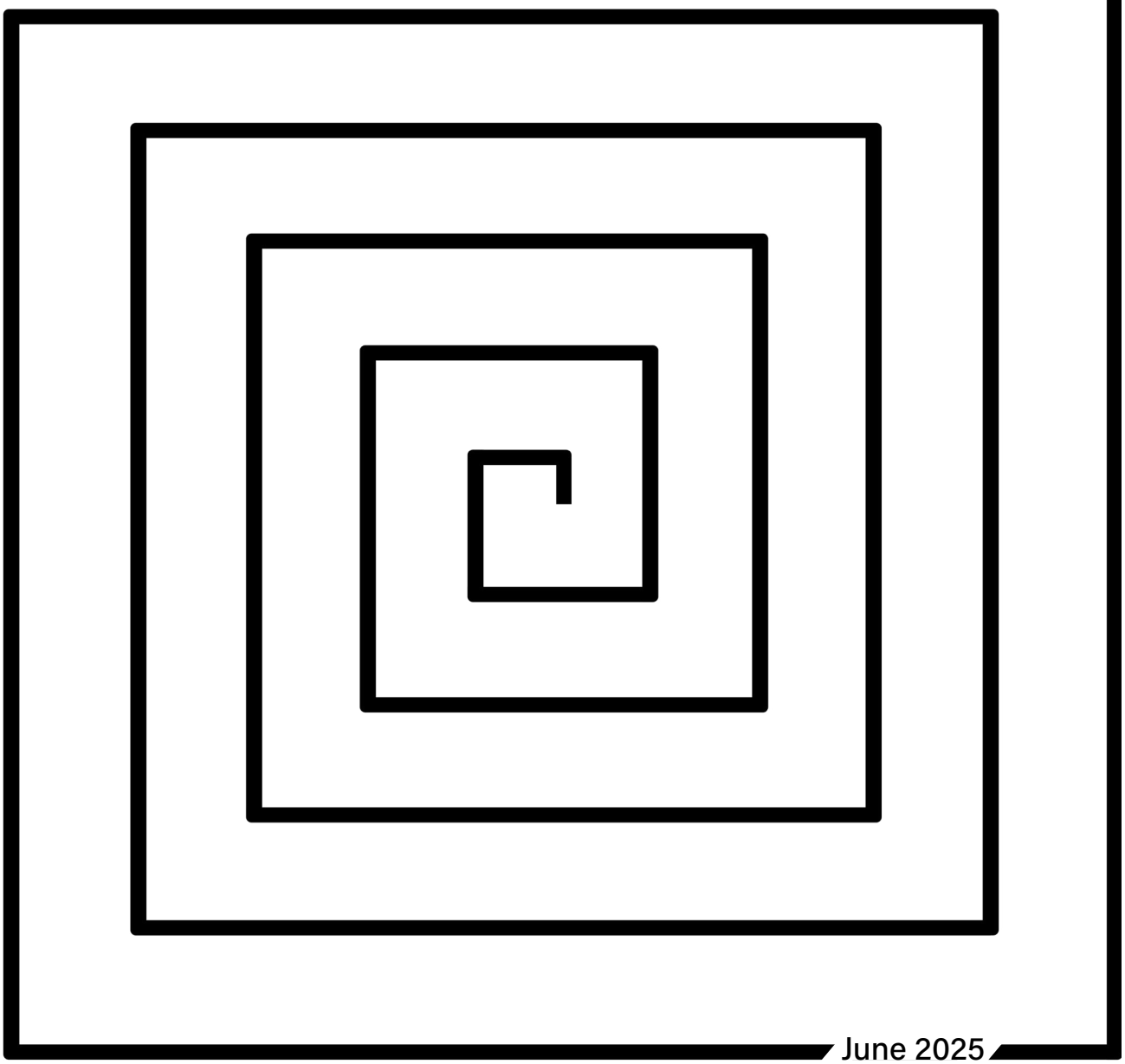
Forensic Science in England and Wales:

Pulling Out of the Graveyard Spiral

The Westminster Commission on Forensic Science



June 2025

Acknowledgements

This inquiry and report was made possible through the generous support of lawyers from Simpson, Thacher & Bartlett LLP.

We would like to thank everyone who gave so generously of their time, including those who responded to our public consultation, all who appeared before Commissioners to give evidence, and those who hosted Commissioners on fact-finding visits. This Inquiry would not have been possible without the benefit of their long experience and deep expertise. We are grateful to Samantha Dulieu of the Future Justice Project - as well as to Aaron Horsley in the first phase of our inquiry - for their hard work supporting the commission.

The Westminster Commission on Forensic Science was launched by the All-Party Parliamentary Group (APPG) on Miscarriages of Justice in November 2022. The APPG was formed in November 2017 to examine the structural problems within the criminal justice system which result in miscarriages of justice.

Chair: Kim Johnson MP

Vice-Chairs: Lord Edward Garnier KC, Liz Saville-Roberts MP, Lord Tony Woodley

Secretariat: The Secretariat to the APPG on Miscarriages of Justice is provided by the Future Justice Project and its directors Glyn Maddocks KC and Dr Jon Robins. Any enquiries should be directed to sam@futurejustice.org.uk.

Biographies of the Westminster Commission

Chairs:

Professor Angela Gallop CBE is a forensic scientist, best known for setting up and running full-scale forensic science laboratories as well as leading the scientific teams that provided critical evidence in many of the UK's most high profile and complex criminal cases. She has a long-standing association with the UK's first Centre for Forensic Science at the University of Strathclyde.

Professor Lady Sue, Baroness Black of Strome, is a forensic anthropologist with extensive experience in war crimes investigations, mass fatality events and complex casework. She is the President of St. John's College, Oxford and a cross-bench peer.

Commissioners:

Professor Carole McCartney is Professor of Law and Criminal Justice at Leicester Law School. Carole has been researching issues around criminal evidence and forensic science for over 20 years, and has written on miscarriages of justice, policing, DNA and biometrics, forensic science and criminal justice more widely.

Dr Philip Avenell is a forensic scientist. Trained as a forensic biologist and DNA expert, Philip has extensive casework and forensic management experience. He has worked in both public and private practice, led forensic research and development programmes, and implemented and developed quality standards in operational forensic laboratories.

Katy Thorne KC is a criminal and inquest barrister practising from Doughty Street Chambers. She has a long-standing specialism in expert evidence and is an editor of Mason's Forensic Medicine for Lawyers. She has lectured on the use of expert evidence in the criminal courts and trained the National Crime Agency on providing expert evidence.

Glyn Maddocks KC (Hon) is a human rights lawyer who in 2020 was made honorary King's Counsel in recognition of his expertise in miscarriages of justice. He helped establish the All- Party Parliamentary Group on Miscarriages of Justice.

Dr Jon Robins is a journalist and a lecturer in criminology at Brighton University. He has written about the law and justice for the national papers for over 20 years. He has written several books on the criminal justice system and miscarriages of justice.

We also benefitted from advice and guidance from both serving and retired police officers, in particular, **Steve Wilkins**, former detective chief superintendent.

Contents

6 **Foreword**

8 **Executive Summary**

15 **1) Introduction**
17 a) What is forensic science?
18 b) Why another inquiry?
19 c) The work of this inquiry
19 d) Our report

21 **2) The delivery of forensic services**
23 a) The rise and fall of a national forensic science capability
24 i) Commercialising forensic science
25 ii) Police expenditure on forensic science
27 iii) The forensic marketplace: From stability to survival?
30 iv) Police 'in-house' provision
32 b) Police investigations and forensic science provision
32 i) The 'dual tracks' of forensic provision.
32 ii) Forensic science: Capacity and capabilities
35 iii) Triaging of forensic submissions
36 c) Digital forensic investigations
38 i) Risks of digital miscarriages of justice
39 d) Crime scene examination:
Detecting crime and securing future investigations
39 i) Scene attendance
41 ii) Training and accreditation
42 iii) Sampling at scenes
43 iv) Crime scene management
43 e) Independence and 'police' forensic science
45 f) National forensic capacity and delivery models
46 g) Reforming forensic delivery
46 i) Stabilising and re-invigorating the market
47 ii) Building blocks of a new delivery model
49 h) A National Forensic Science Institute
51 i) Conclusion and recommendations

Contents

54 **3) Forensic evidence and equality of arms**
56 a) Communicating forensic evidence
57 i) Streamlined forensic reporting
58 ii) SFRs and disclosure
58 iii) Transparency and prosecutorial responsibilities in the SFR process
60 b) Equality of arms
60 i) Funding of defence experts
60 ii) Securing specialist defence expertise
61 c) Regulating experts
63 d) Admitting forensic evidence at trial
65 e) Forensic evidence post-conviction
65 i) Investigating miscarriages of justice
68 ii) Evidence retention and archiving
71 f) Conclusion and recommendations

74 **4) Forensic science: The science, and the scientists**
76 a) The science in forensic science
78 b) Science in policing
79 c) Centring the 'science' in forensic science
79 i) Research and development
82 d) A National research strategy
85 i) The National Forensic Science Institute: Setting a national research strategy
86 ii) Research facilities and equipment
86 e) Scientific staffing, training and development
89 i) Impacts upon forensic capacity and capabilities
89 f) Determining value and effectiveness
92 g) Specialist expertise and 'niche' forensic science
94 h) Forensic regulation
95 i) Accreditation and the FSR Codes of Practice
97 ii) Accreditation compliance and enforcement
98 iii) The role of the Regulator
100 i)Conclusion and recommendations

102 **5) Conclusion: Pulling out of the graveyard spiral?**

Foreword

Forensic science in England and Wales is not working well for anyone. Not for the police, not for the scientists, not for the suppliers of services or those companies who may wish to enter the market, not for the courts, and by extension, not for the public. Yet, we all believe it to be a critical tool that we can rely upon to bring the guilty to justice and exonerate the innocent.

Increasingly the police are taking more testing in-house or moving away from 'traditional' forensic science, because they perceive commercial provision to be too slow and too expensive. At an innate level we all know that this is the wrong place for science, which must be impartial, but is increasingly under the control of the prosecutorial component of our justice system. Funding across our criminal justice system is weighted heavily in favour of the prosecution and it is vital that this is addressed. Each side must have access to experts and an expectation that the science provided is neither partial nor partisan. Fundamentally we hold to the concept of presuming innocence until guilt can be proven, and it is in this domain of 'proof' that impartial forensic science is utterly invaluable. Independence is the key towards securing safer convictions in a realm where proof must be 'beyond reasonable doubt' as there is rarely, if ever, certainty.

The long running crisis in forensic science is quite simply rooted in a misunderstanding about what forensic science really is and what it can achieve. It is not merely a series of scientific tests which anyone can perform, the results of which are black and white and from which a straight line can be drawn to guilt or innocence. Rather, it is a framework within which hypotheses are proposed based on a solid understanding of, in this case, what occurred at the crime scene, what suspect, victim and witnesses each say about this, and taking into account prior expectations of what possible test results might mean, relying upon scientific research, knowledge and experience. It is then a focussed set of tests and experiments on relevant items to reach a confidence about what each test can tell us and identify whose account the results best support. The truism 'rubbish in, rubbish out' is apposite: if the hypothesis is not sound, if the tests are not rigorous, if the scientist is not sufficiently experienced, and if their work is not validated by other reputable scientists then we cannot blame the science or the scientists when things go wrong. The blame lies with a system that permitted this to occur against all the advice it has received.

Professor Angela Gallop CBE and
Professor Lady Sue, Baroness Black of Strome

Foreword

Imagine a rushed, poorly trained crime scene examiner feeling constrained by 'regulation'; examination and understanding of the crime scene is incomplete; selection of items to be seized as well as packaging, sealing, labelling and storage is suboptimal; the critical selection of which items to test, for what and in what order for submission to a laboratory are not properly understood. An investigation is already hampered, before a scientist might even become involved. Then, a focus upon cost leads to choices based upon the cheapest and the fastest 'results', something that all too often is a false economy. The investigation may now proceed to trial, and ultimately a conviction, without any checks on the quality of this work, as experienced practitioners will not work for the inappropriate fees that the defence can offer; they are vastly overworked: there is desert of expertise available to the defence.

The introduction of a Forensic Science Regulator with statutory powers was hailed decades ago as the panacea that would solve such problems. But England and Wales has lost its national service and has seen the commercial market that followed it and was initially successful, collapse, leaving a virtual monopoly in provision. The Regulator has been unable to enforce their accreditation timetable for fear of widespread disruption when providers (including the police) fail to reach the mandated standards. When all these factors come together, we cannot be surprised when miscarriages of justice arise. From the outside we can see how these should have been prevented, and we wring our hands whilst tripping out the phrase 'this must never happen again'. It was said after the Malkinson case and is now being said again after the Sullivan case. How many more times must it be said? For the person suffering these gross injustices, they have been deprived of their rights, often for decades, leaving their lives devastated. This is unacceptable.

We have witnessed the denuding of a discipline and the depreciation of a service that was once a gem in the crown of the British legal system. We all know the questions that need to be asked, yet again, and we have sought answers. We gathered a wealth of evidence that now underpins the recommendations that we make. We have also been in this business long enough to know what answers will be given to placate our concerns, but we also know through our combined experience and evidence gathered, what will work and what will not. It is a truism that we should distrust words not followed by actions, and we await the response of all the stakeholders who need to now come together to save forensic science in England and Wales, which we believe is in an almost irretrievable graveyard spiral.

Professor Angela Gallop CBE and
Professor Lady Sue, Baroness Black of Strome

Executive Summary

1. The Chair of the House of Commons Science, Innovation and Technology Select Committee, Member of Parliament Chi Onwurah, recently said: "You cannot have a society with no crime, the price would be too high. But we can aspire to have a society without injustice."[1] At the core of such a society must be an effective criminal justice system. In England and Wales, the Criminal Procedure Rules state that the criminal courts have the 'overriding objective' of "acquitting the innocent and convicting the guilty".[2] Forensic science has repeatedly proven to be unrivalled in its capacity to assist with the achievement of this objective. Such an endorsement, however, must be accompanied by a caveat: forensic science must be trustworthy. This requires that it is valued sufficiently to attract the necessary resourcing to maintain its validity and credibility.

2. Forensic science is rightly lauded for enabling miscarriages of justice to be overturned. Peter Sullivan was released from prison in May, after DNA evidence demonstrated that he had been wrongly convicted of murder 38 years ago. But it should not be overlooked that his conviction was assisted with now discredited bitemark evidence, demonstrating that scientific evidence can be highly persuasive, even when wrong. Mistakes, omissions, unreliable science or misinterpretations of forensic evidence can cause catastrophic wrongful convictions. Yet expenditure on forensic science has been repeatedly cut in recent years, diminishing this capacity to overturn miscarriages of justice as well as preventing them by reliably assisting with crime detection and prosecution.

3. The forensic science sector is accustomed to scrutiny and intervention and has gone through repeated upheavals since the investment in a national capacity in the 1990s. There have been seven inquiries into forensic science in the last 20 years, and since 2017, the Home Office has intervened in at least six major market and quality failures. While many epithets have been employed to describe the devaluation of forensic science in England and Wales in recent years, we characterise the sector as now in a graveyard spiral. Our instruments have been telling us the sector is in decline, but efforts to correct the descent have not pulled the sector out of danger. Saving the forensic science sector from a disastrous impact now requires (further) urgent intervention.

4. While a combination of funding pressures, increased costs, and regulatory burdens, are all used to explain the current graveyard spiral, this has been accelerated by the continued paring back of demand from police, and resort to 'rapid/cheap' testing and increasing in-house provision. Commoditisation has led to the narrowing of forensic techniques to those few considered most (cost) 'efficient,' resulting in impoverished forensic strategies and the near extinction of some disciplines. The market in forensic science at the turn of the century, was successful in eliminating case backlogs and delivering faster, cheaper and often innovative services. But misapprehensions about forensic science provision, coupled with relentless downward pressure on price, created instability and precarity within the market. Having fought against the odds to survive, but with morale at rock bottom, many of those that remain in the market will either soon retire, be forced to leave, or become 'sub-contractors' for the last provider standing. This poses an unjustifiable risk to the criminal justice system.

5. We believe that a healthy competitive market remains the best means of securing effective and high-quality, trustworthy, and innovative forensic science. There is – just – still time to learn lessons of the past and support the providers that remain. In the short-term, ensuring reliable delivery of high-quality forensic science services must be a priority and many of our recommendations seek to point to how you might stabilise the market, and then work with the existing building blocks, to rescue the sector.

