use in both. Our trial came first and so that gave Mr Knockholt the opportunity to testify in favour of the prosecution, but he had already admitted and pleaded guilty to I believe 5 murders and a host of other crimes for which under both state and federal law, he would have been eligible for the death penalty – certainly if not mandatory life in prison. In state court, he had been given an exchange for his cooperation a sentence of I believe 20 or 25 years. So he went from murdering multiple people and admitted he had and went from the death penalty to being out of jail before he is an elderly man and so obviously extraordinary benefits for him to testify. Alex Calenda did a good job of laying out at the beginning of the testimony, nerveless we strongly cross examined and in a key moment, we disputed throughout the entire case that a gang even existed. We always took the position this was a low income neighbourhood that where people were born in statistically stayed

in the neighbourhood for most of lives as they lacked the resources to escape and instead of being a gang, this was a collection of people that statistically had criminality and that they weren't a gang, they just knew each other. A key moment of the trial – I demanded that Mr Knockholt tell me if there was a gang or a group of men that just grew up together and he said, just a group that grew up in the neighbourhood.

Going to closing argument Mr Hickerson did not testify and we had closed arguments. Although it wasn't a unanimous verdict by the jury in Louisiana this was still legally possible and he was found guilty 11-1 (1 person said not guilty). On the charge of conspiracy to distribute cocaine he was found not guilty unanimously and on the remaining charge of conspiracy to distribute heroin he was found unanimously guilty which didn't make a lot of sense to us. Not unheard of but as a short detour we filed a motion for a new trial immediately. We had already discovered evidence not available to us at the trial and that was a series of jailhouse phone calls. It is unusual that the prosecuting jury would have conversations with witnesses that he handed over the jailhouse system – all phone calls were recorded. If recorded then as a defence lawyer – that constitutes impeachment. Some phone calls happened before and during the trial and some calls immediately after the trial. We took the decision that the phone calls before and during were called 'brady evidence' Any evidence that may impeach the credibility of a state witness you have to turn that over and for the phone calls after the trial took the position that this was new evidence that undermined confidence, so brought a motion to trial for that.

We also found there had been phone calls between the 2 other star witnesses and we believe this paints the contours of a relationship, where it was expected that for an exchange of testimony that they would be found innocent. You and I might understand that, but of course there would be some leniency, but during a trial the prosecution bent over backwards to say they may have a hope of leniency and that is not guaranteed but it's important that it comes to the jury because it diminished the value of the promises that were made and in someways it reduced the credibility of the witnesses. Just before the Judge was going to rule, one month before, a journalist named Olly Winston published an exposure of how a city of New Orleans had been secretly using Palantir software called 'Gotham' that state and federal authorities were using and they had used it to help build the case. Mr Winston through FOI Acts had found the contract and PowerPoint slides that had one of the city employees had produced at the request of the city – Palantir had given them the software for free. Those PowerPoint slides, he specifically says – Palantir software was used to help build the case. So we see this a month before the Judge was going to rule – this is huge and the fact it had been all done in secret, the fact no one had known – we immediately filed a motion to supplement our motion for a new trial and to seek discovery about the scope about what the City had used Palantir for.

Under federal state constitutional framework not allowed to compel a federal officer. All the entities basically came back we don't have anything about Palantir. I had found Mr Asher who was no longer working for the state of New Orleans and he was willing to talk about his work – he had several interviews with me and through those interviews he basically said… 'I was hired as a criminal analyst for New Orleans, but was attached to the multi-agency gang unit (collaborative between state and federal law enforcement) and that I would go to work and one of my other responsibilities was that any time there was a shooting crime in New Orleans – I would use Gotham to develop a social networking graph on the victim and if we had a shooting suspect on them and forward those analytics to a stakeholder'. He began working in 2013. Mr Hickerson believed his indictment came out before Mr Asher carried out the work but what we knew was the City of New Orleans had signed a contract with Palantir both before the gang indictment came out. Because Mr Asher had been so forthcoming I was able to go back to say I knew they had some analytics. He left because he said stakeholders in the gang unit he didn't feel valued his work. Never less, we want to know if they had analytics that were related to Mr Hickerson, the 2 people he was accused of murdering or any of his co-defendants.

After 8 months of saying they couldn't find anything – eventually found everything. We asked them to pick one of the analytics out at random as proof that they had found something (have now received that) – this being a Social networking graph. I then asked if they had anything specific on Mr Hickerson – but nothing forthcoming. Advised that it would take too much time and effort to search through all files. I took it to the Judge and the City of New Orleans brought this to the state court judge with a representative from the DA office. The judge vacated the superina and upheld the city's response to searching the records. We were forced to live with and to this day still do not know if New Orleans Police have any analytical data on Mr Hickerson or the case. We have appealed but that is where it currently lays. Few months ago the court considered all previous evidence but no new evidence from Palantir and the court denied the motion for a new trial. Now filed a new motion. That is broadly speaking all the work with Palantir.

