Scottish Police Authority – Written evidence (FRS0084)

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1. Is forensic science contributing to the delivery of justice in the UK?

Absolutely. Forensic science is pivotal in the delivery of justice throughout the entire process. This includes confirmation of identity, detection and elimination of potential suspects, detection of crime, supporting the prosecution and defence to deliver strong judicial outcomes and to minimise the risk of miscarriages of justice. Forensic scientists deliver independent, impartial and expert scientific evidence to the court to support the jury in reaching appropriate verdicts to ultimately deliver justice within that criminal justice process.

The value that forensic science brings is different to the various stakeholders that use it within the criminal justice process. It is incredibly difficult to evaluate the specific contribution of forensic science as it is one of many investigative tools in use by the police, or types of evidence provided to the court. How effectively science contributes across the whole process is dependent on providing the expert with all of the information and analysis they need to address an activity question i.e. did the suspect kick the victim, rather than considering it at the lowest level such as using a single evidence type to identify contact between a shoe and surface. When considering the scientific support for activity this is where the most value can be added, ultimately to support the court in delivering justice.

2. What are the current strengths and weaknesses of forensic science in support of justice?

Within the Scottish Police Authority, Forensic Services (“Forensic Services, SPA”) the Scottish model for the delivery of forensic science is ‘Crime Scene to Court’. Science starts at the scene and these standards need to be set through the entire end to end process, this provides the greatest opportunity to support the delivery of justice. This approach supports the overview that the scientist has of all potential evidence types in the case, allowing a comprehensive forensic strategy to be set, in partnership with the police investigative team in serious crime. There is still further work ongoing within the Forensic Services, SPA 2026 strategy to deliver enhanced outcomes by developing more strategic roles for expert forensic scientists that can report across multiple disciplines.

The model in England and Wales, as a result of commercialisation of the forensic marketplace and the structure of procurement frameworks, drives a commodity approach to the delivery of forensic science. This breaks cases into constituent parts or lots rather than viewing the case as a whole, where short sharp, cheaper outcomes can be provided. The improved timeliness that is delivered does add value within the process, however the consequence of this approach is that this does not consider the ultimate value that is added within the court. The value of a scientist having the oversight to be able to address activities that may have happened at a crime scene must not be underestimated. Commoditisation
delivers benefits in terms of saving money and timeliness however it is hugely detrimental to the value that forensic sciences offers the ultimate customer, the court.

Understanding and use of Forensic Science in the Criminal Justice System

3. What is the scientific evidence base for the use of forensic techniques in the investigation and prosecution of crimes? Are there any gaps in that evidence base?

The majority of traditional forensic evidence types are grounded in evidence and validated to international standards and well tested by the court process over many years. Saying that, some techniques require investment in gathering evidence to support the determination of one scenario over another, i.e. the expert opinion that the scientist presents in their evidence to the court. Where techniques are developing, such as DNA, the sensitivity and ability to interpret more complex evidence, the evidence base around issues such as accidental transfer, and risks of contamination need to be fully researched to provide a robust evidence base to deal with scenarios presented by both the prosecution and defence in the court.

In Scotland the full range of forensic evidence types is available to support Police Scotland, COPFS and PIRC under one roof, this provides a robust model for investment and continuous development of forensic techniques to ensure they are available when needed to the criminal justice process. The fragmentation of the market, and market pressures in England and Wales has resulted in some techniques no longer being available (particularly those that require significant time such as fibre examinations) as they are expensive to deliver and the customer is not prepared to meet these costs.

4. How can the Criminal Justice System be equipped with robust, accurate and transparent forensic science? What channels of communication are needed between scientists, lawyers and the judiciary?

An overarching strategy with a clear long term vision and associated outcomes is critical. This has to consider the requirements of all stakeholders and be clearly based in delivering the best level of value to the court. The challenge in England and Wales is that the commissioning of tests or analysis is undertaken primarily by the police and cost pressures significantly impact on what testing is requested. Screening activities undertaken within Police Laboratories often define the forensic work requested based on the investigative strategy, this therefore impacts on the future utilisation of the science in the court, this certainly impacts on the value that could be provided by the expert in the court.

Opinions and interpretations require a clear evidence base and validation to support the strength of evidence that can be provided in the court. This needs to meet the requirements of international standards and assessed by an independent accrediting body. In the UK, the United Kingdom Accreditation Service provides accreditation for forensic testing bodies to the relevant
international standards ISO17025 and ISO17020. Having forensic science accredited provides all stakeholders in the justice system with assurance on the technical and managerial standards in place in forensic providers, be that delivered in policing or in forensic science providers.