Recommendation 1 - ***There should be a full national audit of forensic services, to assess what support can be urgently put in place, to shore up current provision and prevent further deterioration in capacity and capabilities whilst substantial reforms are commenced.***

Recommendation 2 - ***Whilst reforms are being implemented, further expansion of police in-house provision should cease, and all police provision should operate in full accordance with the Forensic Science Regulator's (FSR) Codes of Practice.***

6. Public trust in police and confidence in justice has also been falling due to personal experiences

---

[1] Chi Onwurah, 'How can Parliament support best use of science for a fairer society?', 29th April 2025 at Kings College, London.
[2] Criminal Procedure Rules 2020, s.1.1.

of crimes not being investigated or remaining unsolved.[3] In 2023-2024, 73% of residential burglary cases and 43% of victim-based cases were closed not having identified a suspect.[4] It is an article of faith among UK citizens that murders are almost always solved, but the percentage of homicides where no suspect has been charged is increasing, with 130 homicides occurring in 2023-24 still having no suspect charged after 12 months.[5] We know that when criminal investigations are not competently led from the outset, are not properly resourced and evidence handled and preserved with integrity, then we curtail our capacity to solve not just today's crimes but make it impossible to address the cold cases of the future. Throughout our inquiry we examined the lost potential of forensic science to detect crime and have made recommendations aimed at addressing current deficiencies.

Recommendation 3 - ***The effective and efficient attendance and examination of crime scenes must be scrutinised urgently and any inhibiting factors e.g. overly prescriptive approaches to accreditation, dealt with. Individual force policies on scene attendance should be set in line with nationally agreed best practice and monitored. All scenes should be examined to a proportionate extent, with meticulous and generous sampling, with all evidence properly archived, to facilitate future use.***

Recommendation 4 – ***His Majesty's Inspectorate of Constabulary, Fire and Rescue Services (HMICFRS) should scrutinise police forensic investigative strategy setting (including the use of tools such as CAI to ensure best forensic focus in triaging) and in-house provision of forensic services should be incorporated within PEEL inspections of investigative performance. This should include CSI provision, forensic submissions units, and forensic strategy within both volume and serious crime until longer term arrangements have been made for this activity to be transferred to independent organisations.***

Recommendation 5 - ***Scientific support for police investigations must be strengthened. The National Police Chief's Council (NPCC) and College of Policing, supported by Forensic Science Providers (FSPs), should immediately address the national shortage of trained detectives with experience in forensic investigations. There should be national prioritisation of both training and greater support for all investigators, particularly Senior Investigating Officers. Scientific support officers should be in place within all Criminal Investigation Departments.***

Recommendation 6 - ***Both FSPs and police should work to create a trusted and transparent relationship, while maintaining their operational independence and respecting professional boundaries. This must include assisting with forensic strategy setting, deciding casework requirements. Police should work closely with FSPs to understand demand forecasting and how to best manage peaks and troughs in workload, rationalising any contractual penalties.***

Recommendation 7 - ***The HMICFRS recommendation to bring digital forensic services under the wider forensic science structure should be acted upon. Thus, in the long term, digital forensics should be removed from direct police provision and be undertaken by independent specialist organisations working closely with investigative teams to ensure the rapid production of valuable, reliable information that supports active investigations from an impartial stance.***

7. With rational contracting arrangements, more realistic pricing, and a future manifested for staff, we may slow the departures, encourage new entrants and investment into the sector. Combined with efforts to rationalise and maximise the utility and focus of the many forensic science-related institutions, ensuring greater national co-ordination, the market may stand a chance of recovery.

Recommendation 8 - ***After stabilising what forensic provision remains, there must be a plan for re-creating a market and making it attractive for investment. To encourage new entrants and investment into the market, sustainable contracting and realistic costing must be introduced***

---

[3] In October 2024, 52% of adults told a YouGov survey of Great Britain that they had no/not very much confidence in the police to tackle crime locally, compared to 39% in October 2019. See: *Public trust and confidence in the police*, POSTNote, 31st October 2024, https://post.parliament.uk/public-trust-and-confidence-in-the-police/

[4] Home Office, Official Statistics: *Crime outcomes in England and Wales 2023 to 2024*, Published 24 July 2024

[5] ONS, Appendix tables: homicide in England and Wales, Feb 2025.

urgently. Pricing should reflect the true cost of delivering high quality forensic services, including the full range of activities required for casework and testing.

Recommendation 9 - ***The Association of Forensic Science Providers (AFSP) should become a trade association, and work with the police, Home Office and others, to recalibrate contractual arrangements. The Forensic Science Regulator's powers should be extended to include regulating the market.***

8. We found organisations working in silos and disengaged from the broader issues facing the system. Forensic scientists can play a central role from crime scene through to court and beyond. Yet forensic science is often under-appreciated and under-valued, leading to inefficiencies and the view of forensic science as costly (in time and money), driving further 'rapid/cheap' demands. This limits the capacity of forensic scientists to be responsive to need and further encourages the police to resort to in-house provision.

Recommendation 10 – ***The Government must consult with all stakeholders involved in the criminal process – from crime scene to court and beyond - including prosecution, defence and appeal lawyers, judiciary, government departments, police and agencies such as the Legal Aid Agency and CCRC. Reform must seek to make forensic science work for all parties, meeting the requirements of good forensic science to ensure that crimes are properly investigated, trials are fair, and miscarriages of justice are prevented, uncovered and overturned.***

Recommendation 11 - ***The Home Office and NPCC should rationalise current police service forensic facilities and arrangements reducing duplication, fragmentation and minimising national inconsistencies. Regional collaboration should be facilitated to ensure quality, consistency, and improved cost effectiveness, streamlining the boundary between policing and scientific support. Existing collaborations should continue to deliver current police services during the transition period to full regionalisation. This could include fingerprints, digital forensics, crime scene management, but not seek to expand into other areas.***

9. The forensic sector needs a strong national presence, vital to securing its independence and strengthening the value of forensic science to society. In common with most other nations, there should be a central authority on forensic science: A National Forensic Science Institute (NFSI). This institute will play a key role in returning the sector to health, coordinating a national research and development strategy, while ensuring efforts to reinforce and underpin the validity and credibility of forensic science, particularly in respect of 'niche' disciplines.

Recommendation 12 - ***A National Forensic Science Institute (NFSI) should be created as the central authority on forensic science. The NFSI, working closely with police, lawyers, judiciary, providers, universities, industry, other government agencies, and the Regulator, should set strategic priorities, and coordinate and direct research and funding. The NFSI should protect niche services, facilitating training and professional development.***

Recommendation 13 - ***A national forensic strategy must aim in the long term, to remove all forensic science provision from police oversight. Activities such as crime scene investigation, triaging, digital forensics, and fingerprints and other marks etc., should ultimately be undertaken by forensic scientists working independently of the police.***

10. In addition to significant concerns with the delivery of forensic science services, there are serious problems with the communication of forensic evidence, and its use in prosecutions. The translation of forensic investigation results into written reports (particularly 'Streamlined Forensic Reports') and oral testimony, is of highly variable quality. With checks and balances stripped back, the evidence of 'near misses' fortuitously caught, provides a clear indication that miscarriages of justice can work through the prosecution process without detection. The clear communication of forensic evidence and enabling scientific review, promoting good science and strengthening of safeguards is essential to ensure that poor science is not giving rise to miscarriages of justice.

Recommendation 14 - ***The NFSI should coordinate training on the Streamlined Forensic Reporting (SFR) process for all police, lawyers, experts and judges in criminal practice.***

This should equip professionals with sufficient understanding of the process and how to identify potential issues with the forensic evidence.

Recommendation 15 - *There should be efforts to improve the quality of all SFRs and remove inconsistencies with national standards. All SFRs should include a brief explanation of the underpinning science with links to other sources of information, for example, Royal Society primers or educational videos and accessible training. The SFR standard text should also be redrafted to remove bias and any suggestion of burdens upon the defence.*

Recommendation 16 - *All reports, including SFR1s, should detail what tests have been undertaken and by whom, and be signed by the author and, if not a scientist, counter- signed by a scientist who has checked that the report reaches quality standards and any potential scientific ambiguity in relation to case context is highlighted. There should be a reporting system for all experts who submit SFRs that give rise to quality concerns to ensure their science is robust and is expressed correctly in all future forensic reports.*

11. Equality of arms is fundamental to our adversarial system, with defence review being a vital safety net. Unrealistic workloads, timeframes, and budgetary pressures, mean defence expertise is severely restricted and cannot provide any guarantee that poor science is not being relied upon.

Recommendation 17 - *The Legal Aid Agency (LAA) should fund the commissioning of defence experts, at realistic rates and on prompt payment terms, to facilitate equality of arms. A review of government-imposed set rates for experts, and an upgrade of those fees in line with inflation is required. There should also be a presumption that expertise will be funded by the LAA.*

12. It is currently too easy for poor science to go unchecked pre-trial. There is insufficient oversight of the production of forensic reports and the communication of results. The constriction of the forensic marketplace has been even more acute in respect of defence expertise and access to properly qualified defence forensic experts needs to be facilitated nationally.

Recommendation 18 - *The Forensic Regulator should liaise with the Ministry of Justice, lawyers, LAA and others, to instigate processes to oversee the fair and accurate communication of forensic evidence.*

Recommendation 19 - *The National Forensic Science Institute (NFSI) should seek to ensure that there are experts nationally available to the defence. These experts must operate under the Forensic Science Regulator's Codes of Practice which should be expanded to include case review and interpretation work with immediate effect.*

13. Despite the reforms to the Criminal Practice Directions, and the statutory powers recently afforded to the Forensic Science Regulator, the Courts are still admitting potentially unreliable evidence. The need for proper scrutiny and engagement with the extant rules must be considered mandatory when expert evidence underpins the prosecution case. It is clear through our inquiries that more is clearly required to ensure that only 'sufficiently reliable' scientific evidence is admitted at trial.

Recommendation 20 - *The Better Case Management or Criminal Procedure Rules Committee should consider standard directions in respect of cases where forensic evidence underpins the 'points to prove.' Where these are contested, standard directions should ensure robust disclosure and ensure defence experts are properly accessing exhibits and data within realistic timelines, with the prosecution required to certify that they have complied with these directions.*

Recommendation 21 - *Judges should ensure strict adherence to procedures set down in the Criminal Procedure Rules and Criminal Practice Directions. There should be monitoring and reporting of the exclusion of experts under the Criminal Practice Directions and Forensic Regulator Act to facilitate learning, and improvements in science communication in court.*

14. The prevention of miscarriages of justice must remain a priority. Yet recognition that miscarriages have occurred, and will continue to occur, means forensic science must be better supported in its vital role post-conviction. The decline of the sector threatens the possibility of both miscarriages of

justice, and 'cold' cases to be re-investigated by scientists. Reinvigoration of the sector should assist, but further reforms are necessary, particularly in respect of the operation of the Criminal Cases Review Commission (CCRC) and their access to forensic expertise.

Recommendation 22 - ***The Criminal Cases Review Commission (CCRC) should have within their permanent staff members who have scientific backgrounds. They should also have access to a panel of experts with broader knowledge and expertise via the NFSI. In all cases involving disputed forensic evidence a forensic expert should be involved in initial case screening, advising on a forensic strategy and overseeing scientific inquiries. A decision on whether to refer cases involving scientific evidence to the Court of Appeal should always involve staff with relevant scientific, not just policing, expertise.***

Recommendation 23 - ***There must be a cultural change at the CCRC in favour of testing. Where the CCRC decides not to undertake forensic inquiries or further testing, their reasoning should be fully explained and made transparent. This should be open to scrutiny and challenge without recourse to legal action.***

15. Miscarriages of justice of course cannot be reinvestigated if the original exhibits and investigation materials have not been retained with integrity. The crisis in evidence retention becomes moot however, if the authorities do not then permit disclosure to those alleging they are the victim of a miscarriage of justice.

Recommendation 24 - ***The Law Commission proposals on retention and archiving of evidence should be accepted, including the creation of a national storage capacity independent of the police (or expansion of the existing Forensic Archive). This should guarantee adherence to retention guidelines, with new Regulatory Codes of Practice to ensure the retention of all evidence with integrity.***

Recommendation 25 - ***Representatives of appellants should be afforded disclosure of a detailed account of all archived investigative material and have access to materials for inspection/ testing purposes upon request and having identified a suitable laboratory to conduct the work. Trial transcripts should be available to appellants at reasonable cost to assess how forensic evidence was presented during the trial.***

16. Focussing on measures to sustain the delivery of high-quality forensic science services, and the accurate, unbiased communication of forensic evidence, was of critical importance to our inquiry. But underpinning all the necessary reforms to save the sector must be a re-centring of science and scientists. The discipline of forensic science must retain its validity and credibility, and ensure it continues to maintain its scientific credentials, as well as improve and innovate. This requires a national strategic approach, with investment in research and development, and critically, proper recognition and reward for the scientists dedicated to the pursuit of justice.

Recommendation 26 - ***A national forensic science strategy, led by the NFSI and co- created with representation from all stakeholders, should drive reforms that will secure the survival and development of forensic science, conducted by independent scientists. Research should be undertaken to fortify the scientific underpinnings of forensic science, as well as operationally focussed research, horizon scanning and the development of methods and tools.***

Recommendation 27 - ***The NFSI should oversee a national research strategy for forensic science include setting and renewing Areas of Research Interest (ARIs), agreed in collaboration with the National Centre for Policing (NCoP), the AFSP, and other stakeholders. This strategy should work in harmony with police ambitions to expand police science and technology capacity, not be subordinate to it.***

Recommendation 28 - ***The NFSI should support a network of Forensic Academic Centres of Excellence (F-ACEs) which bring together forensic academics, researchers, industry and police. This network should facilitate a 'whole system' approach to forensic science, where a shared understanding of capacity and capabilities stimulates innovation and improvement, whilst motivating the next generation of scientists and retaining and embedding the expertise that remains.***

17. Forensic scientists and their employers all express very real concern about the future of the discipline, with staff morale at rock bottom. Our national capacity and capabilities in forensic science are seriously threatened by experienced scientists leaving the field, replaced by new recruits with little to convince them to pursue a long- term career in forensic science. The pressures in the system are forcing good scientists out before they can become competent generalists.

Recommendation 29 - ***The NFSI should assess staffing requirements and training needs for the future, with education and training designed with a view to growing a cadre of specialists while maintaining a body of more generalised forensic scientists who can work across multiple disciplines, thereby providing holistic approaches to complex investigations. A national strategy to preserve and reinvigorate specialisms within the NFSI and regional Forensic Academic Centres of Excellence, should include plans for the retention of highly skilled staff across a range of specialisms.***

18. Some forensic disciplines are on the brink of extinction, with no experienced scientists able to train and mentor the future specialists and no opportunities to gain experience. Even core forensic disciplines such as toxicology, have been under-resourced for several years, with no respite in sight. Disciplines become sidelined as 'niche' and then are further sidelined, until we lose our capacity in that discipline or our science falls behind best practice: yet another turn in the graveyard spiral. Without a national strategy to halt the loss of staff, skills and capabilities, we lose the capacity to detect crimes efficiently. The unique and often vital links between all forensic techniques in investigating complex crimes demands that capabilities and techniques are maintained or difficult (often high profile) cases will remain unsolved, and opportunities to prevent and overturn miscarriages of justice will be lost. The 'value' of forensic science must be properly accounted for to support reform efforts.

Recommendation 30 - ***There must be an urgent survey of capacity and capabilities, including niche services, across England and Wales, and immediate plans initiated to retain what expertise remains. The NFSI strategy must ensure that through research and additional support, scientists remain at the forefront of developments. Disciplines and forensic techniques must be supported so they do not become outdated and reliant upon superseded methods.***

Recommendation 31 - ***The Research Excellence Framework (REF) must establish a Unit of Assessment for forensic science meaning that further funding could be secured from government QR funding.***

Recommendation 32 – ***The NFSI should work with NCoP to map unmet police needs and understand the reasons for the diminishing use of niche techniques. The essential maintenance and strengthening of national capacity and capabilities must be factored into an overall delivery model.***

Recommendation 33 - ***Efforts to properly evaluate forensic science should be renewed with research establishing the true costs and benefits of forensic science prioritised.***

19. The creation of the office of Forensic Science Regulator in England and Wales was long fought for and statutory powers hard won. We found however that this has led to some complacency and premature conclusions of 'mission accomplished'. In the Regulator's Codes of Practice, it is stated that the aim of regulation is to ensure the accuracy and reliability of scientific evidence in criminal investigations and in criminal trials (our emphasis). Currently however, the Codes focus upon testing protocols, quality management systems and accreditation to ISO standards. Sufficient time has passed that the impact of the regulatory regime now be properly independently assessed.