New Orleans continued

In 50 years we are going to have to find a way we incorporate into our daily lives as there is no stopping technology. The question is how we are going to do it. Through conversations with Mr Asher, I know that one of the original products that he worked on when he came to the City was using Palantir to leverage existing information databases to create a list of the top group of the people, that he believed were the most likely to be victims of violent crime in the city. They were working with a well-known criminologist in New York and he was attached to the programme and he theorised the idea the biggest predictor if a person is going to be a victim of crime is if that person has previously been a victim or has previously committed violence. So using that info he was able to plot out who he believe the top 100 in the city were. The District Attorney's office took that list and they determined if any of the people off that list had prior criminal records or if they had pending cases and if so, they brought these people in for a sit down in the District Attorney's Office and a deal/rehabilitation programme was offered to them. The programme has now discontinued.

From a criminal defence perspective, there are a lot of defence lawyers that would say if you're using algorithmic technology to try to prove a case against someone then that's not constitutional. I don't think there is a suitable argument to be made that just using technology, even if you want to predict crime, is unconstitutional. I think this might be the only case in which through Mr Wintson's reporting we even know that law enforcement may have been using it in the context of a criminal prosecution. Any law enforcement using such a system went out of their way to reveal they don't use it and they certainly introduced evidence of it at a criminal trial and that calls in parallel investigation. This is probably not unconstitutional but that gets into murky territory – the first thing I argued to the Judge about why we need to explore Palantir was if the government has a system that can either depict for us criminal associations or who are likely perpetrators of crime/victims of crime – maybe its exonerating Mr Hickerson. I should have been able to know names of individuals. If we target Mr Hickerson and see his connections: Murdering an individual he has no known relationships with and in terms of a gang – a threshold element of a street gang indictment – what is a criminal enterprise it's a purposeful association between members. What does Palantir shows us – it just shows us associations so we would expect if you were in a gang you would be committing crimes together and know the same people so a Palantir graph would show any associations.

To me the onerous nature of these systems isn't that law enforcement isn't using them but they are not sharing the information and not because I don't think it's implicating the defendants – you could effectively cross examine based on that analytical data. That's all I would ask for, when you put that detective/witness in the stand I should have access to that Palantir graph. That was our complaint – we believe we might be exonerated by this information and this is where the contentious point is. If government has systems that produces information about crimes and defendants most people believe that info should be shared with the defence.

If we think about more classic types of evidence or evidence gathering activities, we at least try to come close to that, for instance: New Orleans has a system of crime cameras – anyone in that area are aware of them. Most citizens dismiss them and go on about daily business, so in some sense when it comes to this information gathering we try to do that. I think if we were seriously considering using data aggregation systems/predictive systems we are going to have to tell the public. Government always wants to limit the amount of info they disclosure to the public around methods of doing things. We now know that US government programmes and agreements for data sharing exist and that was grudgingly disclosed so but from policy perspective from a criminal procedure perspective, if we want to really use these systems and do in a way that passes constitution people are going to eventually have to be given access to a proportion of the info that's relevant to them. I was at a conference in NYC at NYU group call AINOW – their company mission is to write policy on how AI is affecting our daily lives but a portion of that conference this year was devoted to criminal law/procedural issues. California is currently using Facial Recognition software to issue warrants to arrest people – there's false positives. Law Suit going on right now that it's not criminal prosecution that they are algorithmically determining who should and shouldn't be getting public assistance/welfare payments based on a number of factors. Hundreds of people have been kicked off programmes because an algorithm said they should be when shouldn't. Mistakes are inevitable but if we are going to do it we have to be public about it but at the very least going to have to begin turning over information to defence lawyers.

The visit to New Orleans was of huge significance. The site of the most well-known and public outrage at the police use of AI to target suspects, and access to the lessons learnt is of enormous value.

Recommendation 5

Police and Crime Commissioners need to be cognisant of the risks associated with procuring technologies that have not been fully consulted upon with strategic partners and other stakeholders, and an engagement framework should be developed to mitigate risk in this area.

Memphis

The city of Memphis is the largest city in the State of Tennessee, the third largest in the Southeast, and already a recognized leader in the area of leveraging statistical analysis to facilitate the fight against crime.

Memphis has a population of 650,000. Its violent crime rate is several times above the national average. In 2019 there were 150 murders. I found Memphis PD to be a vibrant, well led and forward thinking organisation, with many initiatives of an innovative nature that may have utility for UK law enforcement.

1. Control Room Protocols

During my visit, I attended the Memphis Police Control Room, where I witnessed trained psychiatric nurses dealing with people over the telephone that may be suffering with Mental Health issues. The Memphis PD approach appeared very efficient in two regards; 1. Signposting to other agencies individuals in need of assistance by the agency with statutory responsibility for the matter, and 2. Not deploying a police response to a matter not requiring it. The psychiatric nurses worked to protocols developed on their behalf by external providers, with responses given contingent on answers to the approved question sets.