In Scotland there is clear tripartite governance of the services provided by Forensic Services, SPA, this includes the science, COPFS and Police with oversight and scrutiny provided by the Scottish Police Authority Board. This provides excellent opportunities to discuss emerging issues and to ensure that communication between partners is facilitated appropriately. The links with the judiciary are less defined.

5. What is the level of understanding of forensic science within the Criminal Justice System amongst lawyers, judges and juries? How can it be improved?

Within Scotland there is a good level of understanding of forensic science within Policing and COPFS with links into Forensic Services, SPA as techniques develop to provide briefing material and training. There is engagement with judges for ongoing professional development and briefings have been provided to support understanding of new science by judges.

With regards to juries, their understanding is primarily shaped by the media and television, it is unrealistic and not based in anyway in reality – this is often termed the ‘CSI effect’. The reality of forensic science is far away from these expectations. Forensic science evidence is often complex and the reporting process constrained by court procedure and legislation. Further work should be undertaken on how forensic science is communicated to juries, using new technologies and multi-media to ensure it is presented in a meaningful and understandable way to the jury. It would also be valuable to undertake some research on jury opinion of forensic evidence that has been presented to them.

6. Is the current training available for practitioners, lawyers and the judiciary appropriate?

There is over-reliance on initial training provided to Police Officers and Lawyers. For Police Officers this can be a minimum input into a probationer training programme in amongst a concentrated period of learning, this can lead to it being fairly superficial. Greater focus on forensic science within continuous professional development programmes for Police Officers, Lawyers and Judges would be welcome, with clear consistent information being provided to support understanding of various forensic techniques to maximise the value of the forensic evidence but also understand limitations.

The training of practitioners of forensic science is robust, usually accredited, and subject to detailed competency assessment both initially and on an ongoing basis, in Scotland these standard are in place from Crime Scene to the delivery of evidence in the Court.

The training and competency of some niche forensic techniques requires further scrutiny to ensure appropriate expertise and validation of associated techniques.
Standards and regulation

7. Is the current market for forensic services in England and Wales sustainable? Are changes needed to ensure forensic science provision is maintained at the level required? What are the risks of a market approach, for example what happens if a provider goes out of business? And what is the impact on quality?

The simple answer to this is no. The market in England and Wales has reduced from £120M to less than £50M in the last 10 years and has seen since the closure of the FSS in 2012 and two further smaller providers in 2015 and 2017 as well as a further provider entering into administration in 2018. The market is now more commodity driven with margins very low and with limited security of long term contracts and has limited attraction to any would be commercial investors. This is further impacted by the amount of forensic science work carried out internally (insourced) by Police Forces and the budget cuts for England and Wales Police Forces. Essentially though there is not a ‘true’ market place as insourced work is not based on full economic cost recovery as per the commercial providers i.e. there is not a level playing field.

Another consequence of the failing market place approach relates to the capacity in specialist and labour intensive areas of forensic science. Examples include Toxicology where suppliers are now moving out of the market as they cannot make a profit in an area where there is already significant capacity issues. Another example relates to fibre examinations which can be very time consuming and as such ‘expensive’ and the effects of the market forces have reduced demand to an extent that there is no incentive for Forensic providers to invest in training etc. and now when such examinations are required in major investigations there is no available capacity. Both present risks to the CJS and there will be further such examples over then coming years if the status quo continues.

In 2010 the Home Office and the FSS commissioned a market place review which was carried out by McKinsey (Shaping the Future Market for Forensic Science) and this predicted remarkably accurately what would happen to the market place including the shrinkage of the value of the market place, commoditisation of the market place, closure of key providers eventually resulting in less competition and choice and limited capability for any research and development.