Recommendation 34 - ***The impact of the forensic regulatory regime should be independently assessed with the Codes of Practice evaluated for their appropriateness for different practice areas and providers. There must be regulatory measures to ensure that specialisms can be preserved while maintaining high quality science and compliance across all providers. Consideration should be given to the future adoption of the ISO 21043 standard and an assessment made of the UKAS accreditation process, to seek more cost-effective methods.***

20. It is well established that there are significant negative economic impacts of high crime rates

and societies that feel unsafe do not thrive. If the government are serious about their ambition to halve the incidences of both knife crime and violence against women and girls, creating 'safer streets' within a decade, they must take seriously the challenges facing forensic science. To address their mission of raising confidence in the police and criminal justice system, existing miscarriages of justice must be urgently overturned, and future miscarriages of justice prevented. For a society aspiring to be free of injustice, forensic science should be part of the critical national infrastructure.

21.

There is universal agreement that **urgent action is necessary** if we are to pull the forensic science sector out of its graveyard spiral. Our inquiry sought to identify the adjustments necessary to achieve this. Recovery will require the engagement of a range of agencies, organisations and stakeholders. The police and Home Office should not be piloting the sector alone. Many of the building blocks necessary to support a resilient and responsive market, and a sustainable, high quality forensic science sector already exist. **There is still a small window of time** in which, if the intention to act with haste is made clear, and initial steps are taken urgently, with work commenced on longer term plans, the spiral can be escaped. **But that window is closing.**

We hope that our report and recommendations provide valuable insight into the issues facing the sector, charting a possible road to recovery for all stakeholders to come together to action.

Introduction

1.1.
When launching our inquiry into forensic science, the now retired Member for Parliament Barry Sheerman, stated that our Commission would "*shine a light on the sector*". Each of the Commissioners have sufficient experience and longevity working in, or around, the field to appreciate that forensic science in England and Wales is not the world-leader it once was, a source of regret amongst many.
Concerns about forensic science are not new, and have given rise to a succession of reviews, inquiries and consultations from the 1980s onwards. Each has sought the holy grail of establishing a formula for funding and the delivery of high-quality, responsive forensic science services.

Since 2005, there have been seven major reports detailing "*multiple significant, deep-rooted and persistent issues*".[6]

[6] See Jhalani, S., et al, 'UK parliamentary inquiry reports in forensic science – Plus ça change?,' *Forensic Science International: Synergy* (2024) 9, 1.

1.2. Most recently, in 2019 the House of Lords Science and Technology Committee produced a '*Blueprint for Change*', a thorough and sobering report detailing the "extreme pressures" facing the "dysfunctional" forensic sector.[7] They concluded that: "*Forensic science in England and Wales is in trouble. To ensure the delivery of justice, the time for action is now*." Their recommendations aimed to alleviate the worst of the problems and mitigate the most serious risks; that public trust would be lost and confidence in the justice system threatened, while "*crimes may go unsolved and the number of miscarriages of justice may increase*."[8]

1.3. The House of Lords report is now six years old; their warnings having gone largely unheeded and few of their recommendations have resulted in action. Indeed, the symptoms described in their report have become more acute in the intervening years. The Forensic Science Regulator (2015-2021), Professor Gill Tully, registered increasing alarm throughout her tenure, explaining how forensic science for years had been: "*lurching from crisis to crisis*" and "*operating on a knife-edge*", until the threat to forensics had become "*close to existential*".

1.4. We now characterise the sector as being in what is referred to in aviation terms as a 'graveyard spiral'. This occurs when the pilot becomes disorientated, loses their sense of direction and takes corrective action that increases the speed of descent as they no longer trust their instrumentation. Pilots can take ever more misguided decisions until it becomes impossible to recover, and so often proves fatal. While some different characteristics and external pressures may be discernible within the forensic science sector, in our report, we set out the reality of the stark trajectory of this graveyard spiral in forensic science, its causal factors, and suggest corrective actions that are urgently required to avoid the otherwise inevitable disaster.

1.5. Before outlining our report, it is important to explain briefly both what forensic science is, and the rationale for undertaking another inquiry into this subject in England and Wales.

What is forensic science?

1.6. To understand the threat to forensic science in England and Wales, it is important to understand what is, (and what is not), forensic science. The 'discipline' was recently defined in the 2022 'Sydney Declaration' as:

> "a case-based (or multi case-based) research-oriented, science-based endeavour to study traces – the remnants of past activities (such as an individual's presence and actions) – through their detection, recognition, recovery, examination and interpretation to understand anomalous events of public interest (e.g., crimes, security incidents)." [9]

1.7. Forensic investigation involves decisions about which items, or 'traces' to retrieve (or 'sample'), and which tests to conduct, as well as how to interpret the results of those tests and be able to offer an expert opinion for any subsequent trial. Forensic science is not simply the sum of the tests undertaken, but the scientific investigative strategy behind them and the contextual interpretation and evaluation of the results in the light of sound scientific understanding. but the scientific investigative strategy behind them and the contextual interpretation and evaluation of the results in the light of sound scientific understanding.

1.8. The terminology, 'forensic science' merely explains that whatever the nature of the science, technology or technique, it is employed to assist in the resolution of a legal dispute.[10] Indeed, the ubiq-

---

[7] House of Lords Science and Technology Select Committee 'Forensic science and the criminal justice system: A Blueprint for Change'. 3rd Report of Session 2017-19 - published 1 May 2019 - HL Paper 333 (Hereafter 'House of Lords 'Blueprint'.)

[8] House of Lords 'Blueprint'

[9] Claude Roux, Rebecca Bucht, Frank Crispino, Peter De Forest, Chris Lennard, Pierre Margot, Michelle D. Miranda, Niamh NicDaeid, Olivier Ribaux, Alastair Ross, Sheila Willis, The Sydney declaration – Revisiting the essence of forensic science through its fundamental principles, *Forensic Science International*, Volume 332, 2022, 111182.

10 This can be in any kind of legal fora, from major inquiries to civil law disputes, but we here, as with most others, focus upon the application of forensic science in the criminal justice system. Of course, the risks we highlight will have impacts in these other legal fora, but our focus is on miscarriages of justice.

uitous, but crude categorisation of any science as being 'forensic science', can foreground this diversity and obscure its essential features. Each science or technology labelled 'forensic science' will have its own attributes but must share a core criterion: it must be based upon scientific principles. We recognise there is strength in this diversity, while acknowledging that some techniques deployed in the criminal justice system have stronger scientific credentials than others.

1.9. We have not entered into discussion on the comparative merits of different disciplines. For ease of understanding, we use the term 'forensic science' throughout to cover all disciplines in principle, only referring to a specific discipline where necessary. For example, there are issues with 'digital forensics' which often reflect those in other disciplines, but given its rapid development and prevalence, and the differential treatment of this discipline, these issues are of sufficient concern to sometimes merit brief, but separate consideration.

Why another inquiry?

1.10. The crisis in the criminal justice system has many components and high-profile cases can draw attention to the very real consequences of weaknesses within our system. Most recently, these have included the largest miscarriage of justice in our history: the Post Office Horizon scandal with thousands of innocent sub-postmasters wrongly accused and hundreds wrongly convicted. In May 2025, we have also witnessed the overturning of the longest miscarriage of justice, with the release of Peter Sullivan after 38 years imprisonment for a murder he did not commit.

1.11. The APPG on Miscarriages of Justice has previously inquired into the ability to identify and rectify miscarriages of justice, publishing '*In the Interests of Justice*', in 2021. During the course of that inquiry, reference was often made to the potential contribution of forensic science to miscarriages of justice. Forensic science can provide the key to the successful detection and prosecution of offences and as Gary Pugh, the current Forensic Regulator explains: "*Forensic science is critically important as one of our strongest safeguards against miscarriages of justice and false allegations. We should not underestimate its power to act as a safeguard for justice*."[11] But forensic science can simultaneously compound failings, with potentially disastrous outcomes. This Commission of Inquiry was tasked with inquiring into the role that forensic science may play in miscarriages of justice today.

1.12. One does not need a particularly long memory to sense history repeating itself. In the 1970s and 1980s, high profile miscarriages of justice led to inquiries that examined the delivery and quality of forensic science. This critical scrutiny led to reforms that sought to mitigate risk, mostly focussed on quality systems within forensic laboratories and verifying the qualifications of scientists. There followed a period where worries about miscarriages of justice were allayed, holding faith in the success of reforms (including the creation in 1997 of the Criminal Cases Review Commission - CCRC). This could be seen as a period of complacency marked by renewed emphasis on efficiency and cost. Since the 2008 financial crisis, the cuts of the austerity programme have been borne disproportionately on the justice sector, with budget cuts leading to economising, and we find ourselves back at the start of the cycle: the quality of criminal investigations drops, prosecutions fail, and forensic science is once again in the spotlight for causing miscarriages of justice.

1.13. It is undeniable that over the same period, the delivery and regulation of forensic services, as well as its underpinning science and technology, has undergone radical change. Forensic science looks very different since the miscarriages of justice of even ten or twenty years ago, and advances even in the last decade are striking. Highlighting just a few changes makes clear the different landscape in which forensic science is operating:

1.14. The privatisation of forensic science services and creation of a wholly private 'market' in England and Wales, that emerged following the closure of the Forensic Science Service (FSS) in 2012;

- The commercial market dramatically constricted, leaving just two main providers (one

[11] Gary Pugh, The Forensic Regulator 2021-2025.

dominating the market) and some smaller specialist firms, significantly reducing capacity and capabilities in a range of forensic services;

- The growth of police forces taking forensic roles 'in-house', coupled with diverse contracting and delivery models with private providers, creating a fragmented service nationally and a generalised 'postcode lottery';
- The creation of the office of Forensic Science Regulator, with statutory powers of enforcement since 2023;
- Reduction of investment in research and development, with cuts to funding for both operational and academic research into forensic science;
- The introduction of 'Streamlined Forensic Reporting' and limitations on legal aid to enable the defence to access and challenge forensic evidence.

1.15. Even since the House of Lords report in 2019, there have been changes that should be evaluated. For instance, the Forensic Regulator Act came into force in October 2023, and the second iteration of the Regulator's Codes of Practice will come into force in October 2025. There is also now just one dominant full-service provider in England and Wales, creating a near monopoly, thereby complicating efforts to save the sector from disaster. The move to take more 'scientific' services 'in-house', to be performed by either police officers or staff, continues to accelerate. Recognising the increasing risk of both miscarriages of justice and sector failure, the APPG on Miscarriages of Justice assembled a group of experts to provide parliamentarians with a clear assessment of the current situation.

The work of this inquiry

1.16. To inform our inquiry, we gathered evidence through a public consultation, for which we received 111 responses. We also received 12 detailed written submissions from police forces, forensics scientists, university departments, and lawyers. We held eight multi-witness oral evidence sessions in Parliament and online, during which important stakeholders and witnesses gave invaluable evidence. We also met with Home Office and Ministry of Justice representatives.

1.17. Our commissioners visited forensic laboratories to observe their work first-hand. This included visits to independent and police laboratories in England and combinations of the two. We also visited Scotland's Forensic Services and the Netherlands Forensic Science Institute (NFSI) in The Hague, which provided important perspectives on how forensic services may be delivered differently. Our site visits included a range of delivery models, including 'in-house' police delivery, 'managed services' and commercial forensic science provision.

1.18. We are most grateful for the time that everyone spent responding to our consultation, and their generosity and willingness to be open and honest in answering our questions was much appreciated as was their hospitality when we visited their facilities. Our report summarises current concerns raised by our respondents and witnesses, and we draw upon our experiences from our many visits to formulate our views and recommendations.

Our Report

1.19. The chapters in our report focus on three critical areas: the delivery of forensic science services; the use of forensic evidence and equality of arms, and the underpinning science and research. Miscarriages of justice can be set in motion in any one of these areas or in the transitions and gaps between them. Each of these areas requires input from a broad range of parties and agencies working alongside scientists, only some of whom appear sufficiently engaged in seeking resolutions to the critical issues facing forensic science today. The need for a 'whole system' approach, that encompasses all relevant parties and stakeholders, has never been more important. In each chapter we address the questions that must be answered now with great urgency if the sector is to survive and miscarriages of justice are to be averted.

1.20. In chapter two we consider the delivery of forensic science services, charting the rise and fall of forensic science capabilities in England and Wales. It is important that we understand where we have come from so that we may learn from the past. We recount the early days of commercialisation and the impact of police budget cuts which stymied the growing market and led to commercial failures, resulting in the near monopoly situation of the present day. Funding pressures and market instability have intensified efforts by police to take provision in-house and cut back on forensic science demand. Procurement and contracting has also given rise to 'commoditised' forensic science provision, creating a 'dual track' forensic provision with 'rapid/cheap' testing being separated from slower, more specialist or 'complex' forensic investigations.

1.21. The chapter then details current issues with national capacity and capabilities, and isolates fault lines, including: triaging and submissions; digital forensic investigations, crime scene examination and management. We restate the necessity of independence of science from policing, and set out how we might reform delivery, first stabilising and reinvigorating the market and using existing building blocks to rebuild a more stable and sustainable forensic delivery model for England and Wales, while also creating a National Forensic Science Institute, providing a long needed 'professional home' for forensic science.

1.22. The communication of forensic evidence is the focus of chapter three, and how this evidence proceeds through the criminal process, from investigation, to charging, through to trial and post-conviction. Detailing the 'Streamlined Forensic Reporting' process, including issues around disclosure and prosecutorial responsibilities, we focus on the fundamental problems attendant upon an adversarial system that is failing in its efforts to achieve equality of arms and protect the innocent. The difficulties in securing defence expertise and regulating the admission of forensic evidence at trial are thus considered before turning to the vital role played by forensic scientists in investigating potential miscarriages of justice, and necessary reforms for post-conviction processes, including evidence retention and archiving, and disclosure.

1.23. Chapter four turns to the core fundamentals of forensic science: the science and its scientists. Here we detail the threats to both, from the blurring of forensic science with 'police science' to the retrenchment of forensic scientists from the criminal justice system. We call for the re-centring of 'science' within forensic science, with proper funding and investment in national research and development capacity, setting out the role of the National Forensic Science Institute in setting a research strategy. Workforce strains and our diminishing 'specialist' forensic capabilities are highlighted as pivotal in accelerating the ongoing graveyard spiral. The failure of the sector to lobby for resources and policy-change is underpinned by the ongoing inability to argue for the effectiveness of forensic science, with focus and investment having been expended on forensic regulatory efforts and the shift to in-sourcing by the police. We end by considering the benefits accrued, and adverse outcomes of the regulatory model adopted, and the future role of the Forensic Science Regulator.

1.24. We conclude our report, recounting that forensic science in England and Wales has gone through a series of major transformations over recent decades. Many lessons have been learnt and need to be borne in mind as the Home Secretary undertakes another significant reformation of policing, including the creation of a 'National Centre for Policing' among other measures. Considering the evidence that we have gathered and the combined expertise of our commissioners, our respondents and witnesses, we provide suggestions that may save forensic science from the inevitable disaster at the end of a graveyard spiral. While there have been many inquiries before this, most recently they have engendered very little response, and the governance of forensic science has been left to wither on the vine. But the crisis is now reaching an endpoint, with the failure to preserve forensic science provision to facilitate successful investigations and prosecutions, and insufficient guardrails to prevent miscarriages of justice at multiple potential points of failure in the criminal justice process.

1.25. If the government is serious about succeeding in its missions, then it needs reliable, responsive and trusted forensic evidence. In which case, a choice should be made to rebuild a world-leading forensic science sector that will help to deliver on the visions of 'safer streets', supporting a thriving economy in a low-crime environment with opportunities for all citizens.

The delivery of forensic services

Chapter 2 The delivery of forensic services

2.1
Forensic science has long been cast as crucial to the effective and efficient provision of a fair and just criminal justice system. While giving the police the upper hand in the fight against crime, forensic science can also ensure that investigations are less reliant upon police hunches or flawed evidence types (such as eyewitnesses) and can proceed on the basis of impartial and objective evidence. A litany of miscarriages of justice highlights a paradox however: forensic evidence has the capacity to prevent and remedy miscarriages of justice, and is highly valued by judges and juries, but absent or poor-quality forensic evidence can also increase the risk of injustice.[12]

It is vital that attention is paid to the effective delivery of forensic science to harness its power without allowing it to pose a threat to justice.