The Priority Dispatch Corporation have developed a number of evidence based protocols for use by emergency dispatch operators. Protocol 25 sets out the evidence based approach to dealing with callers that have Psychiatric/Abnormal Behaviour/Suicide Attempt issues. I observed the use of this where psychiatric nurses engaged in 'Structured Call Taking' in accordance with the rules within the protocol. It appeared that Memphis PD had integrated time-tested, scientifically backed, and scripted protocols with call taking software, resulting in a consistent and reliable response designed to save lives and reduce liability on every call. The system had the complete confidence of senior leaders within Memphis PD.

2. Focused Deterrence

Focused deterrence, or 'pulling levers policing' is a crime reduction strategy in which carefully selected high-risk offenders are advised of swift, severe and certain punishment for continued criminal behaviour. At the same time they are connected with service providers to assist in eliminating barriers to success; such as job training, education, alcohol and drug counselling, and housing.

The strategy, created by David Kennedy of the John Jay College of Criminal Justice, involves identifying members of gangs/groups who are driving crime in a particular area and convening a meeting – a call in-between them and law enforcement heads. No one is arrested. Instead, law enforcement leaders send a clear message that we know who you are, we know what your gang/group is about, and the violence has to stop immediately. The community is represented at the 'call in' by an individual who sends the same message on behalf of the citizens: The violence has to stop. Both groups stress that the social service providers – and the entire community – want them to succeed. If the violence does not stop, the group is advised that swift, certain and severe punishment will follow.

The strategy has worked successfully in many cities in the United States after its pilot in Boston. Massachusetts in the mid 1990's. As what was part of the 'Boston Miracle', focused deterrence is credited with reducing Boston's homicide rate by half. The strategy has been credited as one of the most consistently effective approaches to crime reduction (see 'The Crime Report-Tackling Violent Crime: What Works, What Doesn't August 11 2016'.)

In Memphis, they held their first 'call-in' in 2018. Working closely with Tennessee Department of Corrections, they used the departments risk/needs assessment to identify offenders on probation or parole in Shelby County for a violent crime who also had convictions for violent crime in their past. As a condition of their release, they were ordered to the 'call-in'.

- 12 offenders in focussed deterrence class
- They had been arrested 260 times
- They had victimised 111 people
- They had been convicted of 141 crimes
- 6 of them made it to the 1 year mark without being rearrested

As with everything, the success of the programme depends upon resources available to execute on promises and 'threats' made at 'call-in'. If the violence does not stop, law enforcement and prosecutors have to have systems in place to make sure the offender is held accountable. At the same time, if we promise housing assistance, we have to be able to deliver. According to Kennedy, the jurisdictions that have struggled with Focussed Deterrence are the jurisdictions where effort is not sustained and the execution is not true to the programmes elements. Ideally, the police department should be responsible for the implementation, execution and sustainability of focused deterrence. Of course, that is not an option if resources do not exist. The Memphis model has been shouldered by the District Attorney General's office and the Tennessee Department of Corrections and is not sustainable without additional resources. I witnessed such an intervention at the Memphis District Court, attended by the Memphis PD Chief, the local Sheriff, the District Attorney, the Federal Court lead, the Lower Court lead, and 30 perpetrators of domestic violence. Also in attendance were agencies in a position to provide support to perpetrators and their families in order to help them desist from violent lifestyles. The engagement was extremely powerful, and capable of being overlain on existing crime reduction approaches in the UK.

3. Real Time Crime Centres (RTCC)

The Memphis Police Department manages a number of Crime Analysis programs, including Community Outreach Program (C.O.P) and Blue Crush, which unified enhanced crime data collection and statistical analysis to achieve an overall reduction of crime of 25% since inception since 2006. Memphis PD has a long-standing partnership with IBM using predictive analytics and business intelligence, and uses geospatial analysis and deliver near real time, forward looking predictive mapping capability to officers on patrol to further enable them to deter crime. Memphis PD is developing PACRAT, the Predictive Analytics Crime Reduction Analysis Toolkit, and hope this will facilitate a further reduction in crime for the City of Memphis. Additionally, it will strengthen the analytical capability of staff across the board, enabling them to be more creative and insightful in problem solving, and address new challenges before or as they arise. More importantly, this will also allow Memphis to be a collaborative partner for other agencies at all levels.

Memphis is a thriving, yet evolving city of more than 650,000 people, and the Memphis PD intend to take action against 21st century crime and criminals by enhancing analytics capabilities to proactively address crime problems. They are moving from a situation where they analyse historical crime data to create location and crime hotspot analysis using Statistical Analysis software, but intend to transform to focus on three key areas of new analytical capability. These include advancing from basic statistical analysis to Causal Predictive Analytics, moving from manual processes to streamlined, automated processes, and deploying near real time predictive visualisation in the form of alerts and highly interactive mobile maps. They hope to be better enabled to fight crime in part by gathering data on persons, locations, weather, and seemingly unrelated events, then merging those disparate sources of information and making sense of it using advanced predictive algorithms. Then, they will deploy this information to those that need the most up to date information possible to facilitate action. As the status quo evolves, and new data are available, their predictive models will learn from them and adapt their predictions accordingly, so that MPD resources are deployed in the most cost effective and efficient manner possible.

