

## Written evidence submitted by the Science and Justice Research Interest Group, University of Northumbria (WBC0004)

The Science and Justice Research Interest Group aims to promote the understanding of the role of science in securing a 'just' society. The inter-disciplinary group brings together academics and practitioners in forensic science, law and related fields. Topics of interest include: forensic science; genetics; biometrics; technology; data & databases; surveillance; miscarriages of justice; regulation of science; bioethics; interaction of science and law; and space law. Author details are included at the end of document.

### Executive Summary

1. Both the forensic science and biometrics 'strategy' documents lacked detail, underlying principles, and indeed, any discernible 'strategy'. Adequate governance and oversight of both forensic science and biometrics, is urgent. The importance of creating a transparent and accountable regime for the use of biometrics, and forensic science, that is simultaneously legally justifiable, socially acceptable and ethically sound, has been the core message of multiple reports and publications for many years.
2. There remain serious questions over the effectiveness of the England and Wales model of forensic regulation.<sup>1</sup> Although there has been significant progress with initial aims and objectives and broad stakeholder engagement, both the Forensic Science Regulator (FSR) and Biometrics Commissioner lack meaningful powers, and significant gaps in regulation and oversight remain. Accreditation across the forensic science sector is not only inconsistent but is superficial. Both also face serious resource restrictions with debilitating limitations on their capacities, while wider austerity measures throughout the criminal justice system hamper efforts to raise standards in forensic science.
3. Both areas suffer from the lack of responsiveness of the law, with legal governance and guidance lagging behind the development of technology. Legal principles, such as proportionality, need to be properly accounted for in the necessary public and parliamentary debates around the acceptable use of biometrics and forensic technologies.

### Forensic Science Strategy

4. There remain serious questions over the effectiveness of the England and Wales model of both forensic science delivery and regulation. Inquiries have consistently identified issues related to: 1) the sustainability of the forensic science market (including the massive drop in forensic science budgets in policing and private investment across the sector); 2) procurement practices and the fragmentation of testing; 3) accreditation and auditing; 4) inconsistent regulation across the legal system; and 5) lack of statutory powers to enforce compliance.<sup>2</sup> Reviews of the Home Office forensic science strategy highlight a lack of a "coherent vision" and a clear "route-map" for forensic science.

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<sup>1</sup> For more details, see: McCartney, C and Amoako, E. (2018) 'The UK Forensic Science Regulator: A Model for Forensic Science Regulation?' 34 (4) *Georgia State University Law Review*.

<sup>2</sup> Science and Technology Committee, 'Biometrics Strategy and Forensic Services' (House of Commons 2018).

5. There have been significant challenges to the FSR in maintaining a steady hand in a turbulent marketplace, with financial pressures on both police and private providers seeing significant turmoil. There is limited detailed (public) evidence about what exactly is causing instability in the market (and perhaps its unsustainability), albeit the most obvious over-arching cause is clearly the massive decline in spending on forensic science in recent years.
6. The ongoing House of Lords Select Committee inquiry into forensic science has received a great deal of both written, and oral evidence, regarding the dire status of the forensic science market and the reasons for its demise. Procurement practices and fragmented testing of forensic evidence have been suggested as contributory factors. Other potential factors include: the financial costs of accreditation and quality assurance; high operational costs; (unfair) competition between private providers and the police ('in-house' forensics); supply and demand issues; government and institutional support; stakeholder backing, and poor industry prospects leading to lack of investment. There are also significant impediments to investment in education/ training and research in the sector.
7. To address the sustainability issue, the government needs to ensure that the 'transforming forensics' programme and/or revised strategy includes a detailed and ongoing investigation into the sustainability of the forensic science market. The findings from any reviews should inform tailored strategies for early identification of risk factors of exiting the market and interventions to support the continuity of service providers, which may need to include government or stakeholder "bailout" plans and an independent case-continuity management system.
8. Accreditation and auditing are critical aspects of assuring the robust and transparent provision of forensic services. Whilst accreditation aims to ensure that service providers conduct their work to high standards, auditing allows the detection of best practice, non-compliance, defects and limitations of quality management systems. Accreditation across the forensic science market is not only inconsistent but may be superficial. The FSR faces serious resource restrictions with debilitating limitations on the Regulator's capacities, while wider austerity measures throughout the criminal justice system hamper efforts to raise standards in forensic science.
9. Given that the FSR was created in the shadow of miscarriages of justice and concerns about the quality of forensic science provision, with the ultimate aim of regulation being the assurance that all forensic evidence is of a high quality, have standards been raised in the UK? A reliable answer would require an accurate gauge to measure standards pre- and post-creation of the FSR, which does not exist. But if one were to expect that errors, mistakes, or misconduct were now becoming consigned to history, then the FSR role in investigating complaints would be diminishing. Yet, the converse is true: increasing numbers of cases are being reported to the FSR for investigation. While it may be reassuring that at least now we are hearing of errors and that the standards regime ensures that errors are now recognized and addressed, there is still ample room for concern.
10. The persistent lack of compliance from some forensic science providers continues to be a problem, particularly in light of the government's inability to legislate both to provide the Regulator with real powers in the face of noncompliance and to put an enhanced admissibility test of scientific evidence in the courts on a statutory basis. There will only be partial achievement of regulatory goals if compliance with the regulation model is voluntary. This also creates mistrust, confusion