---

[12] McCartney, C. 'The Forensic Science Paradox' in: King, Lennon & McCartney (eds) *Counter-terrorism, Constitutionalism and Miscarriages of Justice* (Hart Publishing, 2019). pp227-248

THE RISE AND FALL OF A NATIONAL FORENSIC SCIENCE CAPABILITY

2.2 Forensic science capabilities advanced dramatically during the 20th century, becoming a key component of our criminal justice system. In England and Wales, as both capabilities and capacity developed, forensic laboratories started to be organised nationally and by the 1960s, there were nine laboratories in England and Wales servicing the majority of police demand. Eight of these laboratories were financed by central government and came under the Home Office - the 'Forensic Science Service' (HOFSS – becoming known as the 'FSS'). Just one lab – the Metropolitan Police laboratory – was funded and controlled directly by a police force. The FSS acted as an official advisor to the government, and their staff were the most prolific authors of forensic science papers internationally, leading the forensic community for many years in research and development, particularly in forensic DNA profiling in its latter years.

2.3 During the 1970s, as forensic science proliferated, workloads rose, necessitating increased recruitment of scientists and bigger, more 'efficient' laboratories, until the cost to the Home Office started to attract attention from government budget-holders. Unchecked expansion was unsustainable so 'selectivity' was introduced in an attempt to manage growing demand. While the FSS was highly respected at home and overseas, it was often overwhelmed and backlogs grew, while scientists and resources were also increasingly distanced from the local police demand.[13] Subsequent reviews saw non-scientific experts examining the work of the FSS, often with little understanding or shared vision of the role of the service within the criminal justice system. Unsurprisingly, the Home Office was unable to take decisive action to steer the service safely, nor was it able to provide stable management. Dissatisfaction, amongst both the scientists and the police, grew.

2.4 The Home Affairs Select Committee reported in 1989 that the FSS could not meet the demand for its work and that '*morale was at rock bottom*', with "*poor management and lack of direction in the FSS*."[14] The Committee supported the introduction of charges in an attempt to balance supply and demand.[15] In response, in 1991 the FSS became an Executive Agency of the Home Office and introduced direct charging. Initially, the vision appeared to be to create an 'internal' market, with the FSS as monopoly provider, but "*eventually more effective arrangements, in the form of a more competitive market or pluralistic provision emerged, but, arguably, one in which for a long time the FSS enjoyed a privileged position*."[16] Devolved forensic budgets to individual police forces meant they were able to choose which forensic services to purchase and unsurprisingly, expenditure on forensic science declined, including the halving of crime scene attendance between 1989-90 and 1994-95.[17] There was a radical swing from the '*indiscriminate use of forensic science*' described by Rayner in his review of 1981, to a tendency identified by Touche Ross in 1987 for '*selectivity [to go] too far*'.

2.5 While lessening demand, devolved budgets also opened the door for competitors, driven by concerns over the professional and efficient delivery of high-quality and innovative forensic science to both police and defence, rather than purely commercial opportunity. They were often able to recruit FSS scientists unhappy with the changing culture at the public provider and/or who had lost their jobs through the first of three threatened FSS laboratory closures. Indeed, this closure, and threats of further closures directly led to the creation of what is now the largest supplier of independent forensic services in England and Wales. By 2002, the FSS ceased to be the 'preferred supplier' by the police and, even with efforts by the Home Office to shore them up impeding the nascent forensic competition, yet another review recommended the FSS become a Public-Private Partnership, through transition to a Government Owned Company (GovCo) in 2005.[18]

2.6 During the 1990s, scientists had been privately voicing concerns about internal pressure which prioritised speed over quality, with the under resourced FSS 'rationing' services. Undertaking less work

---

[13] NAO (1983) The Rayner Scrutiny Programmes 1979 to 1983 (London, HMSO).
[14] Tilley, N. and M. Townsley, 'Forensic science in UK policing: strategies, tactics and effectiveness.' In Fraser and Williams (eds) *Handbook on Forensic Science*, (Willan, 2009).
[15] House of Commons Home Affairs Committee (1989) The Forensic Science Service, quoted in Roberts, P. (1996) 'What Price a Free Market in Forensic Science Services? The Organization and Regulation of Science in the Criminal Process.' *British Journal of Criminology* 36: 37-52.
[16] Written evidence submitted by Northumbria University Centre for Forensic Science (FSS 82) (2010) https://publications.parliament.uk/pa/cm201011/cmselect/cmsctech/writev/forensic/m82.htm
[17] Written evidence submitted by Northumbria University Centre for Forensic Science (2010)
[18] Home Office, *Review of the Forensic Science Service*, 17 July 2003; HC (2004-05) 96-I, known as the 'McFarland review'.

per case, staff expressed fears that they would be held personally responsible for mistakes, as had happened on previous occasions. Nationally, issues arising from capacity pressures persisted, including quality concerns, and the difficulty in obtaining forensic expertise (beyond drugs and toxicology) for the defence.[19] Some of the many FSS difficulties were catalogued in the 2005 '*Forensic Science on Trial*' Report,[20] and failings in high-profile cases were continuing to be reported in the media, highlighting mistakes that the FSS were often slow to address.

Commercialising forensic science

2.7 Even with a government grant of £50 million in 2008 and a transformation programme to reduce costs by mid-2011, the FSS continued to 'lose' money, although nationally their market share remained around 60%.[21] In December 2010 the decision was taken to close the FSS entirely, citing 'losses' of £2 million a month (a sum disputed): "*our firm ambition is that there will be no continuing state interest in a forensics provider by March 2012*."[22] After the many years of scrutiny, reports, delivery and management changes, and finally the transformation programme, the closure of the FSS was then undertaken too rapidly, was poorly managed, and many people (including FSS competitors) speculated that the persistent difficulties with the public sector provider could have been overcome. In March 2012, with the closure of the FSS (costing an estimated £78 million), England and Wales became the first country in the world to have a fully commercial forensic science sector.

2.8 The development of the forensic science market during the late 1990s and early 2000s was initially a success. For a time, this maturing market was able to sustain three large providers who sat alongside the FSS and were delivering a high-quality service, bringing new methods and innovation to the sector.[23] These 'full service' providers were supplemented by small(er) specialist enterprises. Competition drove much needed efficiencies leading to lower prices and faster turnround times. It also brought innovation, and the development of new approaches required to solve intractable cold cases including, *inter alia*: the murders of Stephen Lawrence; Rachel Nickell, and Damilola Taylor.

2.9 Operating within a commercial market, a system of contracting had to be created for the police to procure forensic services. In tendering for these contracts, providers and police together had to translate complex forensic activities into test-based 'commodities' that could be priced and sold. Police purchasing on forensic science was then split into a 'dual track' provision, with one being 'commoditised' testing (such as DNA, drugs and toxicology) and the other being casework (which among other things included some DNA, drugs and toxicological analysis depending on the type of case being examined). Each police service could pick which, and how many 'tests' they wished to purchase and from whom. These tests however, and their exact parameters, differed between police forces and providers, complicating contracting further, creating inconsistencies in delivery, and potential fragmentation (e.g. exhibits from a case being split up on cost, capacity or capability grounds, and sent to different providers).

2.10 Between the forensic providers, there were highly competitive pricing wars to win essential contracts, and this often led to unrealistic costings, most clearly from the FSS who arguably lacked sufficient business acumen and were always under pressure to maintain their position as primary provider. A test could be significantly more costly than the police were being charged in some instances but would be 'subsidised' by other tests sold in large numbers. DNA testing for example, was often used to 'balance the books'. The Managing Director of Cellmark also explained that even with low pricing, police still did not always trust that charges were fair:

> "*in the days of the FSS, a mistrust was built up... a feeling that people would just charge*

---

[19] The first full-service competitor to the FSS was created in 1997/8 with the opening of the Forensic Alliance - the competition up till then had been only in specific areas such as drugs and toxicology.
[20] House of Commons Science and Technology Select Committee, *Forensic Science on Trial* - Seventh Report of Session 2004–05, 2005.
[21] The next largest forensic provider was LGC Forensics, (formed from the acquisition of Forensic Alliance by the Laboratory of the Government Chemist (LGC), a private company with around 20% of the market.
[22] HC Deb, 14 December 2010, col 95WS. A House of Commons Select Committee later called the £2m figure 'flawed' and 'simplistic': House of Commons Science and Technology Committee, *Forensic Science*, Second Report of Session 2012-13, HC 610, July 2013.
[23] Forensic Alliance, Cellmark and LGC Forensics, with Key Forensics later emerging in 2004. LGC later acquired Forensic Alliance, returning to three providers again.

you hours and do as much as they wanted to. There's been a swing over time from that period of lack of trust, to be able to build up trust. It doesn't help that as a private organisation, somehow there is a concern that 'they're just trying to make money', which is so ridiculously far from the truth".

2.11 While the police benefitted from this cutthroat pricing and did not request greater transparency, there was insufficient appreciation of the true cost of delivering services, ultimately damaging the market in the long term. Ministers and police were castigated for not establishing that there was sufficient capacity, and willingness in the private market to take over the FSS market share despite being warned that the nascent forensic market could be extinguished by a lack of clarity around police expenditure, and the growing shift in balance to more internal expenditure on in- house services.[24]

2.12 Police forces were often left unsupported during the shift to commercial provision, and it took many years before they started to regionalise and professionalise their forensic procurement. However, the government austerity programme, which saw significant reductions in police budgets, meant that issues started to arise rather swiftly. Budget cuts and demands for 'best value' across government saw even further expansion of police 'in-house' forensic provision, ostensibly to save costs and avoid painful procurement exercises. What had been envisaged as a plurality of supply within a competitive market with everyone working to common quality standards was struggling to be realised.

Police expenditure on forensic science

2.13 The House of Commons Select Committee on Science and Technology examined the closure of the FSS in 2012, looking closely at police expenditure – as this drives the forensic market.[25] Between 2005 and 2010, the total police expenditure on forensic science fell from £355 million to £319 million, but the split between internal/external expenditure as a percentage during the same period changed from 46.5/53.5 to 56.4/43.6, meaning that the decline in external expenditure on forensic science 2005- 2010 was from £190 million to £138 million.[26] Savings from commercialisation had been quickly proclaimed, with policing organisations explaining how regional tendering had led to, for example, an 18% reduction in their total cost of external forensics in the East Midlands region, and that such savings were "*the single biggest factor in the reduction in forces external forensic spend*".[27] The police warned that this reduction in external spend would continue: "*their spend on external forensic suppliers will continue to fall over the next few years, as forces seek to maximise efficiencies in this area*".[28]

2.14 The Select Committee made clear its frustrations at the lack of transparency and clarity, concerning the vague sums provided, stating that this was 'unacceptable', and that the private sector requires accurate assessments of the size of the market and anticipated future trends.[29] Both senior police and Ministers claimed that there was a policy of not requiring the police to collect 'new data', and that expenditure is a matter for Chief Constables and they should not be 'over-managed'.[30] The Select Committee was not convinced:

> *"In our view, collecting data on police expenditure is not at odds with enabling the police to have operational independence... We recommend that ACPO and the Home Office gather and publish data on the full police expenditure on internal forensic activities, including capital, training and skills, forensic testing and administration over the last five years, and continue to publish this information in future. If the Government's policy of a market in forensic science services is to operate effectively, it is important that the full costs of internal forensic expenditure are fully and accurately reported*."[31]

2.15 Just one year later, the Science and Technology Committee complained that there was still a

---

[24] House of Commons Science and Technology Committee *The Forensic Science Service*, Seventh Report of Session 2010–12.
[25] ibid, p.14.
[26] ibid., p15.
[27] ibid., Ev 107.
[28] ibid. pp14-16.
[29] ibid., paras 46 – 47.
[30] ibid., paras 46 – 47.
[31] ibid, para. 49.

lack of data on the size of the forensic market and the proportion of it being delivered by the police, and that inconsistent accounting meant it was near impossible to get a clear picture of expenditure. Such data was necessary to address the lack of an official strategy to ensure the forensic market was in good health, both in the short and long-term.[32] The Committee repeated their concerns that uncertainty over current and future police expenditure was in fact undermining the market. They urged the Home Office and police to review accounting practices immediately to introduce consistency and standardisation, and that it was in the interests of: "*public accountability, transparency and business planning for companies in the market*" that the police publish annual full accounts of forensic science expenditure.[33] The Committee also suggested a role for Police and Crime Commissioners in providing stronger and more transparent accountability and that the National Audit Office (NAO) examine whether internal forensic science activities conducted by police forces represented value for money.

2.16 The government responded that such annual accounting would place a disproportionate bureaucratic burden on police forces, and that it already had sufficient intelligence on the state of the market.[34] The National Audit Office did report the following year on forensics expenditure. They concluded that the data available was limited and incomplete, inconsistent and/or difficult to access, estimating that it would require the examination of 372 documents to assess forensic expenditure across England and Wales,[35] and provided examples of resulting confusion:

> "*...expenditure data is classified by supplier occupation, so if a supplier is classified as a supplier of forensics all services it provides will be classified as such, regardless of whether they are forensics-related. This means estimates of expenditure could be inflated. The result of this ambiguity is there is no single agreed figure for external third-party forensics spending. The data collected by Bravo Solutions records a figure of £80 million in 2013-14 while equivalent CIPFA data showed spend was £91 million.*"[36]

We have seen no evidence of a change in attitude by the Home Office and the lack of transparency and clarity surrounding police expenditure on forensic science remains unaddressed.

2.17 The National Audit Office 2014 report also concluded that the police were undertaking more forensic work internally and warned that this could undermine the market:

> "*Expenditure on private sector forensic services through the framework has declined significantly, to around £60 million a year. Some of the fall is attributable to budget cuts, falling reported crime levels and police being more careful with what specific forensic tests they purchase, but some police forces have shifted their forensic spending from external private suppliers to their own in-house laboratories. Private sector companies are concerned that police force laboratories may be able to operate more cheaply by using police premises without charge or by delaying meeting UK accreditation standards (suppliers of forensic services told us significant investment is needed to attain and sustain the required ISO 17025 standard for forensic services suppliers).*"

2.18 The government prediction of an external forensic market worth £110 million in 2015,[37] was wide of the mark, with forensic services purchased through the national framework totalling approximately £60 million in 2013-14.[38] In fact, the government austerity agenda led to drastic cuts across the criminal justice system and while the National Police Chiefs Council reported that spending on forensic services by police fell "*at the same rate*" as total police expenditure, there was actually a steeper decline, so that between 2010 and 2016 there was a 40% cut in spending on external forensic services.[39] Understandably, the market began to shrink rapidly. Police budget cuts forced FSPs to engage in a 'race to the bottom'

---

[32] House of Commons Science and Technology Committee, *Forensic Science*, Second Report of Session 2012-13, HC 610.
[33] ibid., para 18.
[34] Forensic science: Government response to second report of the Science and Technology Committee, November 2013, Cm 8750.
[35] Briefing for the House of Commons Science and Technology Committee: The Home Office's oversight of forensic services, December 2014, p.5.
[36] ibid., p.6.
[37] House of Commons Science and Technology Committee *The Forensic Science Service*, Seventh Report of Session 2010–12, p16
[38] Albeit this does not include spending on forensic services outside of the national framework – data which the Home Office did not collect. Briefing for the House of Commons Science and Technology Committee: *The Home Office's oversight of forensic services*, December 2014.
[39] G Bandy and J Hartley, 'Debate: When Spending Less Causes a Problem' (2018) 38 *Public Money & Management* 52. The NPCC reported to the House of Lords that between 2012/13 and 2014/15 alone, spending on commercial providers fell by approximately 29%.

with little if any return on investment, making their business models vulnerable. It was not long before the Forensic Science Regulator was issuing annual warnings of an impending 'crisis' in forensic science, declaring in 2017 that: "*too much money has been and is continuing to be driven out of forensic science provision*."

2.19 The outcome of all these factors in combination, was predicted by researchers in 2018: "*the continued fall in spending put more pressure on the FSPs' turnover and profitability and, therefore, poses questions about the sustainability of the market*".[40] Indeed, in 2018, Key Forensics had to be rescued by a £1.8 million loan from the Mayor of London's office before being bought by CorpAcq. It was reported that: "*the administrators... warned the Home Office of a "potentially catastrophic" impact on the criminal justice system if the company was liquidated. It would have meant potentially crucial evidence in thousands of court cases being locked away from police forces or even destroyed*."[41] The mainstay of the forensic market – police expenditure - remains opaque, with the longstanding policy of cutting expenditure on external forensic services continuing to dominate discussion on the stability of the market. While vital, these discussions on 'stability' need updating to take account of the current reality, so that the focus should now be on actual 'survival' of the market.