The 'vehicle' through which the MPD have operationalised their approach is the RTCC. I visited the RTCC, which has 16 dedicated members of staff covering three shifts. The Memphis RTCC is seen as a national centre

of excellence. The RTCC has access to 2000 cameras covering over 700 locations. Much of the technology deployed has Licence Plate Readers, Gunshot Recognition technology, and Google maps incorporated into the infra structure. There has been wide reaching public engagement as part of the overall approach, and citizens welcome the deployment of the technology, particularly those from more impoverished, crime ridden localities. Memphis has recently taken the decision not to employ facial recognition software. Many of the new cameras coming onto the scheme are donated by community groups or local councils. Because of the emerging issue of disproportionality in the ability to pay for cameras, neighbourhood grants have been established for groups to apply for funding for cameras.

It was clear during my visit that many departments across the nation consult with Memphis PD regularly on their approach to Crime Analysis. During my visit I was able to observe the Real Time Crime Centre combining video surveillance with sophisticated data systems and software. Officers stationed in the crime centre headquarters were able to watch the footage on a large video wall and dispatch officers to a location before anyone calls to report a crime in progress. MPD hope that augmenting this capability with predictive analytics and data mining technology should enable this process to be even more proactive, potentially even deterring crime from occurring in the first place, simply through providing officer presence in the target area.

Recommendation 6

Engage with the International Academy of Emergency Dispatch, Medical Priority Solutions so that Kent Police could explore further the potential benefits of utilising EMD protocols.

Recommendation 7

Consider the applicability of the Focussed Deterrence approach into UK law enforcement.

Recommendation 8

Consider the applicability of the Real Time Crime Centre approach into UK law enforcement.

Boston

Boston is the capital and most populous city in Massachusetts. It is the 21st most populous city in the USA with an estimated population of 700,000.

The Boston Police Department (BPD) dates back to 1838 and is the oldest police department in the USA, and the 20th largest law enforcement agency. The overall crime rate in Boston is 2% higher than the national average, where as a citizen you have a 1 in 38 chance of becoming a victim of crime.

Meeting with Professor Anthony Braga

Anthony A. Braga is distinguished professor and director of the School of Criminology and Criminal Justice at Northeastern University, Boston. Braga's record combines deep engagement in Boston and an international reputation as a leading researcher on crime prevention.

He collaborates with criminal justice, social service, and community-based organizations to produce high impact scholarship, randomized field experiments, and policy advice on the prevention of crime at problem places, the control of gang violence, and reductions in access to firearms by criminals.

Braga also worked as a strategic policy advisor the Boston Police Commissioner, and has very close ties to the BPD, and the below are the views (condensed) he expressed during the meeting I had with him.

Anthony A. Braga

In the late 80s and early 90s, Boston, like many cities in the United States, experienced an epidemic of youth gun homicides. Violence was concentrated in poor inner city neighbourhoods and youth homicide (ages 24 and under) in Boston increased 230% – from 22 victims in 1987 to 73 in 1990.

Between 1991 and 1995, Boston averaged about 44 youth homicides a year. Operation Ceasefire entailed a problem-oriented policing approach, and focused on specific places that were crime hot spots. Focus was placed on two elements of the gun violence problem: gun trafficking and gang violence.

The approach was sponsored by the National Institute of Justice and was co-directed by David M. Kennedy, Anthony A. Braga, and Anne M. Piehl of Harvard University's John F. Kennedy School of Government. The project became unique, as it:

- Assembled a multi and interagency working group composed largely of line-level criminal justice practitioners;
- Applied qualitative and quantitative research techniques;
- Created an assessment of the nature of and dynamics driving youth violence in Boston;
- Adapted the intervention after implementation, and continued to do so throughout the program; and
- Evaluated the intervention's impact.

A core participating agency was defined as one that regularly participated in the Boston Gun Project Working Group over the duration of the project. The participating core agencies included the Boston Police Department; Massachusetts departments of probation and parole; the Suffolk County district attorney; the office of the United States Attorney; the Bureau of Alcohol, Tobacco, and Firearms; the Massachusetts Department of Youth Services (juvenile corrections); Boston school police; and gang outreach and prevention street workers attached to the Boston Community centre program. Other important partners with more intermittent participation include the Ten Points Coalition, the Office of the Massachusetts Attorney General, the Drug Enforcement Administration, and the Massachusetts State Police.

Boston continued

Design on the project began in 1995. It led to what is now known as the Group Violence Intervention , typically overseen by the National Network for Safe Communities, out of John Jay College of Criminal Justice in New York City, but has also been implemented independently by several jurisdictions. The Boston project launched in 1996 with an innovative partnership between practitioners and researchers. These groups came together to assess the youth homicide problem and implement the intervention, and found a substantial near-term impact on the problem. Operation Ceasefire was based on 'pulling levers' deterrence strategies, which focus criminal justice enforcement on a small number of chronic offenders and gang-involved youth who were responsible for much of Boston's homicide problem.

Early impact evaluations suggested that the Ceasefire intervention was associated with significant reductions in youth homicide victimisation, shots fired, calls for service, and gun assaults in Boston. Within two years of implementing Operation Ceasefire in Boston, the number of youth homicides dropped to ten, with one handgun-related youth homicide occurring in 1999 and 2000.

