



SCOTTISH BIOMETRICS COMMISSIONER

From World's End - to World Leading: Biometrics within the National Policing Model for Scotland



Safeguarding our biometric future

A personal reflection from the Scottish Biometrics Commissioner on how biometric technologies have transformed policing and criminal justice in Scotland.

The Pre-digital age: A Personal Reflection

Biometric data such as **fingerprints** and **photographs** have been used in policing and criminal justice in Scotland as a means of verification, identification, and exclusion for more than 100 years.

In April 2021, I was appointed by Her Majesty the Queen on the nomination of the Scottish Parliament as the first Scottish Biometrics Commissioner. My own career as a police officer in Scotland, and my personal biometric journey had commenced 43 years earlier in Edinburgh, Scotland. Back in 1978, the police had only the most basic of technologies and it would be another 5 years before the launch of Microsoft Word. Fingerprints of persons arrested were taken manually with ink, and photographs were taken on the 'latest' Kodak camera complete with spool and reel. **DNA** profiling had not yet been established for criminal investigations, and there were no automated biometric databases.

Police forensics were similarly constrained requiring a blood stain the size of large coin to simply identify a blood type.¹ With limited science and technology, the pre-digital age of policing was beset with unsolved high-profile crimes. In 1978 Edinburgh, this included the 'World's End Murders' a colloquial name given to the murder of two girls Christine Eadie and Helen Scott, both aged 17 years, who were last seen alive after leaving The World's End pub in Edinburgh's Old Town in October 1977.

The Digital era

Since the late 1980s, the advent of the forensic technique of DNA profiling has transformed the investigation of crime. It is used daily in the investigation of a wide range of offences to identify offenders from minuscule amounts of body fluids and tissues. In sexual offences, DNA profiling can untangle complex mixtures of body fluids, typically found in such cases, to provide evidence that was previously unavailable. Through the introduction of DNA24, Scottish Police Authority Forensic Services now provides Police Scotland with one of the most advanced DNA interpretation capabilities in world policing. The digital era also witnesses the introduction of automated fingerprint capture and recognition systems, automated facial search capability, and the introduction of ISO standards for forensic laboratory work and the independent accreditation and validation of the underpinning scientific techniques.

DNA Time Capsules

In 2014, one year after the creation of a single national police service for Scotland (Police Scotland) and a single forensic services provider (Scottish Police Authority Forensic Services) advances in DNA technology contributed directly to the conviction of Angus Sinclair for the 1977 'World's End Murders' concluding a 37-year long police investigation. Sinclair (now deceased) was given the longest sentence ever handed down by a Scottish Court.

Similarly, in May 2021 the mystery of the 1984 murder of Mary McLaughlin in Glasgow was solved after forensic experts extracted 35-year-old biological material from inside the knot of a ligature used on the victim.² Using Scotland's world leading DNA24, forensic scientists profiled 24 genomic sequence markers (the UK and Interpol policing standard is 17 DNA markers) establishing a DNA profile match against convicted sex offender Graham McGill. These cases, demonstrate just how far forensics and biometrics have advanced in the last two decades and how forensic techniques and biometric technologies have contributed positively to society. Such technologies do not of course establish innocence or guilt, but they do assist human investigators in ways which are often unquantifiable. Biometrics help fix identity, and will continue to enhance incriminatory, exculpatory, and deterrence value in the future. By illuminating 'DNA Time Capsules' in cold case reviews, they also provide redress to the families of victims from earlier decades who had long given up any hope of justice.

¹ Forensics stop people getting away with murder, BBC, 13 August 2021: <https://www.bbc.com/news/uk-scotland-58188079>

² Mary McLaughlin Murder: Killer jailed after DNA solves 35-year mystery, BBC, 18 May 2021: <https://www.bbc.com/news/uk-scotland-glasgow-west-56505250>

Our Biometric Future

More recently there has been an exponential growth in a range of new biometrics in law enforcement, perhaps most controversially the use of public space facial recognition surveillance by the police in other jurisdictions. There has also been a proliferation of databases operating and exchanging biometric data over different legal and functional jurisdictions, including the application of artificial intelligence to those databases to develop algorithms for biometric matching.

Such issues raise important questions for society, including how best to balance our need for public safety and security, with broader privacy, ethical, human-rights, and equalities considerations.

In 2020, The Biometrics Institute devised the '*Three Laws of Biometrics*' to prompt its members to remember the fundamentals of using biometric technology responsibly and ethically:

1. **Policy – comes first:** Any use of biometrics is proportionate, with basic human rights, ethics, and privacy at its heart.
2. **Process – follows policy:** Safeguards are in place to ensure decisions are rigorously reviewed, operations are fair, and operators are accountable.
3. **Technology – guided by policy and process:** Know your algorithm, biometric system, data quality and operating environment and mitigate vulnerabilities, limitations, and risks.

In Scotland, the policy first approach has witnessed the creation of a single national police service, a single national forensic services provider, significant investment in advanced biometric technology, and the appointment of an independent Scottish Biometrics Commissioner answerable to the Scottish Parliament. Reflecting on the title of this article 'From Worlds End - to World Leading' I would posit that the approach to biometrics delivery and oversight for policing and criminal justice purposes in Scotland safeguards our biometric future by following the 'Three Laws of Biometrics' advocated by the Biometrics Institute. In jurisdictions where the use of biometric technologies has proved more controversial, these rules have sometimes been overlooked, and technology has not been adequately guided by policy and process.³

'New technology is not good or evil in and of itself. It's all about how people choose to use it'

(David Wong, podcast geeks guide to the galaxy, science-fiction podcast, episode 171. October 2015).



Dr Brian Plastow

Scottish Biometrics Commissioner

³ UK Court of Appeal, Case No C1/2019/2670, 11 August 2020 in review of case of Bridges vs Chief Constable of South Wales Police: <https://www.judiciary.uk/wp-content/uploads/2020/08/R-Bridges-v-CC-South-Wales-ors-Judgment.pdf>