The forensic marketplace: From stability to survival?

2.20 No fewer than twenty submissions were referenced by the House of Lords in 2019, making the point that the forensic science market in England and Wales was unsustainable and in need of urgent reform. The Metropolitan Police (MPS) and others recognised the risks of instability in the market, prompting them to enter long- term contracts with a commercial partner. However, such arrangements also further undermined stability, leaving other providers: "vulnerable and at the mercy of the winning provider hoping they will offer them some subcontracting work; these enormous swings in work provide further uncertainty in the marketplace."[42] Professor Gillian Tully, while Forensic Regulator, repeatedly raised the risks to the criminal justice system of the market precarity, with providers leaving the market. These risks included:

- loss of continuity of exhibits
- degradation of exhibits (e.g. if electricity were to be cut off)
- disruption to production of reports for individual cases
- lack of capacity in the remaining market
- further loss of skills from the profession, particularly among the more experienced staff, some of whom have been made redundant more than once
- loss of records that are not case-specific (e.g. records of training and competence of staff, records of calibration and maintenance of equipment)
- loss of corporate memory, whereby the terminology and detail enabling case files to be understood and methods re-created are lost and
- disruption to defence examination in cases, when equipment used can no longer be inspected. [43]

2.21 Since 2019, there have been further significant developments in the forensic marketplace. Of the three full-service providers, one (Key Forensics) has found recent success in finding a route back to profitability, but has reduced its range of provision, focussing on providing volume testing services for the wider criminal justice system. The second big provider (Cellmark) on the brink of insolvency was recently taken over by the only other provider, Eurofins Forensic Services, (formerly LGC/Forensic

[40] ibid., FN 1, p.53.
[41] Steve Robson, Police use of forensics slashed by 99% as 'awful' crisis unfolds, the i paper. 28th April 2024.
[42] Written evidence to the House of Lords (2019) from Mrs Angela Forshaw (FRS0046).
[43] House of Lords, 'Blueprint' para 47.

Alliance) in England and Wales which now dwarfs Key Forensics. In reality, the UK has a monopoly situation with only one full-service provider - Eurofins Forensic Services - delivering over 85% of external forensic science provision. This proportion may yet rise further as small providers have been unable to develop their potential to grow and so continue to abandon the market.

2.22 There is no mechanism to support market viability or stability, a concern raised by the Lords when they stated: "*The instability of the forensic science market is a serious risk to the criminal justice system*".[44] For many well understood reasons, a monopoly brings both significant risks and drawbacks for customers, for example, creating a single point of failure. The Competition and Markets Authority (CMA) stated that they would not refer the purchase of Cellmark by Eurofins, because Cellmark would have exited the market without the purchase, and there was no "*alternative, less anti- competitive purchaser for the firm or its assets*".[45] Their conclusion that the merger did not give rise to "*a realistic prospect of a substantial lessening of competition*", seems contrary to the facts. Police services are now extremely limited when they put out to tender their contracts for full-service provision because realistically there is only one external provider left.

2.23 The external spend on forensics has now increased marginally to approximately £90 million,[46] with price-indexing finally introduced to contracts. However, margins remain limited and any fluctuations in demand are highly challenging. A drop in demand of just 10% would quickly result in Eurofins Forensic Services making a loss, while small increases similarly cause instant difficulties as having 'spare' capacity is unaffordable. Financial penalties are also potentially incurred if delays/backlogs build (although it is understood that given the fragility of the market, these penalties have currently had to be suspended).

2.24 Although our public consultation and most of our witness sessions took place before the purchase of Cellmark, our respondents and witnesses characterised the marketplace consistently as being 'broken'. The risks of relying upon just one full- service provider was often referred to, with the potential of collapse or realignment on a national scale if Key Forensic Services were to leave the sector, as they represent the only potential 'life raft' if Eurofins Forensic Services (even temporarily) left the market (a cyber-attack having previously brought Eurofins Forensic Services to a halt for a period).

2.25 No new companies would risk seeking to enter or expand their services in such a dysfunctional and unprofitable market with such high barriers to entry. Many claimed that this marketplace collapse was because forensic providers had 'under-invested' in the sector making them unprofitable, despite also being accused of putting profits first. It was widely recognised that the contracting process and demand for 'best value' had made it near impossible for forensic providers to operate profitably. Cellmark's Managing Director explained:

> "*for forensic providers to be able to deliver forensic services, they have to have a broad range of services. We can have a requirement to deliver services which the police don't actually think they will use, but they still need you to be accredited, and to have people who are competent, and people who are being paid, and accreditations in place, which again affects the economics enormously*".

2.26 The Home Office was widely criticised for overseeing the demise of the forensic market under their guardianship, while the involvement of their own collaboration with the policing sector to create a commercial entity to support contracting (Blue Light Commercial) and the introduction of its Dynamic Purchasing System was universally portrayed as unsuitable and counterproductive.

2.27 Even before the closure of Cellmark, serious concerns were expressed about the potential for the collapse of private provision. The House of Lords in 2019 had been told by the Managing Director of Cellmark, that there had been a "*30% or 40% erosion in pricing over six to seven years*," while Eurofins Forensic Services also reported a "*30–40% reduction in revenues in areas such as drugs, DNA and toxicology. If one takes a longer window we have seen a 70–90% price erosion in some areas since the later*

---

[44] House of Lords, 'Blueprint' p.72.
[45] Competition and Market Authority, Anticipated Acquisition by Eurofins of Cellmark Decision on relevant merger situation and substantial lessening of competition ME/7098/24.
[46] Home Office estimates are £95 million while EFS state £90 million.

[Forensic Science Service] years."[47] We were told that the precarity of the market and vulnerability of providers to police budget cuts, remained a root cause of unrealistic pricing, with contracts still awarded on the basis of cost, rather than quality which is assumed via accreditation, or speed where 'standard' turnaround times for specific work is often specified with financial penalties incurred for consistent failure to meet these.

2.28 We heard the widespread frustration of forensic providers stating that the police need to commission more testing or deliver on their tender forecasts to make provision viable. We were told that the police still have untenable expectations, reinforced by unrealistic pricing and unfavourable comparisons with their in-house provision which is not properly costed. The demands of the Legal Aid Agency (LAA) for three competing quotes when legal defence practitioners purchase forensic services also ensures that there is always sustained downward pressure on prices in this sector too, when it is clear that the cheapest quote will be accepted (see Chapter three). There is the added complication that forensic providers must balance the risks of speaking out about their vulnerability and poor forecasts. All commercial companies will try to inspire confidence in the success of their operations and providers in a monopsony must keep their 'customer' on side. Complaining too vociferously about police expenditure may put them at further risk should they fall out of favour. There is a difficult line to tread, between advertising to your customer what good 'value' services you offer, whilst simultaneously telling them that they do not purchase/pay enough for their services. With a monopoly these relationships and commercial calculations may change of course.

2.29 There have been previous suggestions made to the House of Lords inquiry, regarding nationally agreed minimum costings to prevent providers from undercutting competitors at the expense of quality, and tender evaluations reducing the weighting of pricing.[48] The report from the Lords also repeated calls for the Forensic Regulator's remit to be expanded to include oversight of the market. Professor Gill Tully explained that this would require the Regulator or oversight body to have the power to define minimum levels of spending on forensic science and pricing structures, with a budget which would then be controlled centrally (i.e. top sliced from police, and perhaps Legal Aid budgets) rather than controlled by the police service.[49] The Lords concluded that the severity of the risk posed by the instability of the market meant that these fairly extreme measures were called for, recommending that the Regulator's remit and resources be expanded to include such responsibilities, and that the Regulator:

> "*should review the structure of the market... and, in particular, the procurement process for commissioning private sector providers alongside provision by police forces. The objective should be to determine a procurement model which balances price, quality and market sustainability; ensures a level playing field between private and public sector providers; avoids undue shocks to the market, such as the clustering of contracts in any one year; and which maintains the capabilities of small providers in niche disciplines."*[50]

The Lords' report also addressed the question of resurrecting the FSS, concluding that:

> "*While there are concerns about the current state of the market, we did not hear convincing arguments in favour of resurrecting the Forensic Science Service. Its loss was regrettable, but some aspects of forensic science provision.., have improved... Our recommendations are therefore made in the context of maintaining a mixed market approach*."[51]

2.30 We have not been persuaded to reach a different conclusion on either of these points: regulation of the market or re-nationalisation. Our witnesses and respondents who spoke in favour of public provision did concede that the FSS had not been without its faults, and most argued that if the market were to regain stability, re- nationalisation might not be necessary. One police Scientific Support Manager remarked that "*we've done 18 years in the commercial marketplace. We've got the lessons learned from that. And therefore, do we not need to apply that, plus the failures of the FSS, and come up with something that works?*" The Metropolitan Police were clear in their submission that they support the current mixed market approach while pointing to the fault lines of the current model:

---

[47] House of Lords, 'Blueprint' paras 52-54.
[48] House of Lords, 'Blueprint' para 67.
[49] House of Lords, 'Blueprint' para 70.
[50] House of Lords, 'Blueprint' para 73.
[51] House of Lords, 'Blueprint' para 48.

> "*There is no reason that commercial forensic science provision should be viewed as any less capable or effective than any other service provision model, if it is operated in the appropriate manner... To be effective however, a commercial forensic science provider must be able to operate in a market which is healthy, wide, and forward-looking. The reliance of the market on police budgets, set with a level and frequency to meet policing and Government requirements, rather than to provide long term science and technology investment, is an inherent structural weakness. The lack of long-term strategic planning or a heathy basis to the commercial market, underpinned by public sector budgets at a time of fiscal challenge, inevitably leads to a lack of long term or joined up approach to innovation, technology provision, and workforce planning*."

Cellmark's Managing Director put the calculations of supporting the market in a wider context, stating that:

> "*the amounts of money we're talking about as far as supporting the forensic providers is very modest compared to police budgets, but also compared to what you're prepared spend on Transforming Forensics or the Forensic Capability Network. To be quite honest. I think we've missed an opportunity...*".

Our respondents urged efforts be directed toward restructuring and rebalancing service provision between police and private providers using existing facilities and staff – ensuring each is able to focus on delivering in line with their strengths and expertise.

2.31 Commercialisation only works with a healthy market and concerns about in-house provision undermining the market were already being expressed by the House of Commons Select Committee and National Audit Office a decade ago.[52] The Forensic Capability Network have recently undertaken a 'lessons learnt' exercise on the most recent marketplace crisis, leading to a 'refresh' of the National Forensic Marketplace Contingency Plan (NFMCP).[53] This plan is not publicly available, but the fact that such a plan exists, and that it needs refreshing, indicates that the Home Office accepts that the precarity of the marketplace has not ended with Eurofins takeover of Cellmark. It is perhaps understandable then, that the risks inherent in the current delivery model are driving the Police Service to accelerate or extend their efforts to bring forensic science services in-house.

Police 'in-house' provision

2.32 This cursory recap of forensic science delivery in England and Wales (see Chapter four for more detail), makes clear that while waxing and waning, police in-house forensic provision has always existed. While advances meant it became necessary to employ scientists and build national scientific capacity and capabilities throughout, the police have been central both as providers and customers of forensic services. This principal role, with Home Office patronage, means that their actions and intentions steer policy. This remains the case. However, the numerous inquiries and reports etc. are testament to the fact that their stewardship has not secured stability and supported the flourishing of forensic science locally or nationally.

2.33 We discuss in more detail in Chapter four the current policing 'science and technology' ambitions and the need for clearer delineation and definitions when discussing policing and science/technology, but in general, efforts to cut expenditure on forensic science have led to concerted efforts over many years, to expand in-house provision and lessen dependency on external providers. This has always run counter to efforts to support a thriving market in forensic provision. The Select Committee in 2012 made it clear that if there was to be a competitive market with the closure of the FSS, this must not be 'distorted' by direct competition from the police themselves: "*Otherwise the ambition for a truly competitive market is fundamentally undermined.*"[54] They warned that the plans to privatise forensic science: "*are jeopardised by its complacent attitude towards police forensic expenditure*" and that further in-sourcing of services currently provided externally should be curbed.[55] This warning was not heeded.

---

[52] Briefing for the House of Commons Science and Technology Committee: The Home Office's oversight of forensic services, December 2014, pp9-10.
[53] FCN quarterly report Q3 2024/25.
[54] House of Commons Science and Technology Committee *The Forensic Science Service*, Seventh Report of Session 2010–12, para. 91.
[55] ibid., para 92.

2.34 One element of the longstanding efforts to cut expenditure has been to rely more heavily on 'rapid/cheap' techniques that can be delivered by police staff. In-house forensic activity has consequently increased to include not only traditional crime scene investigation and fingerprint comparison, but screening (initial examination) of items, presumptive testing, and simple analysis of digital devices. Of course, without a national audit or transparent reporting, it is difficult to assess exactly what forensic activities are being undertaken by each force, with police spend on 'forensics' estimated to be around £550 million. To accommodate expansion, police facilities have been attracting investment across the country, including the "state of the art forensic labs" opened by Hampshire Police,[56] and the construction of a new £38 million 'forensic HQ' for Thames Valley Police.[57] These are in addition to many forces investing in re-purposing and extending existing facilities or co-locating with other forces to create regional 'hubs' for scientific support such as in Wakefield with the shared facilities for the Yorkshire and Humber force areas.

2.35 There are clear intentions to extend police provision further, with attempts to develop technologies to enable police provision in areas more obviously restricted to scientists in laboratory environments. The stated goal is that independent laboratories will only be required for complex (expensive) casework or specialist services. One area of particular focus has been the pursuit of 'on the spot' DNA testing, motivated by similar hopes that gave rise to 'lab on a chip' and 'lab in a van' efforts witnessed in previous years.

2.36 The Office for the Police Chief Scientific Adviser and the National Police Chiefs Council strategy is detailed further in Chapter four, but recent claims have again surfaced, that DNA profiling technology will soon allow police to undertake DNA profiling without recourse to laboratory-based scientists. Such assertions seem optimistic given that similar claims were made as far back as 2014, that so-called 'Rapid Hit' technology was set to become the "*dominant technology*", with affordable and reliable DNA testing within a couple of hours at crime scenes, "revolutionise[ing]" crime investigation.[58] Previous trials of 'Rapid Hit' DNA has been widely studied by academics from many disciplines, as epitomising *inter alia*: detrimental business decision-making; supplier over-promising and under-delivery; customer naivety and implementation failure.[59] We are not aware that any of the relevant test conditions or parameters have changed such that this technology now stands no greater chance of success today than it did over a decade ago.

2.37 Statements such as "*technology is democratising our [police] ability to do specialist tasks*",[60] are thus the perpetuation of the police ambition to retain or regain control of forensic science and to control their spending in a never-ending round of budget cuts. Warnings about such plans, and their impacts, were sounded loudly by the House of Commons Select Committee in 2013:

> "*In the absence of a commitment to a strategy, the Government runs the risk of continuing the pattern of short-sighted decision-making that led to the demise of the FSS and the creation of an unstable market. This may also jeopardise the criminal justice system and R&D, although it is too early to measure the full effects.*"[61]

2.38 Those effects are now even clearer in 2025. The forensic market has entered undeniable descent into a graveyard spiral. The increased risk of miscarriages of justice we believe is self-evident and the potential for investigative failure continues to grow. Public trust and confidence in policing is under severe pressure and may be unsustainable as more miscarriages of justice come to light while detection and prosecution rates continue to decline. Investment in criminal investigation is desperately needed but police and Home Office decision-making continues to focus on cutting expenditure and bringing more scientific provision in-house, two policies that have already proven disastrous. The police are trying to fly the plane, but they are not paying attention to the instrumentation: they are disoriented and, in an attempt to correct and halt the descent, they are actually tightening the spiral.

---

[56] Police and Crime Commissioner invests in new CSI facility, 10 October 2024. https://www.hampshire-pcc.gov.uk/police-and-crime-commissioner-invests-in-new-csi-facility

[57] New forensics HQ will 'get bad guys behind bars' 20 March 2025, BBC News.

[58] West Midlands Chief Constable Chris Simms, the Association of Chief Police Officers Forensic Science lead, quoted in: Police Trial On-The-Spot DNA Testing Machines, Sky News, 9th August 2014.

[59] See e.g. Dana Wilson-Kovacs, Deliberating Forensic Genetics Innovations', in Toom, Wienroth & M'Charek (eds). *Law, Practice and Politics of Forensic DNA Profiling* (Routledge 2023)

[60] This is referring specifically to police carrying out rapid DNA testing. National Police Chief Scientific Adviser, quoted in The Times 'Crime and Justice Commission,' 15th April 2025, p.29.