In 2007 Braga took on a more prominent role within the BPD. For 6 years he served as chief policy adviser to former Boston Police Commissioner Edward F. Davis, working with his command staff and line-level officers to create, implement, and analyse a number of community policing initiatives. One of them – the Safe Street Teams program, which was implemented in 2007 – was designed to reduce violent crime by assigning teams of BPD officers to targeted crime hot spots in the city, including Orchard Park, Eagle Hill, and Downtown Crossing. The intervention worked, leading to a 17 percent reduction in the number of total violent crimes at targeted sites relative to those that officers had not been specifically assigned to.

Meeting with Professor Christopher Winship

Christopher Winship is Diker-Tishman Professor of sociology at Harvard University, and principal of the Hauser Center for Nonprofit Organizations at Harvard. He is best known for his contributions to quantitative methods in sociology and, since 1995, has served as editor of Sociological Methods and Research. He received the 2006 Paul Lazarsfeld Award from the Methodology Section of the American Sociological Association, which recognizes outstanding contributions over a career to sociological methodology, and the below are the views (condensed) he expressed during the meeting I had with him.


Professor Christopher Winship

When considering the issue of legitimacy, and public engagement linked to the use of AI, The Boston Ten-Point Coalition (BTPC) may provide a framework for considering how engagement could be managed using community leaders, in this case religious leaders. The creation of Ethics Committees, or Social Justice Groups, should be a core constituent of police engagement.

Prof Winship provided an explanation of the work of the BTCP, which is an ecumenical group of Christian clergy and lay leaders working with the BPD to mobilise the Christian community around issues affecting black and Latino youth. To assist youth at high risk for violence, drug abuse, and other destructive behaviours, the BTPC also seeks to build partnerships with community-based, governmental, and private sector institutions that are committed to the revitalisation of the families and communities in which Boston youth grow up.

When violence – particularly youth homicides – escalated in Boston during the 1990's, some church clergy formed the Boston Ten-Point Coalition, which then developed a collaborative approach with Boston police in conjunction with Operation Ceasefire. This collaboration was based on the belief that nine out of every ten youngsters could be saved from violence by the clergy or community-based organizations.

The BTPC and the faith-based community as a whole worked to address youth violence in eight city hot spots. They coordinated services to respond proactively to the threat of increasing violence these communities face. Outreach efforts included:

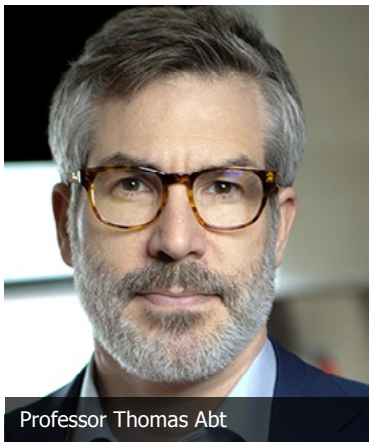
- Neighbourhood walks by pastors, ministers, and lay leaders.
- Cookouts sponsored by local churches.
- Home-front visits by trained church volunteers.
- Crisis intervention services provided by trained clergy as part of a Crisis Response Team.
- Adoption of tenant organizations and community-based organizations.

His point was that Social Justice Groups, when working with law enforcement, increase the legitimacy of the police, and can be a call to action for the community in delivering transformative crime prevention initiatives.

Recommendation 9

Consider the viability of Social Justice Groups within UK law enforcement, to act as part of a strategic Neighbourhood Policing approach.

Meeting with Professor Thomas Abt


Professor Thomas Abt

Thomas Abt is a Senior Research Fellow and Adjunct Lecturer in Public Policy with the Program in Criminal Justice Policy and Management at Harvard Kennedy School. He also holds the position of Research Director for the Evidence-Informed Violence Reduction Project, funded by the United States Agency for International Development's Central American Regional Security Initiative (USAID CARSI).

His work emphasizes research and data-backed policies and practices to reduce gun, gang, and youth violence. Previously, Abt served as Deputy Secretary for Public Safety to New York Governor Andrew Cuomo, where he oversaw all criminal justice and homeland security agencies, including the Divisions of Corrections and Community Supervision, Criminal Justice Services, Homeland Security and Emergency Services, and the State Police.

During his tenure, Abt helped to establish the Governor's Commission on Youth, Public Safety, and Justice in order to make recommendations for raising the age of criminal responsibility for juveniles. He also led the development of New York's GIVE (Gun-Involved Violence Elimination) Initiative, served as Chief of Staff to the Office of Justice Programs at the US Department of Justice, and played a leading role in establishing the National Forum on Youth Violence Prevention. The below are the views (condensed) he expressed during the meeting I had with him.

The USA is not particularly more criminal or more violent than most western democracies, but is more lethal. The lethality of the US is unprecedented because of access to weapons and the potential for lethal conflict in the US really infuses everything in Criminal Justice because guns are so prevalent – it means in every dispute, every burglary, robbery etc. the potential for lethality goes way up but think the presence of guns presents a presence of fear – all counters are life threatening counters so as a result people are very scared and so think it's impossible to understand the American Criminal Justice culture without understanding the lethality of the issues. Imagine in the UK one in 20 fights someone has a gun and take it from there – that's the US World.

