Institution: University of Northumbria at Newcastle		
Unit of Assessment: 18 (Law)		
Title of case study: Enhancing the regulatory framework for biometrics in Scotland, guiding policy discussions in the UK and New Zealand, and building capacity at the UK National Crime Agency		
Period when the underpinning research was undertaken: September 2013 – 2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	**Role(s) (e.g. job title):**	**Period(s) employed by submitting HEI:**
Carole McCartney	Professor	September 2013 – present
Period when the claimed impact occurred: May 2017 – October 2020		
Is this case study continued from a case study submitted in 2014? N		

1. Summary of the impact (indicative maximum 100 words)

Public bodies face increasing scrutiny over their use of biometric data. The challenge is to develop robust protocols that protect privacy and human rights simultaneously, while retaining sufficient flexibility to encourage innovation and effective utilisation of biometric data to achieve criminal justice aims. Research undertaken by Northumbria University Law School introduced the 'three pillars' approach for safeguarding the integrity of state biometric management. This approach guided the development of a regulatory framework in Scotland including the principles set down in the Scottish Biometrics Commissioner Act 2020. The research also prompted revisions to the powers of the UK Biometrics Commissioner, and informed key policy discussions at Westminster regarding new UK-wide biometric regulation. Furthermore, this research stimulated the creation of an innovative knowledge exchange programme between Northumbria University and the UK National Crime Agency that changed operational practice to ensure the ethical use of biometrics. The research has also shaped recommendations made by the New Zealand Law Commission on oversight procedures and ethical use of forensic DNA.

2. Underpinning research (indicative maximum 500 words)

The collection, retention, and use of biometric data by public bodies, (e.g., facial images and DNA) raises social, ethical, and legal issues. Privacy and human rights must be protected, while protocols must be flexible enough to encourage innovation and effective utilisation of biometric data to achieve criminal justice aims. Furthermore, forensic scientists and law enforcement agents need the tools and professional judgement necessary for the legitimate and acceptable use of biometric technologies [**R1**]. In the absence of such protocols and tools, Professor Carole McCartney's research developed a principled framework for ensuring the 'integrity' of forensic evidence.

McCartney founded the *Science and Justice Research Interest Group* (SJRIG) in 2018, building upon Northumbria University Law School's expertise in forensics, expert evidence, and regulation. The SJRIG promotes the understanding of the role of science in securing a 'just' society, bringing together academics and practitioners in forensic science, law, and related fields to drive interaction between original research and policy. Through SJRIG and working closely with her PhD students Emmanuel Nsiah Amoako and Aaron Amankwaa (now Senior Lecturer in Forensic Sciences at Northumbria), McCartney developed and applied her research to develop a regulatory framework for biometric data in the UK [**R2**-**R6**].

McCartney's research into forensic regulation established three core principles to ensure 'integrity'. *Viability*, the first principle, requires audit procedures assessing the use of forensic data for accuracy, reliability, and credibility. The second principle, *legitimacy*, requires authoritative and legally binding instruments and bodies that can oversee legal processes and

guarantees, and prevent unlawful storage, exchange, or further manipulation of data. *Acceptability*, principle three, involves securing trust and confidence through public access and independent oversight. These 'three pillars' of viability, legitimacy, and acceptability uphold a comprehensive regulatory structure, capable of responding to issues and concerns about rapidly developing technologies ethically and effectively [**R2**].

Examining existing regulation, [**R1**] highlighted that, ten years since it was established, the UK Forensic Science Regulator (UKSFR) had failed to achieve its main objective to demonstrate a meaningful depreciation in the risk of wrongful convictions. McCartney applied the UKFSR's own publicly-stated principles and objectives to evaluate their achievements in accreditation, oversight, and the use of forensic data [**R2**]. Her research demonstrated the impotence of, and significant gaps in regulation left by, the UKFSR [**R2**]. [**R3**] systematically analysed implementation reports by the three principal biometrics oversight bodies in the UK from 2013 – 2016. These reports confirmed that genetic privacy protections had improved since the enactment of the Protection of Freedoms Act 2012, and the UK National DNA Database was more efficacious, with fewer unnecessarily or illegally retained DNA profiles [**R3**]. However, McCartney's analysis of the reports, in addition to further quantitative research which assessed the effectiveness of the DNA database, revealed gaps between the law and implementation, particularly in respect of the DNA database as a 'deterrent' and in the safeguards securing individual privacy rights [**R3**, **R4**].