and resentment among those who must comply, and raises the question of whether governance is required at all, if some continue to operate outside of it without censure or sanction. Without legislative reforms therefore, the Regulator continues to be stymied in their efforts.

## Biometrics strategy

11. The biometrics sector present unique challenges that impact upon its regulation. The different types of biometrics currently in use, DNA, fingerprints and facial images, have different scientific/technical, legal and ethical complexities that make it difficult to develop a one-size-fits-all regulatory model. For example, whilst “a fingerprint ends with you. DNA extends beyond you to your past, present, and future.”<sup>3</sup> In contrast, facial images are ubiquitous and can be captured without the knowledge of the individual. Their use in policing has already become controversial. Another challenge with biometrics is their different finalities or applications. For example, the objective for DNA use is different in law enforcement (identification/elimination), civil cases (paternity testing), and immigration (familial relationship). The objective for fingerprints are also contextual – used in banking and telecommunication for authentication purposes, law enforcement for identification/elimination, and immigration for fixing identity and verification.
12. The multi- and combined purposes of biometrics clearly show that the Home Office Biometric Strategy<sup>4</sup> lacks a coherent vision and road-map for biometrics regulation. A historical analysis of the issues surrounding biometrics suggests a “best practice” approach to ensure consistency in regulation. This “best-practice” approach considers both basic legal and human rights principles as well as pragmatic considerations in the public objectives being pursued. Legislation currently governs the taking, retention, and use of fingerprints and DNA by the police. The legal framework, however, is predominantly concerned about the use of these biometrics in law enforcement and legislation for facial images and other biometrics are presently lacking. Yet the police and other public sector agencies (alongside many private sector organisations) are now extending their data collections to include facial images, voice imprints, and CCTV (to enable other techniques such as gait analysis) for example. The use of these, and other technologies that use biometric data, must be clearly governed and their use transparent, legally justified, socially acceptable and ethically sound.
13. The Biometrics Commissioner plays a crucial role in ensuring that the retention and use of biometrics is proportionate and necessary. However, there is a level of overlap between the functions of the Commissioner and the NDNAD Strategy Board and Biometrics and Forensics Ethics Group. This duplication of roles is unnecessary and, the semi-independent Strategy Board/Ethics Group could assume the functions of the Commissioner. However, an independent oversight board may be a more comprehensive governance arrangement for biometrics. Any governance structure must obviously be properly resourced, and given sufficient powers to enable them to undertake their duties assiduously. The Biometrics Commissioner, just like the Forensic Regulator, is hamstrung by lack of resources and lack of powers/ facility to undertake further research, or commission further work as deemed necessary. Albeit both Commissioners and Regulators in the role have undertaken a lot of important work and produced a series of insightful reports.

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<sup>3</sup> Megan Molteni, ‘Should Cops Use Family Tree Forensics? Maryland Isn’t So Sure’ [2019] *Wired* <<https://www.wired.com/story/maryland-considers-banning-genetic-genealogy-forensics/>> accessed 8 March 2019.

<sup>4</sup> Home Office, ‘Biometrics Strategy’ (Home Office 2018).