He has friends working in the UK and is aware of knife crime – wish USA had that problem… if only! USA prides itself on its freedom in all types of areas, lots of Institutions dedicated to retaining civil rights and liberties. Don't believe that level of violence is as a result of our Institutions, think there are other issues and do believe in terms of crisis of legitimacy. In some ways it is a function of success so in the US now, only about 50 percent of the homicide rate and other violent/property offences than there were in the early 90s – massive reduction and think one of things that has happened is that people now feel more comfortable talking about the justice side of Criminal Justice. In the early 90s homicide rate was at 10 or 11 which is approaching third world country levels and been increasing since the 60s so, violence is everywhere and believe it's never going to stop so, not surprising people were doing what they had to do to address the issues. Challenging now, but in an uncomfortable

but healthy process of recalibrating – what does it mean to police and prosecuters in a much healthier society. Meanwhile, recognising we are still an ugly outlier in terms of lethal violence so ultimately, challenging with the national conversation right now is largely an assumption that crime is no longer the problem, it's the Criminal Justice system. Some of that is healthy because crime has gone down but far too much crime is a huge problem particularly violent crime and homicide so its worry declaring victory on crime and not being worried about the Criminal Justice System. The US still need to save a lot of lives and one of the things I ultimately believe is deep Criminal Justice reform but am worried that the strain of extreme critique is not a healthy option – to ultimately be able to do my work effectively, I need reconciliation between law enforcement and communities and this is made harder when people are saying 'we want cops to treat us right' etc. etc. – With others saying 'we don't want cops period' – that's a difficult conversation and very challenging. I am worried for progressives and defeatists because ultimately, if crime goes up sign in the US, then people will demand an enforcement response and I about worry premature celebration – need to lock in public safety meetings and ensure these are sustainable.

I am worried about people's concerns about algorithms – people don't understand that algorithms if properly deployed, minimise the intrusions of the Criminal Justice system especially in a modern world. As people we are infected by all kinds of bias so algorithms are currently less biased that human decision makers so I am concerned at the end of day. You get more freedom by having more safety through better targeting and in a modern world that involves algorithms. I think its right to demand experiments – some algorithms are proprietary and that is not correct. Vendors need to be transparent. I have a suspicion about why these algorithms are proprietary – don't think worried about revealing something or have got some bias but suspect these algorithms are in fact so simple that if the government knew they would not pay for them but do them in house.

I have a lot of expertise and spent a lot of time in violence reduction –There is no science on this. My personal take is that we have to do the uncomfortable thing and play the long term game. Short term – we in law enforcement are deeply afraid of criticism and it's easier to deal in the short term by not providing info, explaining things and in the long run we would be better served if we just opened ourselves up to short term criticism – a lot is based on misunderstanding, and engage in a longer term conversation, but I do think one thing we can't do is open the floodgates and look at everything and not progressively communicate.

I think this is big issue– because we are in the business of applying force, lawful force, against people who would use unlawful force, we don't always talk first – because we have these tools of force there. Look at the way we treat other people in our own bureaucracies – should we doing it this way? Think one of the issues we have to be is better communicated. The next generation of Police Chiefs in the US see this. 20 years ago, Police Chiefs in US had different constituents. Because we have all this power and are applying force when appropriate, people are rightfully nervous about it and want to be reassured – we have to be less defensive. I see there is a culture in the US, a segment of law enforcement that wants to be written a blank cheque and that's not the modern world.

One of the reasons 'Ferguson' was such a big issue in US was because Ferguson was a 'how not to deal with civil unrest'. I am in conferences with senior law enforcement officials and everyone is trashing what they are doing – are they talking to the Media? No one is saying this is how law enforcement should act, no one is militarising the way we do it in a modern age and what happens – it all gets painted with the brush as unwilling to criticise own and that is a hard transition, but think it's the only way we will be able to move forward.

There's three areas I would like the USA to reform and to be much more like the UK:

1. Political – a lot less guns.
2. I would like to adopt a use of force policy that UK has. In the US people think a lot of these use of force episodes, legitimacy etc. think it's a product of underlying racial culture – there are elements of it most of it basic policy choices. The way that law enforcement in the US engages is that American law enforcement believes that every situation, the safest way to resolve, is to establish immediate control and USA uses force as quickly as necessary to establish immediate control –the safest thing for all and that is accepted. People are largely unware that is how law enforcement works in other parts of the world and people do law enforcement without this force and the idea law enforcement would tactically retrieve all of these different things is unthinkable in the US. That is the reason you can go for 'lawful but awful' situations – everything is done according to the law but it looks terrible. The reason is because if you have any type of non-compliance in the sates this situation is out of control. Because, we are in the US, where everyone

has guns you make any further movement then officers jump to the next level so one of the things I would love to do is adopt an entirely new approach based largely on the way force is adopted in the UK – can't entirely do it because of presence of guns but think people would be amazed how much of the 'racial issue' would be managed by better policies.