A concomitant pressing concern for McCartney and Amankwaa was the failure of relevant public bodies to generate meaningful data by which to evaluate and justify the value of forensic biometric retention in terms of public safety or safeguarding civil liberties [**R4**]. This data vacuum compounds ethical concerns about the use and storage of DNA and biometrics that oversight bodies were ill-equipped to address [**R3**-**R5**]. McCartney directly addressed these issues [**R5**] in her three principles approach for biometric regulation.

3. References to the research (indicative maximum of six references)

R1. **Carole McCartney** and *Emmanuel Nsiah Amoako (**2018**) 'The UK Forensic Science Regulator: A Model for Forensic Science Regulation?' *Georgia State University Law Review* **34** (4): 945-982 https://readingroom.law.gsu.edu/gsulr/vol34/iss4/3

R2. **Carole McCartney** (**2015**) 'Forensic Data Exchange: Ensuring Integrity' *Australian Journal of Forensic Science* **47** (1): 36-49 https://doi.org/10.1080/00450618.2014.906654

R3. *Aaron Amankwaa and **Carole McCartney** (**2018**) 'The UK National DNA Database: Implementation of the Protection of Freedoms Act 2012' *Forensic Science International* **284**: 117-128 https://doi.org/10.1016/j.forsciint.2017.12.041

R4. *Aaron Amankwaa and **Carole McCartney** (**2019**) 'The Effectiveness of the UK National DNA Database' *Forensic Science International: Synergy* **1**: 45-55 https://doi.org/10.1016/j.fsisyn.2019.03.004

R5. Carole McCartney 'Trust and the International Exchange of Forensic Information' in Hufnagel and McCartney (eds), *Trust in International Police and Justice Cooperation* (Oxford: Hart Publishing, **2017**) ISBN 9781509911301 Available on request

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4. Details of the impact (indicative maximum 750 words)

McCartney's research addressing state capture, retention, and use of biometric data has embedded legal and ethical principles protecting human rights at the heart of regulatory

frameworks in Scotland and the broader UK jurisdictions. McCartney's research has been utilised by the Independent Advisory Group on the Use of Biometric Data in Scotland (IAG), the UK Biometrics Commissioner, the UK National Crime Agency (NCA), the Scottish and UK Parliaments, and the New Zealand Law Commission. This led to changes to the Scottish Biometrics Commissioner Act 2020 (hereafter, Scottish Act), revisions to the Biometrics Commissioner role in the UK, the UK National Crime Agency updating their practices, and informed the New Zealand Law Commission's proposed new legislation on forensic DNA.

4.1 Directly shaping the Scottish Biometrics Commissioner Act 2020

In May 2017, John Scott QC was asked by the Scottish Ministry of Justice to chair the newly established IAG, to consider human rights and ethical considerations of how biometric data is captured, used, stored, and disposed of and advise on the right legislative framework, governance, and oversight for biometric data and whether a code of practice was needed. John Scott QC described McCartney's role as '*instrumental in shaping the purpose and duties of the Office of the Biometrics Commissioner*' [**E1**]. McCartney's influence on the IAG's final report, was distinguished with a specific mention by the Chair, with her expertise on ethical issues and forensic bioinformation feeding directly into their policy recommendations [**E2**, p5]. These included proposals to create a Biometrics Commissioner for Scotland and writing a statutory Code of Practice for the acquisition, retention, use and disposal of forensic biometric data in Scotland [**E2**, p13-14]. These were both accomplished in the Scottish Act, enacted 20th April 2020 [**E3**, see schedule 1 and sections 7-15].