[61] House of Commons Science and Technology Committee, *Forensic Science*, Second Report of Session 2012-13, HC 610, July 2013, para. 116.

POLICE INVESTIGATIONS AND FORENSIC SCIENCE PROVISION

The 'dual tracks' of forensic provision

2.39 There are two priorities for police investigators, often in competition with one another. Firstly, the need for rapid and reliable results to maximise chances of detection: data shows that the quicker information is gathered, and suspects identified, the greater the chance of finding evidence and achieving a successful outcome. But simultaneously, good investigations require deliberation and strategic focus especially in complex cases. This will often involve close collaboration and considered strategy setting with forensic scientists. Such strategies will frequently demand meticulous information gathering, longer scene examination, and sequential testing and processing, to ensure the investigation is robust and reliable, with potential evidence not missed or compromised.

2.40 The police must find the balance between these competing priorities for 'rapid/cheap' testing (suited to commoditisation) and the 'slow/more expensive' meticulous attention to detail that is the hallmark of complex casework. At the outset of an investigation, there may be no indication of whether a case will be simple or complex as this often only unfolds as the investigation progresses. The distinctions between the two, and issues raised, were cogently summarised by a forensic scientist to the House of Commons in 2012:

> "*Forensic Interpretation products are characterised by their reliance on expertise (not process), by their unpredictability, and their focus on solving a problem. Like CSI on television, every case is different. They are expensive because they require investment in an individual's knowledge, scientific research, and innovation. […] forensic interpretation products often find themselves competing against forensic testing products. Getting a DNA profile does not necessarily solve a crime but is a lot cheaper than interpretation of how the DNA got there, which is the more important aspect of successfully solving a crime. […] forensic interpretation is a holistic service not a series of discrete products and the market should be re-constructed to trade services, not products. […] there is a risk that some Forensic Interpretation disciplines will not be available to solve major crime in the future*".[62]

2.41 Managing the balance between a focus on rapid/cheap testing, and slow/expensive 'interpretation' requires that police and forensic scientists both work to ensure that forensic activities deliver the necessary results for a reliable outcome, without compromising quality. This is also a key requirement in securing investigations which may falter, so that in the future these stalled cases can be revisited. All of this must be conducted in such a way as to facilitate equality of arms. After the investigation, evidence obtained must be fairly and clearly communicated to the defence, with opportunity where necessary for defence experts to scrutinise, and where needed re- examine or re-test evidence and exhibits.

2.42 There are significant complexities in delivering this 'dual-track' forensic provision effectively, and commercial pressures mean that providers often concentrate on one of the two tracks in this model. More complex casework is less susceptible to being taken in-house by police, but is expensive, work is not guaranteed, and the volume is diminishing because of model-based decision making. High-throughput analytical services (testing of DNA, drugs etc.) can be more profitable and easier to staff and accredit, but requires significant investment in laboratories, staff and quality management systems to secure and maintain accreditation.

Forensic science: Capacity and capabilities

2.43 A further driver of police ambitions to satisfy their own forensic demand, is the apparent crisis in capacity, worsened by the market contraction of recent years. HM Inspectorate of Constabulary and Fire & Rescue Services (HMICFRS) has previously shone a spotlight on insufficient forensic capacity issues that impact on policing. In their 2020 thematic report on roads policing, the inspectorate reported that the number of roadside drugs tests were being severely constrained. The inspectorate found that officers were keen to conduct drug testing, but: "*they expressed frustration that the screening, and the*

[62] House of Commons Science and Technology Committee *The Forensic Science Service*, Seventh Report of Session 2010–12, para 57.

subsequent forensic analysis of blood samples, was effectively rationed to manage available budgets and the capacity of forensic service providers to deal with demand."[63] These pressures meant that drug testing was heavily restricted, with one police service stating "*the main restriction was the limited capacity of the forensic service provider. This resulted in the whole force being restricted to nine submissions per month*."[64] The inspectorate concluded that the situation was unacceptable, agreeing with the Forensic Science Regulator's criticisms, when reporting that year on the lack of toxicology capability.

2.44 We have found an increase in capacity pressures, with the Metropolitan Police telling us that: "*It is accepted by those of us who provide forensic science services that demand far outstrips capacity..., the availability of forensic science provision to UK law enforcement is not in a healthy position*." HMICFRS recently reported that in Dorset Police: "*some cases were delayed or hadn't been investigated quickly. The causes of delays included the time taken to obtain forensics.., Some officers told us that this was affecting both their well-being and the amount of time they could give to each investigation*."[65] Homicide detectives complained that a combination of lack of experience within both the police and forensic providers, budget constraints, and capability gaps, resulted in some investigations being impeded or inadequately serviced by forensic providers. Detectives reported that they may request forensic tests, only for that order to be rescinded by superior officers, or the tests simply not conducted without explanation. Detectives also perceived a lack of transparency and collaborative effort from scientists. External providers were accused of being incommunicative and reticent to inform police about forensic capabilities that may be available from other providers, presumably because of commercial pressures through competition.

2.45 Local and regional disparities in capacity and capabilities result in a postcode lottery in forensic provision. Exacerbating these pressures, we were told that forces rely too often upon tradition ("*we've always done it this way*") without the resources or confidence to innovate or collaborate. Police officers can be processing evidence solely at the direction of a local policy or command without sufficient attention to the specific case requirements (just doing "*what usually gets done*"). This can add to demands on both external providers and police budgets, as unnecessary or disproportionate requests can be made. Concerns were also expressed to us about outdated and inadequate methods still in use, with commercial pressures meaning that complex analyses were routinely avoided, (or requested at the very last minute), or required supplementary payments that would not always be authorised.

2.46 These issues can create a bottleneck where the Crown Prosecution Service (CPS) will be waiting for results to make charging decisions and process cases efficiently. Detectives claimed that this can continue post-charge, with court case management systems ineffective, when police staff are called upon to produce expert reports that are not forthcoming (see Chapter three). Understandably, the defence can object to proceeding before they have sight of a prosecution expert report and thus the process delays trials even further. In contrast to the savings by the police being reported at the start of the commercialised market, the HMICFRS recently reported on one force who stated that a new contract with external providers resulted in a 20% increase in costs, with resource and capacity issues meaning that providers:

> "*weren't achieving their contractual turnaround times for case submissions. For some cases, it was taking 12 months or more to receive forensic results. When the force needs a faster turnaround, they have to pay the provider additional costs. This was having a substantial negative effect on the force's budget for external forensic analysis*."[66]

2.47 Efforts to mitigate these cost and capacity challenges returns to the issue of increasing forensic work in-house. This serves to further suppress external demand, making failure of the market more likely, building the pressure on forces to take work in-house contributing to the current graveyard spiral.

2.48 Increasing the amount of work undertaken and expanding the types of forensic investigations that the police conduct can introduce significant risks into the forensic process. For example, these include the risks of cognitive bias which is "*widespread, hidden and difficult to deal with*".[67] While forensic

---

[63] HMICFRS '*Roads Policing: Not Optional*' (2020) pp.33
[64] 'ibid' p. 34
[65] HMICFRS, Dorset Police PEEL Inspection 2025, p. 33.
[66] HMICFRS 'Crime Investigation' 2025: 68.
[67] Dror, I. E. (2025). Biased and Biasing: The Hidden Bias Cascade and Bias Snowball Effects. *Behavioral Sciences*, 15(4), 490.

evidence gains a great deal of its credibility from its portrayal as 'objective' and 'scientific', research into cognitive bias demonstrates that bias impacts decision making throughout the justice and legal systems, from the moment investigators arrive at a crime scene, so that these biases 'cascade' and 'snowball' throughout the remainder of the criminal process.[68] There are forensic tasks and techniques such as Crime Scene Investigation, fingerprint comparison, and some digital forensics, that the police have always undertaken. Yet we heard concerns that 'untrained' police officers (rather than specialists) were undertaking investigations beyond their skill set. The poor standard of training and education of police staff (especially CSIs) was often mentioned, while their understanding of, and commitment to, accreditation and quality management was questioned.

2.49 The Cleveland Police 2025 PEEL report (Police Efficiency, Effectiveness and Legitimacy) echoes many of the concerns raised during our inquiry and is indicative of the national picture, that while the force may conduct timely investigations, they are not always thorough or effective, and the number of crimes solved following an investigation is consequently low. Cleveland Police established 'Operation Excellence' which has set times when: "*detective sergeants, case file experts and forensic staff make themselves available so that officers can ask for advice. The number of officers accessing this support is growing*."[69] Despite such measures, HMICFRS reports that the police service still needs to make sure it allocates investigations to people with the right skills and experience. This will remain a challenge with the current level of vacancies. While Cleveland has funding for 374 officers and staff who have completed the professionalising investigation programme 2 (PIP 2), at the time of the inspection, it had 170, with another 112 on the training pathway.[70] Similar staffing issues occur in other forces, for example, as of 31 March 2024, Dorset Police had 82 (PIP 2) trained investigators in post, just 37% of its target.[71]

2.50 Along with a national shortage of detectives, recruitment into police scientific roles is similarly challenging. Scientific experts can earn more in other sectors, and we were told that good training within the police for forensic staff is lacking and career progression opportunities very limited. We were told that scientific support staff were often supervised by warranted police officers with no scientific background because 'supervisory' roles must be found for warranted officers, not police staff, to satisfy national demands to maintain or raise police officer numbers. The career path of a warranted officer who wishes to climb to higher ranks, will include moving between departments and taking supervisory roles. It was explained to us that this will often result in a warranted officer in a position, often for short periods, for which they have no aptitude or qualifications. This also has a direct impact on those officers seeking to develop their experience and specialise in scientific support, as they move on too frequently (and for forensic collision investigators, there is little benefit in undertaking the long training required if you wish to be promoted out of roads policing). This mismatch between the role and the experience of the person fulfilling the role leads to frustrated communication and lack of cohesion while exacerbating the absence of a career path for police staff (whose progress is blocked by warranted officers taking supervisory positions).

2.51 Compounding these staffing shortages, there is a chronic shortage of experienced staff in criminal investigation departments, a situation that has been worsening for many years. We were told that many Criminal Investigation Departments (CIDs) lacked expertise in dealing with big and complex cases. Detectives, and in particular more senior investigators, are carrying unmanageable workloads, leaving junior staff unsupported. Investigative decision-making by police was reported to often be poor and in need of greater supervision. Cellmark's Managing Director talked of a "*reduction in the experience and training within the police, and the CPS*", which can "*cause a real lack of opportunity, or a lack of cases being progressed or being progressed without as much forensic evidence as [there] could be*" combined with a "*lack of co-ordination and a general lack of understanding of the value of forensic science*" which "*all comes back to the lack of funding in the first place*". This then manifests in the diminution of the science applied to investigations, and a lack of collaboration with scientists, leading to the further de-skilling of both detectives and forensic scientists. These inexperienced staff then have little confidence in collaborating with scientists, and managing forensic strategies, leading to their avoidance, so that experience is then impossible to gain – evidence again of the acceleration of the graveyard spiral.

---

[68] Dror, I. E. (2025). Biased and Biasing: The Hidden Bias Cascade and Bias Snowball Effects. *Behavioral Sciences*, 15(4), 490
[69] HMICFRS, Cleveland Police PEEL Report 2025, p.24.
[70] ibid., p.24.
[71] HMICFRS, Dorset Police PEEL Report 2025, p.31.

2.52 Yet we witnessed some very successful collaboration, with Eurofins and the Metropolitan Police, and Eurofins Forensic Services in West Yorkshire, both showing to differing degrees, the benefits that a close working relationship may bring. We heard the results of specific co-designed projects and initiatives, delivered with providers and police working collaboratively. One such project, which is (temporarily halted due to financing,) reduced drugs testing from 100 days to three, successfully established that rapid results shortly after arrest and seizure, meant charging and bail decisions could be better informed. This then had the consequence of reducing the normal uptick in knife crime in the vicinity following such arrests and drug seizures, when suspects are released awaiting test results. The power of such experimentation in reducing crime and informing policing practice, demonstrates how intelligently combining forensic provider specialist knowledge and technical capability with police requirements can make a real difference. It is important to realise that there are green shoots that can be germinated through innovative collaboration and then built upon if we choose to follow good practice and invest where best results can be achieved.

Triaging of forensic submissions

2.53 One area in which there has been clear expansion is in screening of items before decisions are made regarding submissions for laboratory testing. This was necessitated by the changes to forensic delivery following charging by the FSS and the pressure to be 'selective' about external spend on forensic services. With the creation of the National Policing Improvement Agency (NPIA) in 2007, there was a 'revisiting' of a wide range of issues surrounding police purchasing of forensic services, with evidence that:

- There are significant variations in performance between forces
- There is a significant variation in the performance of individual practitioners
- The processes underlying the submission of forensic evidence are not harmonised
- Rates of attrition are unacceptable
- There are significant variations in the ability of forces to convert identifications to detections
- Forensic service levels are frequently not modelled to demand
- There is a fragmented approach to forensic competency assurance
- Forces are not learning from each other. Best practice is not shared or disseminated and
- A localised approach to procuring forensic services does not offer value for money.[72]

2.54 These issues provoked the establishment in 2008 of the 'Forensics21' programme which aimed to: "*challenge, enable, and improve forensic services to make society safer and to deliver an effective police-led forensic service fit for the 21st century.*"[73] The NPIA improvement 'portfolio' included the creation of a Strategic Framework for Forensic Science (Forensics21): to "*improve investigative capabilities involving enhancements to DNA exploitation, digital imagery, forensic analysis, and management.*"[74]

2.55 A study was conducted which highlighted that "*forensic submissions budgets [are] coming under scrutiny with many forces experiencing in year cuts, with the anticipation of more on the horizon.*"[75] Thus, the NPIA produced the 'Forensic Submissions: Good Practice Guide', aiming to: "*enable each force to continue to ensure that best value is obtained by using submissions to detect crime more effectively.*"[76] This

[72] Bramble, S. Forensics21: Challenging, enabling and improving forensic science. Police Professional, 8 January 2—9. https://policeprofessional.com/news/forensics21-challenging-enabling-and-improving-forensic-science/
[73] NPIA Annual Report 2007/8, p.25. https://assets.publishing.service.gov.uk/media/5a7b9a82e5274a7318b8fbc6/1031.pdf
[74] 'ibid' p.101
[75] NPIA. Forensic Submission Good Practice Guide (2012) p.6 https://library.college.police.uk/docs/appref/NPIA-(2012)-Forensic-Submissions-Good-Practice-GuideV5.pdf
[76] 'ibid' p,7

impressively detailed 70+ page document, aimed to professionalise forensic submissions "*by way of providing an efficient and effective process for authorising forensic submissions and providing a structured learning programme*." The NPIA was being wound down by the time of publication, with their role being dispersed among either existing or new bodies such as the College of Policing and Blue Light Commercial. Neither these, nor the Forensic Capability Network, seem to have this document, nor an equivalent updated guide, publicly available for consultation.

2.56 The issues that were to be tackled by the Forensics21 programme seem to have only intensified. Police must routinely decide upon the selection of forensic samples and tests to be undertaken, with selectivity demanded by cost considerations. Cellmark's Managing Director explained that "*over time, things have become far more selective regarding what we're asked to do... I don't think our scientists are consulted as much as they could be which is a great shame*". For example, an item seized at a scene would be screened at police facilities, and swabbed or a swatch cut/ sample taken, with just the swab or sample then sent for analysis to the scientific provider, rather than the whole item. The drive to reduce forensic submissions has precipitated police increasingly undertaking this preliminary or presumptive testing. Acknowledging that budgets do not allow for all testing to be done, it is vital that early collaboration with scientists occurs to ensure an 'open minded strategy'. Police-led submission decisions and lack of collaborative decision-making with scientists may allow cognitive bias to go unchecked.

2.57 Police will (sensibly) submit for testing only those exhibits that they believe will have the greatest chance of providing evidence (and the CSIs will have retrieved from the scenes items they believe will make it through triaging – see later). Such decisions, however, were frequently criticised by scientists as superficial or poorly informed and severely limiting the number and type of items submitted for analysis. Scientists expressed their frustration when they were provided simply with one piece of evidence to examine, often devoid of context, with the forensic science strategy having been pre-determined by the police alone. They reported being 'drip-fed' exhibits and being unable to interpret results without sight of the item (was this actually a spot - a specific type of stain - of blood and was it one of many forming a specific pattern, where was it located? etc.), or without knowledge of other exhibits. Individual test results are at risk of misinterpretation without full knowledge of the source or being misapplied if considered in isolation from other results or exhibits. For example, in a case where a 'kicking' was alleged to have taken place, the forensic expert was only provided with shoes, and not the trousers, which limited the conclusions that could be drawn.