It is clear that significant and indeed fundamental changes are needed to ensure that forensic science provision is maintained, as the status quo will ultimately lead to a reduction in capacity across the sector and therefore significant risks for the CJS. These include:

- In major investigations Forensic work is sent to multiple providers and insourced departments and this ‘fracturing’ provides a significant risk that the value of the combination of forensic science will be lost or at the very least will be increasingly difficult to see the ‘bigger picture’
- The current provision is very test focused (to keep costs down) but it is imperative that forensic science test results are interpreted in the context of a case by a fully trained Forensic Scientist who can communicate this effectively in statements and in court
• Leading on from this, the challenging budgetary environment and policing commissioning of work results in forensic science being too focused on the prosecution of the case and therefore puts the forensic scientist in a difficult position regarding their impartiality
• Further loss of skills from the forensic science profession, particularly from multi skilled experienced Forensic Scientists as job security continues to be limited

Given the current fragile nature of the marketplace the impact of a further forensic provider going out of business will be compounded with limited ability of the marketplace to absorb the additional work without significant pressures being borne on the front line forensic scientists. This runs the risk of increased error rates, capping or rationing of forensic science, increased turn-around times and ultimately increased costs to policing to either prevent it happening or the commissioning of additional forensic science from other providers.

In contrast the model in Scotland has enabled forensic science provision to thrive and avoid the vast majority of the failings to the commercial market place in England and Wales even at a time of austerity.

8. Is the system of accreditation working successfully to ensure standardised results and the highest quality analysis and interpretation of significance of evidence?

The system of accreditation is working successfully for public forensic science providers such as those in Scotland and Northern Ireland as well as the main commercial providers in England and Wales. These organisations have an inbuilt commitment to quality and external accreditation that has been formulated over many years.

This is in contrast to many areas of forensic provision within the ‘insourced’ policing environment in England and Wales. There is still a reluctance to fully embrace the effective management of quality and accreditation to the Forensic Regulator Code of Practice which essentially distils down to a lack of understanding of the value of quality coupled with perceived resourcing issues, a lack of commitment from senior leadership and also an absence of the skill set at the implementation/operational level. This combination has resulted in policing increasingly missing deadlines for gaining accreditation set by the Forensic Regulator with digital evidence and Fingerprint Comparisons being two key examples.

Taking Fingerprint Comparison as an example, Forensic Services, SPA were the first organisation to gain accreditation to the ISO 17025 standard in 2016, two years ahead of the Forensic Science Regulator’s deadline. Fingerprint Comparison in Scotland is within the wider umbrella of the Quality Management System for mainstream forensic science disciplines in Scotland such as Biology and DNA. This has the advantage of being within a well-developed quality management system with extensive expertise of obtaining and maintaining accreditation. This experience, knowledge and expertise was therefore used to support the obtaining of accreditation in Fingerprints. In contrast Police forces in England and Wales have really struggled to gain accreditation and this is despite extensive workshops, support and sharing of best practice by the Regulator and
organisations that had successfully obtained accreditation such as Forensic Services, SPA. As outlined above there are several key reasons why this has occurred which essentially distil down to a lack of appropriate ‘buy in’ of the value of accreditation.

Whilst having an effective quality management system and externally assessed accreditation doesn’t guarantee that errors or mistakes do not occur, it does provide an excellent framework to effectively manage the risks and ensure there is a continuous improvement culture embedded. It is also transparent, will identify problems and through effective root cause analysis can prevent future issues. Without such an environment there is a grave danger that quality related issues will remain hidden (either intentionally or unintentionally) which presents significant risk in the longer terms to the CJS.

The cost of quality failure can be vast both in terms on money and reputation etc. and an example of this occurred in Scotland back in 1997 with the McKie case. This subsequently led to the Scottish Fingerprint Inquiry which reported in 2011 at a cost of several million pounds. The recommendations from this inquiry where implemented by Forensic Services, SPA, and ultimately resulted in the organisation being the first in the UK to gain accreditation in this area.

9. What role should the Forensic Science Regulator have? If the Forensic Science Regulator is to have statutory powers, what should these be?

The Forensic Regulator currently has a pivotal role in setting the quality standards for the provision of forensic science. Currently the Regulator is proposed to have statutory powers over England and Wales but not Scotland and Northern Ireland. It is policy in Scotland to follow the recommendations of the Regulator on the assumption that there is not a conflict with the different legal procedures that exist in Scotland. Forensic Services, SPA is now one of the biggest forensic providers in the UK and one of the widest scopes of accreditation, and developing this further is a key part of the future strategy.

It is important for the Regulator to have statutory powers as this would enable her to enforce compliance with quality standards and to immediately stop dangerous practices. Currently there is an uneven playing field where public sector providers such as Forensic Services, SPA and FSNI and the main commercial providers in England and Wales have invested significant amounts of time and money in quality management and obtaining and maintaining accreditation vs. smaller forensic providers and police forces where such investment has not yet been made. There are obvious commercial advantages here if this is allowed to continue which will drive the wrong behaviour and introduce additional risk into the CJS.