McCartney and Amankwaa's written submission in October 2018 to the Justice Committee reviewed the draft Scottish Act. Their primary recommendation, which was ultimately taken onboard, articulated the need for, and provided the structure of, the Office of the Biometric Commissioner [**E4**], and advocated for the incorporation in the final Act of a new advisory group to support the Commissioner [**E3**, section 33]. Beyond these structural amendments [**E1**], McCartney guided the values at the heart of the Scottish Act. In the Explanatory Documents to the Scottish Act, McCartney's three pillars are at the core of the Code of Practice and its principles of '*lawful, effective, and ethical*' [**E5**, para5]. Scott directly links McCartney's research with these principles in the Scottish Act, saying the '*use of the terms 'lawful, effective, and ethical' drew directly from our work with Professor McCartney and these terms feature prominently in her research*' [**E1**].

4.2 Impacts on policy discussions on UK biometric regulation in UK Parliament with GeneWatch UK

McCartney contributed to policy discussions on the development of the UK biometrics regulation with GeneWatch UK, a not-for-profit policy, research, and public interest group overseeing developing genetic technologies. Dr Helen Wallace, Executive Director of GeneWatch UK, stated '*Professor McCartney's work stands out as of key importance in the field of forensic regulation*' and praised the '*contribution she has made to the role of legal principles as fundamental to providing a flexible framework capable of adapting to the fast pace of technological development*' which is '*reflected in our internal policies and strategies*' [**E6**].

McCartney also worked directly with the UK Parliament and Home Office, when invited to speak at, amongst other policy fora, a parliamentary briefing on biometrics and at the Home Office 'Identity' unit. McCartney contributed to the Biometrics POSTnote (June 2018) used to inform MPs [**E7**] and was invited to join the UK Government Biometrics Working Group, addressing the group in May 2019. In Summer 2019, the UK Parliament announced plans for a new UK-wide regulatory framework based on the Scottish model that McCartney's research guided [**E8**, para28 and para6 of Conclusions section]. The UK Commissioner for the Retention and Use of Biometric Material, in his Annual Report, presented to UK Parliament July 2020, affirmed the role of the Scottish Act in guiding a future UK-wide regulatory model, stating that: '*Scotland's answer … is to create legislation based on principles and then have a Scottish Biometrics Commissioner draw up an evolving Code of Practice for the use of biometrics based on those principles*' [**E9**, para82]. The UK Commissioner recommended to Parliament that '*[n]ew legislation will be needed*' [**E9**, pii] and confirmed that '*[w]here Scotland is a model for all, is in the kind of*

questions that they have sought to address' [**E9**, para82]. These developments demonstrate how McCartney's work was central to informing the development of the UK's biometric regulatory framework both through the Scottish Act and direct engagement with parliamentary bodies.

4.3 Impacts on capacity and the use of biometric data in crime prevention at the NCA

McCartney's research has also been central to UK Home Office efforts to meet the challenges posed by biometric collection, use, and retention. The Head of Emerging Biometrics, Ian Daft, at the National Crime Agency (NCA) invited McCartney to lead a practice-focused consultancy with both his staff and other key criminal justice departmental heads in November 2019. The NCA is the lead agency tackling organised crime, including human-, weapon- and drug-trafficking; cybercrime; and economic crime. The NCA works closely with regional forces and national and international law enforcement agencies such as Interpol and Europol. Daft stated that *'due to engaging with your [i.e., McCartney's] work the agency has increased capacity to meet these future challenges*' [**E10**]. Daft went on to state that this '*first training of its kind*' marks a clear change in policy and priority for the NCA, and '*[o]ur operational strategy will adopt the flexible, responsive, and non-prescriptive practices your work identifies as being best suited to meet the challenges that the use of biometrics in crime prevention and detection face. Adopting this as a priority is an immediate change we can make in our working practices*' [**E10**].