2.58 The commoditisation of forensic science has super-charged such fragmentation, with exhibits split between forces and external providers. However, we were told by scientists that this can often prove a false economy, and investigations are delayed while work is repeated, or the scientists must spend their time interpreting requests from the police. Cellmark's Managing Director explained that: "*It's a concern particularly in sexual offence investigations where if we [don't receive] all the information up front, we ask questions quite rightly, and we've had complaints back asking why we are asking so many questions*." Scientists repeated that they need to know much more about the totality of items seized and ideally be involved in decisions on what testing to undertake. They claimed that this rarely happens because detectives are too busy and such meetings are not 'costed in'. We were also told of instances where prosecution experts have been surprised in court by evidence that defence experts had access to, but of which they were unaware, this evidence then required them to hastily re-evaluate their conclusions on the spot.

DIGITAL FORENSIC INVESTIGATIONS

2.59 For several years now, in many reports and statements, it has been claimed that 90%of criminal investigations involve digital evidence in the form of CCTV, communications data, or social media data. We were told that police officers are told that 'every crime will have a digital footprint'. Issues facing digital forensics may not be novel, nor entirely different from other disciplines, but the sheer amount of information that needs to be both acquired and processed is coupled with the constant changing state of technologies (both software and hardware security) cause particular difficulties. All indicators then point to digital forensics as a major cause for concern. There is a plethora of research articles and reports detailing the many problems facing digital forensics, which we cannot rehearse in full here,

but the anxieties surrounding digital forensics merit consideration at least briefly and as a prelude to a necessary fuller exploration.[77]

2.60 HMICFRS undertook a thematic review of digital forensics in 2022, finding that the demand for digital forensic services outstripped the capacity of the Police Service to respond effectively.[78] While many of their recommendations have been actioned, this overarching assessment is still applicable today. When reviewing the capacity of the police to deal with their own data and digital systems, the Police Foundation reported in 2024 that police forces were "*grappling with outdated legacy systems, complex procurement procedures, fragmented data-sharing, and a lack of digital knowledge and skills at all levels of policing*."[79] We have witnessed many of these same challenges in relation to digital forensics capacity and capabilities nationally and been told that they have yet to be overcome.

2.61 The eighth recommendation of the HMICFRS in 2022 stated that digital forensics should be integrated within existing forensic science structures, explaining that:

> "*We think that the natural evolution for digital forensic services should be to move them under the leadership and control of other traditional forensic disciplines. All forces have a mature and professional forensic capability that makes sure evidence is gathered correctly and presented effectively at court. This doesn't happen currently with all digital forensic examinations*"[80]

2.62 However, we found that digital forensics is still very much a 'stand-alone' service set apart from forensic science provision. While this separation can often be justified by the distinctiveness of digital forensics, respondents told us that it also means that the wheel is constantly being reinvented with the many lessons from forensic science not being transferred to the digital sphere. In many instances we were worryingly told, digital forensics was 'on a journey' similar to that of other forensic disciplines and simply needed to face its own 'crises and miscarriages of justice before it is properly dealt with. Digital forensics has an acute problem in respect of regulation and accreditation and is not managed well under the current regulatory structures. We were told, in common with forensic science more generally, about the lack of collaboration regionally or nationally, with police forces undertaking day to day 'firefighting' with scant national or strategic resourcing or planning.

2.63 This situation seems to persist despite the NPCC 2020-30 Digital Forensic Science Strategy. HMICFRS recommended that the Home Office provide additional funding to support this national digital forensic strategy, and that the private sector design an alternative operating model that would provide effective and sustainable digital forensic services. Yet respondents repeatedly stressed that digital forensics faces major funding and resource limitations. There are unsustainable backlogs, and resources have not kept pace with demand or developments. Technology is still moving faster than forensic digital provision (and its regulation) and there is an inability to keep pace with rapidly evolving technology. Challenges include the development of tested methods and procedures to match advancements in IT and social media, as well as issues related to interpreting and ascertaining provenance of digital evidence and artefacts in the age of AI and deepfakes. This must be combined with maintaining capabilities and the expertise of staff in coping with 'legacy' technology like videos and audio tape.

2.64 Demand for digital forensic services is still growing and significant delays in analysis increases the risk of evidence contamination, data degradation, and data becoming inaccessible due to advances in device security. A lack of understanding of digital forensic capabilities amongst non-specialist officers adds to demands as unnecessary requests are made by officers which compounds backlogs but also results in missed opportunities for investigative leads. Many requests for digital forensic analysis were characterised as disproportionate, with devices often seized that are inappropriate or unnecessary for the investigation.[81] This raises ethical issues that can also impact on public trust. HMICFRS state that

---

[77] See for example, The Police Foundation (2021) Unleashing the value of digital forensics, available at: https://www.police-foundation.org.uk/wp-content/uploads/2010/10/value_of_digital_forensics.pdf

[78] HMICFRS (2022) Digital forensics: *An inspection into how well the police and other agencies use digital forensics in their investigations* available at: https://assets-hmicfrs.justiceinspectorates.gov.uk/uploads/inspection-police-other-agencies-digital-forensics-investigations.pdf

[79] The Police Foundation (2024) *The power of information: How to unlock the potential of digital, data and technology in policing*, available at: https://www.police-foundation.org.uk/wp- content/uploads/2010/10/power-of-information-FINAL.pdf

[80] HMICFRS fn 78. page 9.

[81] O'Brien, C., Abreu Minero, V., Warner, M., Maclennan, M., Morris, S., Nic Daéid, N., and Sallavaci, O. *Digital Forensic Triage Project Launch Event Report* (2024)

digital device triage through an initial assessment of devices at the scene would help to reduce unnecessary device seizures and reduce demands on digital forensic labs. However, at-scene triage would require seizing officers to understand digital forensic capabilities to conduct assessments effectively; an understanding that is currently lacking.[82]

2.65 Many personnel involved in digital evidence handling, lack specialised training with unqualified individuals managing investigations, which can compromise the depth and accuracy of forensic analysis. Untrained officers are processing digital evidence because of unmet demand, but with insufficient depth and knowledge to identify exculpatory evidence reliably. We were told of investigators working beyond their skill set, officers 'dabbling' with digital devices, with insufficient training in correct seizure and preservation of exhibits (this being the most critical point of evidence gathering and processing). Recruitment of staff into specialist digital forensic roles is difficult because they can earn significantly more in other computing sectors. Retention of these individuals is also poor, understandably so, when the work can also be highly distressing, working conditions are challenging and there is a lack of support and limited career progression. Recent surveys of forensic digital investigators highlight "*the impact of insufficient mental health resources, the emotional toll of constant exposure to harrowing cases, and the barriers that prevent individuals from seeking help.*"[83] Staffing challenges then compound resource and workload pressures.

Risks of digital miscarriage of justice

2.66 Once again, there were concerns raised about the quality of police investigative decision-making in this area, with greater support and supervision required, and greater transparency surrounding strategic decisions during investigations. We were told that there is an over-reliance upon police conclusions in digital investigations, with assumptions made about the proper handling of digital evidence. The safe and correct storage of data also continues to pose a significant resource challenge, and we were told of a lack of corporate requirements for outsourced agencies to store data properly, risking the integrity of forensic evidence. Such concerns about evidence integrity are rarely able to be challenged by defence experts (see Chapter three), clearly evidenced in the Post Office Horizon scandal.

2.67 There was a lack of coordination with external digital experts with the police reportedly reluctant to disclose original exhibits to them rather than simply sending data – which may have been processed already and was now not able to be interrogated properly. Again, police make decisions about what to disclose to the defence, potentially resulting in highly selective disclosure of both data and original exhibits and possibly hampering a full case review or challenge to the digital evidence. Lawyers and experts recounted to us protracted struggles to obtain digital exhibits. Such disclosure decisions need to be transparent and unbiased.

2.68 These concerns are heightened since the removal of the need to evidence the reliability of computer-generated evidence. This legal presumption may no longer be justifiable, and the issue has now rightly given rise to a government consultation re- examining the 'computer is always right' legal presumption, driven largely by the Post Office Horizon scandal. This can lead to the acceptance of flawed prosecution expert evidence, as happened in the wrongful conviction of Jodie Rana (see below). Researchers have similarly raised concerns about the capacity of defence lawyers to challenge digital forensic evidence, often not understanding when they ought to be getting defence expertise, and a "*worrying number*" of defence solicitors saying they do not have the 'time' to deal with this evidence.[84] The FSR Code requirements and demand for accreditation will exacerbate these issues with external defence digital experts leaving the field because of unattainable accreditation and insurance demands.

2.69 In her evidence to us, Professor Helm of Exeter University referred to cases that illustrate: "*the central role digital evidence can play in miscarriages of justice when it is not handled effectively, and specif-*

---

[82] O'Brien, C., Abreu Minero, V., Warner, M., Maclennan, M., Morris, S., Nic Daéid, N., and Sallavaci, O. *Digital Forensic Triage Project Launch Event Report* (2024)

[83] Paul Gullon-Scott, *Forensic Focus Investigator Well-Being Survey Results*, December 2024. Available at: https://www.forensicfocus.com/articles/forensic-focus-investigator-well-being-survey-2024-results/

[84] See: Wilson-Kovacs, D., Helm, R., Growns, B., & Redfern, L. (2023). Digital evidence in defence practice: Prevalence, challenges and expertise. *The International Journal of Evidence & Proof*, 27(3), 235-253. https://doi.org/10.1177/13657127231171620

ically when the digital evidence used by the prosecution cannot be critiqued by defence lawyers."[85] Danny Kay was convicted of the rape of a 16-year-old, spending four years in prison before his conviction was overturned. The prosecution evidence had focussed on the complainant's testimony and Facebook messages. After his trial, a relative of Kay's learnt how to retrieve messages that had been selectively deleted by the complainant, creating a misleading impression. In a second example, poor interpretation of signal data from a mobile phone resulted in Jodie Rana being convicted of arson in 2015 after a prosecution expert placed her near the targeted property. After more than two years in prison Rana's conviction was overturned when a second expert demonstrated that data from the home router meant Rana's phone could have been considerably further away from the property than had been stipulated by the prosecution. Wilson-Kovacs *et al* explain that these examples:

> "*are likely the tip of the iceberg in terms of injustices resulting from flaws in the use of digital evidence. They show how deficient disclosure, a fragmented understanding of digital evidence and a lack of comprehensive testing and analysis of digital devices and the information they carry, impact negatively on criminal justice outcomes. They also illustrate the importance of having a well- trained cadre of legal professionals to prevent miscarriages of justice and ensure that convictions do not occur because of unreliable or inconclusive digital evidence*."[86]

CRIME SCENE EXAMINATION: DETECTING AND SECURING INVESTIGATIONS

2.70 Forensic science has seen remarkable progress across disciplines with rapid advancements in technology, especially in digital forensics. Police investigations of the past are now amenable to re-examination with the potential for 'cold cases' to be resolved. Indeed, the media report almost daily on offenders convicted of serious crimes committed decades ago. Such success stories depend entirely however on the integrity of the original seizure, handling and preservation of evidence. We regularly had our attention drawn to current practices that have the potential to impact not just current forensic investigations, but also the possibility of reopening an investigation in the future.

Scene attendance

2.71 The HMICFRS 2025 thematic inspection of 'Crime Investigation' explored how effective the police are at investigating crime.[87] Just as police officers attending crime scenes, and how securing and preserving evidence provides the "*foundation for an effective investigation*,"[88] forensic investigations start with timely, effective, scene attendance by qualified scene examiners (CSIs). The Inspectorate found that police investigators felt 'well supported' by CSIs, benefitting from their co-location that allowed for the provision of advice on securing and preserving evidence. Officers felt that: "*CSIs were approachable and would discuss cases with investigators to make sure they had considered all forensic lines of enquiry*."[89]

2.72 Despite such positive benefits, the HMICFRS in 2025 re-confirmed their previous findings in 2022, that some forces do not have enough CSIs, or forensic experts, meaning that forces cannot investigate or solve serious acquisitive crimes effectively and efficiently.[90] They found forces where CSIs numbers did not meet demand, with interviewees stating that: "*the geography of the force area and high levels of CSI vacancies were causing problems or delays in attending crime scenes*."[91] This led to the prioritisation of attendance at serious crimes and major incidents with a 'high threshold' for calling out a CSI and limiting opportunities then for CSIs to support officers at other scenes. The inspectorate details the consequences of such shortages: "*A senior investigator said that there had recently been a stabbing in the*

---

[85] See: Wilson-Kovacs, D., Helm, R., Growns, B., & Redfern, L. (2023). Digital evidence in defence practice: Prevalence, challenges and expertise. The International Journal of Evidence & Proof, 27(3), 235-253., p.235.
[86] ibid, p.236.
[87] HMICFRS, 'Crime Investigation' (March 2025) available at: https://hmicfrs.justiceinspectorates.gov.uk/publications/how-effectively-police-investigate-crime/
[88] 'ibid', p. 65.
[89] 'ibid', p. 66.
[90] HMICFRS (2022) The police response to burglary, robbery and other acquisitive crime: Finding time for crime', available at: https://hmicfrs.justiceinspectorates.gov.uk/publications/police-response-to-burglary-robbery-and- other-acquisitive-crime/
[91] HMICFRS fn 87. p.67.

force area and there was only one CSI for three crime scenes, which all had evidential value."[92] Cutting crime scene attendance may also increase other costs, for example, one force reported having two officers tied up for over four days guarding a crime scene – making them unavailable for other duties - because it took two CSIs over 24 hours to attend and then three days to complete their examination.

2.73 The success of any forensic investigation depends on prompt and diligent crime scene attendance, with assiduous sampling and seizure of exhibits. Merseyside police service has recently claimed a 56% drop in burglaries because of a local policy in place since 2018, of sending police and CSIs to every burglary, explaining that this commitment: "*to maximising every opportunity to gather evidence and identify offenders has helped us arrest 612 suspects in connection with burglary offences in the past year*."[93] Yet across the country police budget pressures have led to scenes either not being attended or attended by response officers only.

2.74 We were told that increasingly, investigators were relying on reports from these response officers, rather than CSIs or scientists. But first response officers have only been trained in carrying out initial 'golden hour' actions, resulting in: "*a generation of officers, and their supervisors, who have had limited experience of investigating or supervising crime*."[94] This has significant implications for the detection of crime, because: "*many response and neighbourhood officers don't think their primary role is to investigate crime. If they don't have an investigative mindset, they may miss opportunities to secure and preserve evidence, and to identify lines of enquiry*."[95] In the HMICFRS 2023–25 PEEL inspections, they found evidence in eight forces, that officers and staff did not have the right skills or capabilities to carry out high-quality investigations.

2.75 Police were accused of having tunnel vision where their selection of 'exhibits' may lack rigour, with examples of high-profile cases where initial decisions made by attending police officers have seriously impacted investigations. There are several Independent Office of Police Conduct (IOPC) inquiries into instances where the police have failed to seize or source vital potential evidence. For example, following the death of the 13-month-old Poppi Worthington, police officers allowed her last nappy to be disposed of, although this could have had evidential value. This mistake and others were blamed on lack of senior supervision at the house and the lack of foresight of the (more junior) officers present.

2.76 Operation Helix inquired into the investigation of Rachel Whitear's death. The police, assuming the death to be a drugs overdose, took four days to submit blood samples for testing, failed to fingerprint the scene for two weeks, and did not remove her clothing to look for signs of injury. Her body was released for burial before toxicology results were released, which were found to be inconsistent with an overdose. The assumptions made about the cause of death meant many procedures were skipped, and a new investigation had to be launched four years later. The investigative failures meant that eventually, a second inquest reached an open verdict.