The current powers relate to the provision of forensic science and not to the commissioning and this does need to be addressed given all the problems that exist in the market place. It would therefore make sense to extend the Regulators powers to cover aspects around the commissioning of forensic science and also a role in the regulation of the market place as a whole.
10. What lessons can be learned from the use of forensic science in Scotland and Northern Ireland? What can be learned from the use of forensic science overseas?
The vast majority of forensic science in Scotland is provided by the publically funded Scottish Police Authority.

Forensic Services, SPA has a model which offers significant advantages in the provision of forensic science vs. the more commercial model in England and Wales:

- **'Crime scene to court'** - integrated provision from the scene (Scenes of Crime Officers) through to laboratory examination, analysis and interpretation and ultimately the provision of expert evidence in court. This enables a national consistent service to be provided throughout Scotland and enables the effect implementation of scientific innovation or process changes. For example DNA24 was implemented in Scotland far in advance of England and Wales and also facilitated being the first organisation in the UK to obtain accreditation in Fingerprints comparison. The model also enables a focus on best value regarding recovery at the scene and the impact on the laboratory and vice versa which is far more complicated in England and Wales.

- **'One stop shop'** - enables the vast majority of forensic science to be carried out within the same organisation so that there is no ‘fracture’ through the use of multiple providers as per England and Wales which is especially important in the more major investigations. Forensic Services provides a vast range of forensic work covering areas from Biology, DNA, Chemistry, Firearms, Drugs and Toxicology as well as areas such as Fingerprints, Mark Enhancement and Scene Examination which in England and Wales normally reside within individual Police Forces or collaborations of forces.

- **Governance and ‘sterile corridor’** – an important factor in Scotland is that there a ‘sterile corridor’ between Police Scotland and Forensic Services, SPA. Both organisations report separately into the main Board of the SPA and as such Forensic Services, SPA do not come under the remit of the Chief Constable as would be the case in any in house provision of forensic science in England and Wales. This ‘sterile corridor’ approach in Scotland supports impartiality and independence which are key values to the delivery of forensic science in the CJS. More recently a Forensic Services Committee has been set up where the Director of Forensic Services, SPA, and his senior team are held to account for delivery in a public forum, but has also provided an effective and transparent vehicle to explore the wider value of forensic science and facilitate increased investment in forensic science and strategic development.

- **Stakeholder environment** – in Scotland there is one Police Force and one prosecuting authority (Crown Office and Procurator Fiscal Service) which makes partner and stakeholder engagement and collaboration more straightforward and progressive. In addition Forensic Services, SPA is a key partner based at the Scottish Crime Campus which has brought together a number of organisations such as Police Scotland, Forensic Services, SPA, COPFS, HMICS, NCA etc. with the aim of facilitating better collaboration in the investigation of Serious and Organised Crime. This has been in existence since 2014 and has already demonstrated its value in
disrupting serious and organised crime and also resulting in several high profile convictions.

- **Infrastructure** – a consequence of the good governance and significant investment in forensic science in Scotland has enabled two purpose built laboratories in Dundee and Glasgow (SCC) and two further laboratories in Edinburgh and Aberdeen. All are well equipped and provide a mix of localised and centralised service provision for forensic science. Scene examination services are provided from an additional 13 locations across Scotland to enable a responsive service in both volume and serious crime.

Overall the model in Scotland provides many advantages over the commercial market model in England and Wales, not just in terms of current service delivery and effectiveness but also for making transformational improvements. Both Police Scotland and Forensic Services, SPA have aligned 2026 strategies which provide an excellent roadmap and governance structure for these changes.


The Forensic Science Strategy produced by the Home Office in 2016 is of limited value and is inadequate in terms of a strategy or even policy. It is written from a policing perspective and makes no real attempt to set out a clear policy or direction for forensic science. The main Forensic Science providers appear to have no input which is illogical and the Home Office does not provide any meaningful strategic ownership and leadership other than to pass the responsibility to policing to develop new delivery models.

In stark contrast Forensic Services, SPA has recently published a Forensic Science Strategy which clearly sets out the future direction for forensic science in Scotland until 2026, and this is aligned with the policing strategy published by Police Scotland.