14. Legislation is slow and reactive, as shown by the example of the DNA database. Practitioners can be focused upon the possibilities of new technology and do not turn their mind to the law, regulation and governance. Laws regulating such technologies need to be well written, in advance of the development and deployment of technologies, with supplementary guidance and codes of practice that are accessible for practitioners/ operators of systems. Precision of the law will sometimes preclude flexibility to cover possible future uses, so a key question becomes how the law is drafted, and subsequently policed. Are there real penalties for breaching codes of practice? Oversight is needed, but the success of the approach depends on the resources and powers that Commissioners have, such as whether they have the power to take action? There are also problems of jurisdiction. For example, will private and public sectors be governed by the same framework? Will the framework only include the UK? Europe-wide? What about biometrics collected on entry to the US?

### Effectiveness and ‘best practice’

15. Given that it is essential that all forensic evidence is reliable and valid—whether used at trial, during an investigation, or held as intelligence by law enforcement agencies—there must be systems in place to ensure the quality of forensic evidence from the very outset of the criminal process, until the very end. This requires regulation and oversight of forensic science from the crime scene to the courtroom; quality assurance standards for the education, training, and operation of forensic scientists; and the quality assurance and accreditation of scientists’ working environments and practices. Yet, there is clearly a need for more attention to the delivery of forensic services, practitioner training, standard setting, monitoring, and implementation across the entire sector. Further, research is required to determine error rates and limitations of particular techniques and to develop effective institutional responses to risks of observer bias and human error.

16. Identifying ‘best practice’ (‘procedures that are accepted or prescribed as being correct or most effective’) to enshrine in legislation, and any Code of Practice/ regulatory standards, is beset by difficulties. What is ‘best practice’ can be transitory, contentious, and legally and culturally specific. Most obviously, measurements of ‘effectiveness’ which ought to underlie such ‘best practices’ are notoriously absent (in both biometrics and forensic science), as well as mature and sophisticated (correct?) answers to legal and ethical questions. Yet in addition to such vital legal, ethical and proportionality considerations, the processing and retention of biometrics must be effective in achieving its aims. While a Code of Practice or regulatory standards may address these issues, ordinarily there is no specific guidance or recommendations on how effectiveness will be measured or demonstrated. Given the paucity of information currently available on the effectiveness of many forensic and biometric technologies, and the critical role that the question of effectiveness plays in equations of ‘balance’, it is vital for there to be greater detail on the public ‘goods’ that are to be achieved, and how these will be measured (by whom, how, and when) as well as a requirement that data and research is undertaken publicly and transparently.

## Principles and proportionality

17. The use of biometrics ought to provoke debate around vital issues such as liberty, autonomy, privacy, informed consent and equality. Stating that biometrics use will be guided by the principle of proportionality (as the biometrics strategy claims) raises a question rather than providing an answer. Who has decided the use of biometrics is proportionate? In what circumstances? By whom? To what end? What are the criteria being used in the calculations as to whether it is proportionate? Stating that something will be done with regard to proportionality is the start of an investigation. It must be determined what criteria we are going to build into legal framework. For this you need a broad-ranging, multi-disciplinary and sophisticated discussion with all stakeholders, before any determinations can be made about proportionality.
18. ‘Proportionality’ or ‘balance’ requires calibrating ‘effectiveness’ (the public ‘good’ achieved) against any negative consequences (e.g. loss of privacy) but this calculation is notoriously complex and may not be conceptually helpful (i.e. the ‘loss’ of privacy is assumed to be a cost worth paying for an increase in security, but a loss of privacy may *increase* insecurity for example). The highest courts themselves struggle with proportionality: “recent judgements from the Supreme Court demonstrates that the application of proportionality and proportionality’s precise contours are as muddled as ever, with numerous conceptions of proportionality being applied contemporaneously.”<sup>5</sup> Calculations require values, and it is not clear what ‘values’ the government is planning to use in their calculations when determining whether a biometric technology/ application is ‘proportionate’.
19. In Scotland, the recent 2018 report by the Independent Advisory Group on the Use of Biometric Data, called for the development of biometrics to be undertaken in a “principled manner which gives appropriate weight to considerations of public protection and security on the one hand, and privacy and other relevant human rights and ethical considerations on the other”. Biometrics can undoubtedly enhance crime control efforts, and technologies will continue to proliferate and their use intensify, but such developments cannot take place in a policy void. Such policy must be underpinned by considered debate, incorporating these vital concerns.
20. There should be a clear requirement that ‘public acceptability’ is borne in mind at all times. Whilst the respecting of these principles should assure the acceptable use etc. of biometrics, it is important that drafters of any standards/ Code of Practice try as far as possible to ensure that these principles will indeed secure a governance structure that accords with public views on biometrics. This will be an ongoing process if governance is to remain ‘flexible’ and retain comprehensive applicability. If the public lose trust in biometrics (or forensic science) and their use etc., it will be very difficult to regain or retain credibility. If the governance does not have public support, then the enthusiasm for adhering to the ‘rules’ will quickly wane. The path of the UK National DNA Database being a lesson in point in what can happen when public support is lost.<sup>6</sup>