3. I am amazed by the adoption of law enforcement but believe law enforcement in the UK is far more evidence based and data driven and the influence of Larry Sherman and his colleagues – they are influencing policing in the UK. There is science of policing – feel like the US is nowhere near that and I think UK has one structure – US has 18,000 and so that's a real challenge.

I would say those are the 3 things I would love to see: Reasonable restrictions on guns, change our approach to some force policies and policing and Criminal Justice to really optimise evidence and informed approach to policing. Progressive law enforcement in the USA is uneven. Some developments are world class but we also have shockingly terrible practices in other places.

What people don't understand is the problem is policy – officers are acting on their training and that is a huge problem. I think that there is a very unhealthy culture in law enforcement. Police officers are given the message in the training academies that your number 1 job is to make it home alive. Officers are shown videos of officers being murdered and told... 'Don't let that be you etc.'

The police in the US is a dangerous job, more in the UK but we have to accept this is a dangerous job and you need to take all reasonable and measured actions to protect yourself but some of the risk is unavoidable. In US the types of policing situations that often police witness corruption is usually autonomous units that have very little reporting structure. Units with a small number of officers who over time can become destructive as not subject to the normal reporting. I had a student who is now Chief of Detectives for the State Police and agreed there are no super cops – if you have a cop who have unbelievable numbers they are probably fake!

Think one of things interesting about Boston in early 90s a group of American Clergy came together with the Police in Boston to create a collaborative framework to reduce crime and that actual programme is no longer but, the culture of that programme has permeated in the Boston Police Department – the idea that you are most effective when working in partnerships with the communities. A lot of people associated with that have now risen through the ranks in the Boston Police Department so ultimately that is now the culture and that's an interesting thing. There is different feel to policing in Boston which is that, you are only as good as your relationship and that's not always the case in other places.

Harvard University

Recommendations summary

Recommendation 1

Forces should consider developing a 'key messaging' strategy to inform their public of the role of Artificial Intelligence/Machine Learning in day to day policing, emphasising its value to the core mission of protecting vulnerable people, and making the best use of finite public resource.

Recommendation 2

Unless there are over-riding security concerns, the police should avoid using AI technology linked to proprietary data bases. Full details of AI technologies should be made available for public discourse.

Recommendation 3

Forces should appoint an Ethics Panel through which to consult about the introduction of new technologies/ tactics/techniques that may impact on public confidence. This should include plans for implementation, sustainment, and review. In respect of AI, considerations should incorporate the five major ethical concerns with algorithms, these being:

- Inconclusive evidence leading to unjustified actions.
- Inscrutable evidence leading to opacity.
- Misguided evidence leading to bias.
- Unfair outcomes leading to discrimination.
- Transformative effects leading to challenges for autonomy and informational privacy.

Recommendation 4

A separate review should be undertaken of:

- The California State algorithm to predict defendants likelihood of appearing at court
- The risk assessment process used in California to guide judges in sentencing, and establish if either has value for the UK Criminal Justice system.

Recommendation 5

Police and Crime Commissioners need to be cognisant of the risks associated with procuring technologies that have not been fully consulted upon with strategic partners and other stakeholders, and an engagement framework should be developed to mitigate risk in this area.

Recommendation 6

Engage with the International Academy of Emergency Dispatch, Medical Priority Solutions so that Kent Police could explore further the potential benefits of utilising EMD protocols.

Recommendation 7

Consider the applicability of the Focussed Deterrence approach into UK law enforcement.

Recommendation 8

Consider the applicability of the Real Time Crime Centre approach into UK law enforcement.

Recommendation 9

Consider the viability of Social Justice Groups within UK law enforcement, to act as part of a strategic Neighbourhood Policing approach.

Conclusions

Advances in robotics and AI hold the potential to reshape, fundamentally, the way we live and work. Improvements in productivity and efficiency, driven by the spread of these technologies, are widely predicted, yet there is no consensus about what this will mean for the UK law enforcement. Kent Police are at the cutting edge of developing AI solutions across a range of policing disciplines, including the assessment of crime complaints, dealing with Domestic Abuse, rape investigations, and hot spot analysis. However, these initiatives need to be developed with great care and precision, taking into account any impact on public confidence as a result of their development. If the process utilised is successful, the following benefits may accrue:

1. More efficient use of public money, by developing artificial intelligence products that have the support of the public, and are seen as essential tools for keeping the public safe.
2. Transparent and legitimate decision making that is recognised as such by those who are the recipients of the products being developed.
3. Better quality of service for vulnerable victims and those that require victim support. More efficient use of AI has the potential to focus finite resources on areas of risk, and improve service delivery.
4. Better quality investigations will accrue as a result of focussing efforts where the solvable will be solved, and critical areas requiring intervention/attention will be highlighted.