**Forensic Science research landscape**

12. **How should further research funding for forensic science be justified? What should be the focus of such research? What is the role of UK Research and Innovation, especially considering the interdisciplinary nature of much forensic science?**

There is a compelling case for research funding for forensic science to ensure that the community remains at the cutting edge regarding to technology and innovation. Whilst some of this can come from the main forensic providers competing for a competitive edge, most of this will be focused on the high volume areas such as DNA and as such just leaving it to the marketplace has limitations. There is far more that could be done to engage with Universities and technology innovators and a programme of work is underway in Scotland to pull this together to ensure coordination and prioritisation of research activity. In England and Wales this will be much more challenging given the absence of any meaningful strategy for forensic science and the presence of a competitive market place where companies quite rightly are protective about any new developments or innovations.
Perhaps there is an opportunity for the Transforming Forensics Programme in England and Wales to set up an appropriate national forum to set up working groups with effective and transparent governance.

13. Where are the gaps in research and understanding of forensic science? How and by whom should the research questions be articulated to fill these gaps?

Since the closure of the FSS in 2012 there has been limited research across the sector. There are still significant gaps in the collation of data and robust interpretational methods that are required to carry out effective evaluation of evidential significance. This is particularly the case in some of the more traditional forensic evidence types in areas such as transfer and persistent studies in trace evidence and frequency of occurrence of patterns e.g. Fingerprints and other marks evidence which ultimately are required to validate more advanced probabilistic approaches.

14. How can a culture of innovation in forensic science be developed and sustained?

The decline in innovation in forensic science was accurately predicted in the McKinsey Report commissioned by the FSS/Home Office in 2010 and is now at rock bottom levels. The squeeze on the main forensic providers in England and Wales has inevitably led to scientists spending the vast majority of their work time on fee paying work as opposed to any focus on innovation and developing links with academia. Unless the financial squeeze regarding day to day operational work is addressed it is unlikely that this is going to change in England and Wales.

The value and efficiency which can be brought through the timely use of forensic science in a police investigation requires to be recognised. Investment in improved techniques will ultimately save police time and apprehend suspects in a more timely manner. To sustain investment the value of investment must be recognised.

15. Are there current or anticipated skills gaps? Who should have responsibility for and/or have oversight of training?

There is a critical shortfall nationally regarding several disciplines such as toxicology and fibre examinations and over the next 5-10 years further shortfalls will appear relating to some of the more traditional chemistry evidence types of trace evidence and marks evidence as the current expertise ages and leaves the marketplace altogether. As the demand for such work reduces there is a tipping point for commercial companies to no longer see a business case to invest in training and development in this area. A good example is fibres where there is now a national shortage of expertise and there is a real risk that this evidence type will all but disappear within the next few years in England and Wales. Essentially the decreasing margins experienced by the commercial forensic providers are compromising the development of the next generation of forensic scientists as time for training, development and even background reading to keep knowledge up to date and deprioritised over doing fee paying work.
It is difficult to see who could have responsibility or oversight for training in this broken model unless the failings of the market place are addressed.

Digital Forensics

16. Are there gaps in the current evidence base for digital evidence detection, recovery, integrity, storage and interpretation?

In Scotland digital forensics is delivered by Police Scotland and this is being further developed within the Policing 2026 strategy. Police Scotland have the full range of digital services which are delivered within the Force. Unlike England and Wales no aspect of digital forensics is delivered with more traditional types of forensic evidence within Forensic Services, SPA. The ‘sterile corridor’ between the police and forensic investigation that exists for all traditional forensic evidence types is not structurally in place for digital forensics albeit that this will be supported through processes. There is an ongoing discussion as to whether digital forensics and traditional forensics should be brought together in Forensic Services, SPA, in the future, in particular to support the accreditation of digital evidence types to international standards as per the requirements of the Forensic Science Regulator.

17. Is enough being done to prepare for the increasing role that digital forensics will have in the future? Does the Criminal Justice System have the capacity to deal with the increased evidence load that digital forensics generates?

There is a good understanding in Scotland of the increasing role of digital forensics and this is encapsulated in the Policing 2026 strategy, this includes ongoing work in the cybercrime capability programme which will inform future requirements and services that will be required to support the investigation of this type of crime in the next decade. Investment will be required in the technology, facilities and resources to ensure that digital forensics keeps pace with the increase in cybercrime and this work is ongoing within the strategic programmes in place.

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