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<sup>5</sup> Ramshaw, A. ‘The case for replicable structured full proportionality analysis in all cases concerning fundamental rights’ (2019), *Legal Studies*, 39(1), p.121.

<sup>6</sup> See: Amankwaa, A & McCartney, C. ‘The UK National DNA Database: Implementation of the Protection of Freedoms Act 2012’ with (2018) 284, *Forensic Science International*, 117-128, and McCartney, C. ‘Of Weighty Reasons and Indiscriminate Blankets: The Retention of DNA for Forensic Purposes.’ (2012) 51 (3) *Howard Journal of Criminal Justice* 245–260.

## Epistemology: research, education and training

21. Perhaps understandably, given the rapid evolution of digital technology, the ‘knowledge culture’ of forensic biometrics and digital forensics remains partial, piecemeal and fragmented. There is a scope for cross-sectoral collaboration between police and public security organisations, the private sector and the Universities to advance the knowledge base and tools to fill this epistemological gap, and support relevant education and training.
22. The problem of the government audit of research in Universities—the Research Excellence Framework or ‘REF’—not accommodating forensic science to the extent that it does other scientific subjects leads to a disincentive for Universities to invest specifically in this area, as the REF return on forensic science is difficult to quantify and at best indirect as things presently stand.<sup>7</sup> As stated, the raising of standards in forensic science requires investment across the sector, including in training and education and ensuring investment in research as well as cross-disciplinary work to enhance communication across the disciplines and professions.

## Conclusions

23. Although there has been significant progress with initial aims and objectives and broad stakeholder engagement, the Forensic Science Regulator still lacks meaningful powers, and significant gaps in regulation remain. The FSR is ultimately hampered by lack of enforcement powers. This has also permitted providers—most obviously the police—the ability to dictate the pace of adoption of quality standards. Accreditation remains an additional but optional “cost,” with some providers—including the police—avoiding the stringent quality measures required for accreditation. What is urgently required is a clear understanding of what is causing the instability in the forensic science market and steps taken to stabilise it, as well as measures put in place to evaluate the effectiveness of forensic science, at the same time as ensuring it is always robust and reliable. This requires far more investment, effective oversight and regulation, as well as the mitigation of risks (including that of market failure).
24. It is clear, that biometric technologies are here to stay as they are hugely powerful and versatile, and there are a myriad of uses for industry and government when well designed and deployed within an appropriate regulatory environment. What is now crucial is that the appropriate regulatory environment can be created, and be effective, quickly. Will require attention paid to whether ‘overlaps’ with other governance mechanisms, to avoid discrepancies and/or over-regulation.
25. To ensure that trust is maintained across forensic science/ biometrics, there needs to be urgent debate to ensure that all technology (in use and under development) and its application(s) are both necessary and proportionate. This requires a sophisticated discussion involving multiple stakeholders from many disciplines. Measures need to be in place to prevent function creep. Debate and progress must be transparent (which programmes of reform have not been to date), open to scrutiny and oversight. Governance must be effective (hence evaluated), and visible. The

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<sup>7</sup> Evison, M.P. (2018) Forensic science policy and the question of governmental University research quality assessment. *Forensic Science International*, **290**, 279-296. doi:10.1016/j.forsciint.2018.07.028. <https://www.sciencedirect.com/science/article/pii/S0379073818304390>

law and legal regulation must be a part of all discussions from the very outset. Leaving regulation until after the event is too late.

The authors are all academics working within the Science and Justice RIG, Northumbria University:

\*Professor Carole McCartney (Corresponding Author).

Professor Martin Evison.

Emmanuel Amoako, Phd Candidate (Forensic Regulation)

Aaron Amankwaa, PhD Candidate (NDNAD Effectiveness)

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