It can be strongly argued that cases that have a strong component in relation to electronic source could be reshaped in respect of investigative approach, utilising new technologies to drive delivery of benefits outlined in 1-4 above. However, just because you can do something technically, and you may do something legally, it does not follow that you should do it, from an ethical perspective. If you are satisfied of the legality of your proposal, an ethics assessment should always be undertaken in a consistent manner, utilising the best learning available in this space, in order to help you make the decision as to whether to proceed. Proportionality assessments are very challenging in this context, and when fusing data and deploying complex algorithms the level of intrusion increases. It may, for example, be appropriate to consider additional authorisations when fusing/using data, even if not legally required to do so. It would also be wise, from an ethics perspective, to consider the implications of not using the system in question. If, for example, use of the system could restrict the intrusiveness of policing, or offer enhanced data security over manual processing, or enable the more efficient and effective prevention and detection of crime, this should be taken into account as part of the balancing exercise.

The commissioning within law enforcement of any AI/ML tool requires very careful consideration, whereby the agency should always be able to describe clearly and simply the problem that they are trying to solve. If an agency approaches the exercise on the basis of 'let's see what the technology can do, and whether we need it', they are likely to be 'led by the technology' rather than their operational requirements: not only might they end up spending public money on an unnecessary solution or one which does not meet their operational needs, they will also struggle to meet legal standards of necessity and proportionality for use of the solution.

Commissioning processes should consider all possible ways of solving the problem or achieving the aim. Are there options other than 'big data'? Public bodies should work through each of the options, identifying their pros and cons including, in particular, risks and benefits to privacy and other fundamental rights. This may involve the consideration of an option which achieved most of what is required, with very little intrusion. This may be a more appropriate option than one which achieves everything desired but with substantial intrusion. A number of vendors offer 'big data' products and services and, unsurprisingly, may be keen to sell them. By having a clear problem statement, agencies can more easily benchmark vendor solutions, and avoid being tempted by products that are not needed.

The issue of disproportionate targeting was ever present amongst the police and law enforcement agencies I met whilst on my Fellowship. Having given this great consideration, it is my view that there is a fundamental statistical problem that needs to be part of the legitimacy and openness dialogue, which is, if 80% of the people in New Orleans getting killed are BAME and 90% charged with their killings are BAME and only 40% percent of the population is BAME, then is this disproportionate targeting of the population? If an algorithm is not proportionate to the victim and offender profile, then it is a flawed algorithm. The question an algorithm tries to answer in this context is who is most likely to kill someone, not who is most likely to kill someone in a disproportionate way – murders are rationally disproportionate to begin with. In 2004 a report by the National Academy of Social Sciences in the United States commented on the problem of denominators, and concluded that to call an algorithm disproportionate by targeting more BAME people in New Orleans is a misuse

of the term disproportionate. It should be proportionate to the risk of the population and not to the overall demographics in the same way that stop and search needs to be proportionate to the street population rather than the overall demographic that includes everyone. However, the evidence accrued in the Fellowship shows this to be a highly volatile area, and one requiring careful consideration and consultation, before any targeting tools are introduced.

There is a concern that social science in the United Kingdom is both too scientific and too emotional to be as useful as it should be in public policy terms. It would be to the benefit of the wider public if this matter could be addressed and ameliorated. The recommendation suggesting that each police agency create an ethical review process involving interested parties for AI/ML would be a start, knowing full well there are vast differences of opinions in this space. For this to be taken forward in a co-ordinated way, it would require leadership from the National Police Chiefs Council (NPCC). The NPCC has tried to recapture what the Association of Chief Police Officers (ACPO) did with the national leads. It would be helpful for the NPCC to create a National Lead on Evidence and for algorithms to become a sub set of Evidence. However, this is a matter beyond my influence!

The key lesson that needs to be learned from the American experience is that police leaders need to be frank about what we do and explain our reasons. Generally speaking, the majority of the public support law and order. British policing is not about furthering the cause of some power group, not about doing anything less than decent members of society would expect. Strategy theory often comments on the difference between the 'romantic' and the 'scientific' schools. The former worships tradition and relies on the well-meaning amateur to bring progress such as is allowed. It is generally anti-intellectual and given to awarding enormous unproven virtue to old fashioned sentiments e.g. 'men on the beat', 'community policing' etc. The latter is just as dangerous. It leads to a pre-occupation with minimum standards enforcing procedural uniformity which suppresses maximum potential. It leads to the one-dimensional evaluation of tactical problems i.e. crime statistics. Both nostrums are poles apart from the real need to make sometimes complex judgements on the spot. Technical advances have to be 'operationalised'. The true professional tests things out and expects adaptation, he is prepared to countenance a variety of solutions. He is not an obsessive and operates in the middle-ground. To this end artificial intelligence is a guide to the well informed mind who understands its advantages and its limitations.

The recruitment of 20,000 additional police officers nationally is a great opportunity to consider investing in an AI infrastructure which would mean the additional new recruits can be better deployed and targeted. It will be difficult to recruit all these officers in the way that has been suggested, as there are not the numbers of young people in society that want to join the British Police Service. This will be a challenge to all Police Forces, who will have to think of a different strategy. The use of AI could and should be a vital component in determining how the country should utilise the additional 20,000 officers to benefit society.

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