4.4 Shaping New Zealand Law Commission proposals for new legislation on DNA use in criminal investigations

Between 2018 and 2020 McCartney and Amankwaa worked closely with the New Zealand Law Commission to advise and provide research-informed guidance on specific areas of forensic and biometrics policy, including the use of DNA databanks. In 2020 McCartney and Amankwaa submitted written evidence and were invited to meet Commissioners separately (via Skype), to guide the Commission's considerations when updating their 1995 law on the use of DNA in criminal investigations. The Law Commissioner described McCartney and Amankwaa's contribution throughout this process as '*extremely helpful… particularly in the areas of the purpose and principles of new legislation and how to measure effectiveness'* [**E11**]. The Commissioner went on to reflect that, McCartney and Amankwaa's work, '*helped clarify our thinking as we wrote our final Report in which we also drew on various of your papers*' [**E11**]. The Law Commission published a comprehensive report in October 2020 proposing new legislation governing the use of DNA in criminal investigations. This report cited McCartney and Amankwaa's evidence 24 times and their views were reflected in a number of their recommendations shaping the scope of the new legislation and powers contained therein. For example, McCartney and Amankwaa are directly cited to justify the Law Commission's proposals to limit the retention of DNA profiles from adult offenders [**E12**, p475, para20.46]. Moreover, the report cited McCartney and Amankwaa's assertions that powers to search for familial matches in the national DNA databases should be severely restricted to account for '*ethical implications and [to] ensure the privacy and confidentiality of individuals, families, and social groups*' [**E12**, p530, para23.38]. This proposition among others, was adopted by the Law Commission, which recommended further restrictions upon, and safeguards instituted prior to, the authorisation of a '*familial search*' [**E12**, p531-532, R183-R185]. McCartney's recommendation that oversight procedures for the use of DNA in criminal investigations include regular audits and annual reports to Parliament [**E12**, p118-119, para5.52] was also adopted [**E12**, p128, R18-R21].

5. Sources to corroborate the impact (indicative maximum of 10 references)

Ref.	Source of corroboration	Link to claimed impact
E1	Testimonial - John Scott QC, Chair of the Independent Advisory Group on the Use of Biometric Data in Scotland (IAG) and author of E1 report	Describing McCartney's role in guiding the work of the IAG and highlighting the importance of her 'three pillars' approach in the work of the IAG and the resulting Act

E2	Independent Advisory Group on the Use of Biometric Data in Scotland Report, March 2018	McCartney directly acknowledged by Chair as a key influence in discussions guiding the report and its final content
E3	Scottish Biometrics Commissioner Act 2020	The Act resulting from the IAG report
E4	Justice Committee – Scottish Biometrics Commissioner Act Submission from Professor Carole McCartney and Aaron Amankwaa, Northumbria University	Written evidence from McCartney and Amankwaa that led to revisions to the Act adding an advisory board (**E3**, section 33)
E5	Scottish Biometrics Commissioner Act explanatory notes, 30th May 2019	Document explaining the thinking behind the Scottish Act and showing the influence of McCartney's 'three pillars' approach in shaping the Act
E6	Testimonial - Helen Wallace, Executive Director of GeneWatch UK	Importance of McCartney's work on shaping the understanding and policy discussions and approach of significant third sector biometrics group
E7	UK POST note No.578, June 2018	Parliamentary document designed to explain biometrics to policymakers to which McCartney contributed
E8	House of Commons Science and Technology Committee – The work of the Biometrics Commissioner and the Forensic Science Regulator. Nineteenth Report of Session 2017–19 HC1970, 18th July 2019	Parliamentary Committee record confirming the role of the Scottish Act in guiding the development of understanding and awareness in policymakers discussing the developing UK biometrics regulatory framework
E9	Commissioner for the Retention and Use of Biometric Material, Paul Wiles – Office of the Biometrics Commissioner – Annual Report 2019, presented to Parliament July 2020	UK's most senior public biometrics authority describing the importance of the guiding principles in the Scottish Act in informing the developing UK biometrics regulatory framework
E10	Testimonial - Ian Daft, Emerging Biometrics, Intelligence Collection – National Crime Agency (NCA)	McCartney's role in the creation of first-of-its-kind knowledge transfer programme at the NCA, increasing capacity for meeting future biometric challenges and guiding subsequent practices of those attending
E11	Email from Donna Buckingham, New Zealand Law Commissioner	McCartney's role in guiding policies and new legislation governing the use of DNA in criminal investigations
E12	New Zealand Law Commission Report 144: The Use of DNA in Criminal Investigations, October 2020	McCartney's role in proposing new legislation governing the use of DNA in criminal investigations