2.77 The shortage of CSIs is mirrored in other areas such as a national shortage of forensic collision investigators, who are critical to the investigation of the over 1,600 deaths on our roads each year.[96] Collision investigation is rarely discussed in conversations concerning the crisis in forensic science, but shares similar problems, symptoms and negative impacts. The shortage of forensic collision investigators gained some coverage in the national media when there were significant delays into the investigation of a fatal car crash in a Wimbledon school playground in July 2023. The parents of an eight-year-old girl killed when a Land Rover crashed into her school were told by the Metropolitan Police that the case was delayed due to a national shortage of forensic crash investigators.[97] The investigation then had to be reopened after concerns were raised by the bereaved families, the police then finding lines of inquiry that "required further examination" and a new investigation is ongoing.[98]

2.78 The demand for forensic collision investigations should not however, provide sufficient excuse

---

[92] HMICFRS fn 87. p. 67.
[93] Merseyside Police: Merseyside burglary rates drop as police strategy yields results, 9/04/2025 https://tinyurl.com/466n9arb
[94] HMICFRS fn 87. p. 6.
[95] 'ibid'
[96] There were 1624 fatalities on the UK roads in 2023, 5% down on the previous year, but this number has stayed relatively steady for the last decade (excluding the pandemic): Dept. for Transport, *Reported road casualties Great Britain*, Annual Report: 2023.
[97] Lack of officers delays fatal school crash investigation, BBC News 23rd April 2024.
[98] Driver of car that crashed into Wimbledon school is released on bail, The Guardian, 30 January 2025.

for standards to be dropped, or quality issues overlooked and the impact on individuals of wrongful convictions for motoring offences should never be downplayed (see Chapter four). We have been told that the efforts to address the shortages seem to be to lower the standards for qualification. This would also encourage applicants, who it would seem are currently in short supply. Given the many routes an officer can take in their career, the requirement of a three-year degree programme means this specialism holds little attraction, and burnout sees many investigators leaving after relatively short periods in post.

2.79 There is just one UK higher education provider of collision investigation training, and their foundation degree was only half full in 2025. With further budget cuts and the lowering of entry requirements for police recruits in recent years, the level of mathematical and scientific education, crucial for collision investigators, risks being seriously eroded. This should be taken very seriously. While partially addressing the issue of unmet demand, lowering the quality of investigations and the qualification requirements for investigators once again risks increased failures in investigations, and potentially, miscarriages of justice. We note that the Forensic Regulator Codes of Practice has a standard for Forensic Collision Investigation, FSA - INC 101, but the Code does not yet apply, albeit the Regulator 'encourages' compliance in readiness for its inclusion in a future version of the Code.

Training and accreditation

2.80 While rationing scene attendance to only 'serious' crimes can appear to make financial sense, important opportunities for gaining experience for both officers and CSIs are curtailed. Scientists who rarely attend scenes are unable to provide an enhanced level of forensic expertise and lose their capacity to gain experience (compounding staffing and specialism issues detailed in Chapter four). For example, we were told that 90% of fires are now investigated by fire officers who are highly trained in putting out fires but have less than a day's training on how to investigate the cause of a fire. Furthermore, these investigators now only attend fatal or complex fire scenes, so the opportunity for these experts to gain important skills and experience is being diminished. We cannot then increase our cadre of experienced fire examiners when they cannot gain accreditation because they are not called to scenes where they would gain the necessary experience: evidence of yet another component in the graveyard spiral.

2.81 An example of the potentially disastrous consequences of a lack of training and expertise in crime scene investigations was provided by Tana Adkins KC – former Chair of the Criminal Bar Association. She described a case in which a Crime Scene Manager had neither sufficient expertise nor experience to understand the blood patterns found at a murder scene. This resulted in the conviction of two (of three) defendants who later had their convictions overturned – using experts from overseas – who showed that the victim was not stabbed in the flat as the prosecution alleged. Instead, the stabbing had occurred down the road outside and it was the third defendant – who had been acquitted, who was more likely to be responsible. The shortcomings in the scientific investigation of the scene, and the influence these flawed conclusions had on the ensuing police investigation, resulted in two innocent men being imprisoned for five years while the murderer walked free. The financial cost of the trials, appeals, and re-trials was substantial.

2.82 The HMICFRS 2025 Crime Investigation report details difficulties with regulation that are causing some of the issues around CSI availability and scene attendance. The FSR Codes of Practice require forces to accredit their facilities, policies and processes, people, systems, and equipment to relevant international standards. However, many forces have not achieved this accreditation and some state that the pursuit of such accreditation is too onerous. Sourcing expertise in achieving and maintaining accreditation also reduces the number of CSIs and supervisors available for scene attendance. In some forces a lack of accreditation at some of their CSI bases, that are spread across their force area, meant that those remaining operational were covering larger geographical areas because there are fewer bases to cover the same ground, thus delaying scene attendance.[99]

2.83 CSIs complain that they are unable to examine scenes in a timely manner. Adherence to the regulator codes, regardless of seriousness or complexity, means all scene examinations were taking much longer: "*an average burglary used to take 45 minutes. It now takes three to four hours. Rather than*

[99] HMICFRS fn 87. p. 67.

attending six or seven burglaries a day, CSIs can only attend two."[100] We were told of one force where CSIs are examining far fewer scenes per shift and are currently averaging one burglary examination a day. Amendments to the Code of Practice are due to come into effect soon that may partially address these issues, but the accreditation of scene examination raises bigger questions around forensic regulation that we discuss in Chapter four.

Sampling at scenes

2.84 Forensic techniques rely on the quality of samples taken from the scene, yet defence experts gave examples of serious cases where the scene had been attended, but critical samples were not taken or key observations missed. We heard from experts that "*tapings are just not taken*" – tapings being those strips of sticky tape which, when applied to any dry surface, will pick up microscopic traces. These can then be analysed and may be able to link a victim with a suspect, or their home or car for example. We were told of investigations where forensic evidence could have shed light on a case, but charges were unable to be brought because the lack of crime scene sampling had ruled out testing of alternative hypotheses. They also spoke of limitations in cases and appeals, where tests were unavailable because samples had not been taken. There will always be the need to take samples at a scene, often before any benefit is apparent.

2.85 We heard from respondents that decisions, about both crime scene attendance and sampling at the scene, were taken not on the basis of scientific rigour, but cost benefits. One eye was always focussed on what might actually be submitted for testing, so preliminary triaging is done at the scene. Taking samples that will unlikely be sent for testing 'just in case' is discouraged. CSIs must ensure that samples taken are those able to answer questions that will be asked by the CPS. Yet intelligent and thorough crime scene examination and sampling 'just in case' does not need to take significantly longer nor cost a great deal more, but might enable detections, either immediately, or in the future. It is of great concern, particularly given the rise in undetected crimes including homicides, that 'just in case' sampling is no longer undertaken, further cutting off opportunities for 'niche' disciplines to be utilised. When sampling is limited, or rushed, the opportunity to detect a crime can be lost forever.

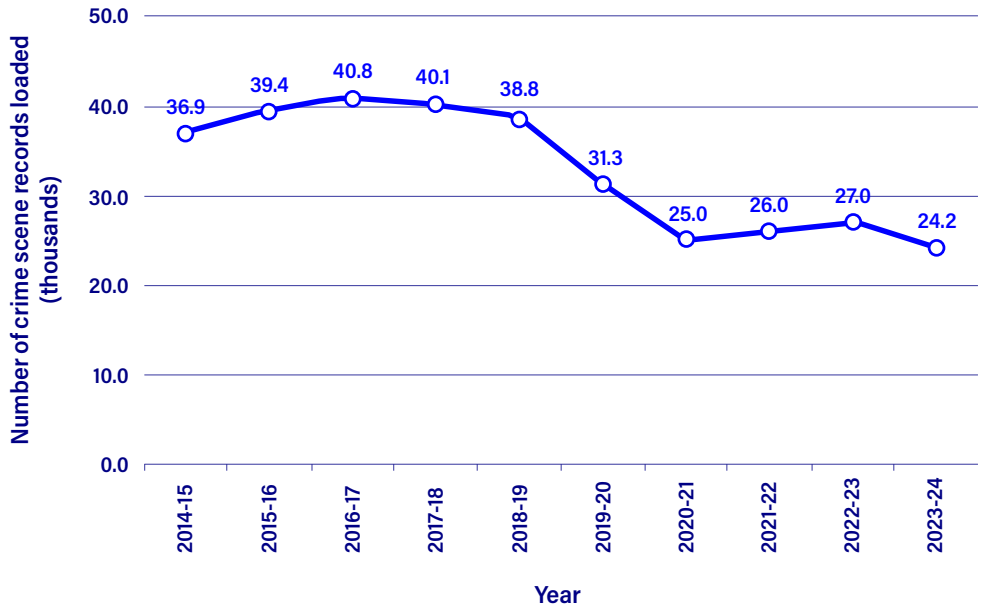
2.86 As a rough indicator of declining crime scene attendance and sampling, one can consider the uploading of DNA profiles from crime scenes onto the National DNA Database (NDNAD). The number of crime scene profiles loaded onto the database declined from 50,000 in 2008/09 to 33,742 in 2019. This was attributed by the Biometrics Commissioner to cuts in policing resources, and that while forces 'in theory' could attend and examine all crimes scenes: "most have strict procedures in place to ensure that the crime scene investigation resources available are focused on serious incidents and those most likely to yield results."[101] The latest Forensic Information Databases (FINDS) Annual Report shows a decline in the number of crime scene DNA profiles being uploaded to the National DNA Database (NDNAD) from over 40,800 in 2017, to just 24,200 in 2023/24.

2.87 There may be many reasons behind this drop-off,[102] but undoubtedly the rationing of scene attendance, limited sampling at scenes, and then triaging how many samples are tested, will cumulatively explain much of this decline.[103] Given the investment in the NDNAD and its capacity to identify potential suspects, it is of great concern to see this drop in effectiveness, so plainly evidenced in the figure below (taken from the FINDS 2023/24 Annual Report). Money could start to be considered as 'wasted' on forensic technology and equipment that is not utilised or becomes increasingly ineffective and inefficient. The NDNAD is very expensive if its utility in crime detection is going to become ever more marginal.

---

[100] HMICFRS fn 87. p. 67.
[101] Commissioner for the Retention and Use of Biometric Material, Annual Report 2019, para.106, at: https://www.gov.uk/government/publications/biometrics-commissioner-annual-report-2019
[102] The introduction of 'DNA17' has led to an increase in obtaining DNA 'mixtures' which cannot be loaded onto the NDNAD, with 40% of samples now returning these mixed results.
[103] The problem of samples returning a mixed DNA sample which cannot then be loaded onto the National DNA Database is also a contributory factor.

Figure 1: Number of crime scene DNA profile records loaded onto the NDNAD per year (in thousands) 2014/15 - 2023/24.



Crime Scene Management

2.88 Experts again stressed the need for greater collaboration between experienced forensic experts and investigators to maintain the quality of decisions taken at the scene and when deciding upon a forensic strategy. The existence of senior roles where individuals provided scientific support and advised on forensic strategy was disappearing from forces however, or the role was filled by relatively inexperienced CSIs or police officers with no scientific background (again, to keep up police officer numbers rather than recruit more 'staff' who are not included in police workforce targets). The loss of the national training centre for CSIs was also highlighted as a poor short-term decision, leading to a loss of 'community' among CSIs nationally, impacting again on low morale and staff retention.

2.89 It is surely essential that crime scene managers have a strong scientific background and understanding of both new and existing techniques and their capabilities, so that they can determine more effectively and efficiently what is to be achieved at the crime scene and direct examiners. In particular, while source level questions are generally answered well (identifying *who* was at a scene), it is the activity level (what they did while there) that is frequently overlooked, because as one of our respondents explained: "*it's often the stuff at the 'fringes' (requiring specialisms or niche forensic techniques) that can speak to activity level*." A good scientific strategy will consider specialist techniques or disciplines that will be able to address activity level questions.

2.90 We were reminded that crime scene management was increasingly focussed on gaining accreditation and ensuring that examinations were completed within accredited processes. Crime scene managers and Senior Investigating Officers (SIOs) reported that only the 'brave' step outside of accredited processes, with such confidence only coming with years of experience, which was now rare. Again, this is a misunderstanding of how accreditation ought to work which we discuss in Chapter four. When criminal investigation departments are under-staffed, with few experienced CSIs or SIOs, taking on these management roles becomes unattractive because of the pressure, workload, and lack of support.

INDEPENDENCE AND 'POLICE FORENSIC SCIENCE'

2.91 Any consideration of the delivery of forensic services, must address fundamental questions about who should be undertaking which roles, how decisions should be taken, and by whom. Importantly, such questions need to consider the critical requirement for independence and impartiality in forensic science. It has long been recognised that there are significant issues raised when forensic provision

is not independent of law enforcement. The National Academy of Science 2009 report on forensic science in the United States explained that: "*The potential for conflicts of interest between the needs of law enforcement and the broader needs of forensic science are too great*,"[104] and that ideally, "*public forensic science laboratories should be independent of or autonomous within law enforcement agencies*."[105] This led to their recommendation that Congress should facilitate the removal of: "*all public forensic laboratories and facilities from the administrative control of law enforcement agencies or prosecutors' offices*."[106]

2.92 Domestic inquiries and reports into forensic science over the years have echoed similar sentiments. In 2013, the House of Commons Select Committee on Science and Technology reported on results from a survey of forensic scientists conducted by the New Scientist (provoked by the closure of the FSS), that 27.7% of the forensic scientists responding sometimes felt pressured to produce a particular result and 76% agreed or strongly agreed that the closure of the FSS would reduce the impartiality of forensic evidence.[107] The Committee concluded that:

> "*Further in-sourcing, particularly in the absence of quality standards, raises serious questions about impartiality and the pressures on police scientists to produce favourable results. The Government should remain mindful that the FSS was originally established to create a separation between the police and forensic science provision*."[108]

They recommended that the Law Commission "*keep under review the issue of police impartiality in relation to the provision of expert evidence*."[109] The House of Lords in 2019 similarly recommended that: "*...it is necessary to ensure that the operational independence of the police and the independence of the courts and of forensic scientific evidence are safeguarded*"."[110]

2.93 While many of our respondents did mention the (re)nationalisation of forensic delivery as an option, many more referred to the need simply to stop the trend of expanding police in-house provision. Many of our respondents clarified that the need was for 'truly' independent forensic scientific provision, stating that there was a lack of external scrutiny over police-delivered forensic services. Many voiced significant concerns about cognitive bias, with it often remarked that police 'experts' will always be biased by their position, experience, and access to case information (we talk about this more in Chapter four). Police staff were viewed as always working for the prosecution and as such, their independence and credibility should, and will, always be challenged.

2.94 The Home Office appointment of a Director of Forensic Services and centralising the governance of forensic science inside a newly created National Centre for Policing ('NCoP'), might curtail the worst excesses of national fragmentation but they will not address concerns about independence. The plans, as currently articulated at the time of this report, are for NCoP to govern contracting and procurement of external forensic services and potentially to oversee in-house provision. The Home Office, National Police Chiefs Council (NPCC) and Association of Police and Crime Commissioners (APCC) will thus be responsible nationally for both the delivery of in- house forensic services and contracting with the market raising concerns over suboptimal governance and a conflict of interest. Working with what little remains of the forensic market of course, there will be real limitations to what can be achieved. Confidence cannot be high that the Home Office management of a market which they have been roundly criticised for mismanaging for decades, will now somehow now lead to better outcomes.

2.95 At the time of writing, the exact parameters of NCoP are still to be refined and consulted upon and may also depend upon decisions taken by the new Forensic Science Director. At this point, exact detail about the Director's role and powers are unclear. It is also difficult to discern how different the NCoP will be from many policing bodies that have gone before – including the short-lived National Policing Improvement Agency (NPIA) which was closed in 2012. Provisional plans look to be an attempt to adjust

---

[104] Committee on Identifying the Needs of the Forensic Science Community, National Research Council of the National Academies, *Strengthening Forensic Science in the United States: A Path Forward*, (2009), p.17. Available at: https://www.ojp.gov/pdffiles1/nij/grants/228091.pdf
[105] NAS 2009 p.184.
[106] 'ibid p.24.'
[107] "Forensic failure: survey results", New Scientist, 8 February 2012, newscientist.com
[108] House of Commons Science and Technology Committee, Forensic Science, Second Report of Session 2012- 13, HC 610, July 2013. para 41.
[109] 'ibid. para 42.'
[110] *House of Lords Science and Technology Select Committee 'Forensic science and the criminal justice system: A Blueprint for Change'*. 3rd Report of Session 2017-19 - published 1 May 2019 - HL Paper 333. para.37.

to the market as a monopoly, with familiar ideals and aims charted to steer this 'new' configuration with a new Director, police and the Home Office all at the helm, captaining a medley of stakeholders. There have been many different configurations of the deckchairs on this ship, and current plans look to be yet another rearrangement if the overarching aim is simply to sustain current provision and cement forensic science delivery within policing structures. There are no indications yet that there will be any more radical attempts to re-set forensic science in England and Wales, and certainly no move towards the 'crime scene to court' provision of all scientific evidence undertaken independently by experts, as seen in Scotland.

NATIONAL FORENSIC CAPACITY AND DELIVERY MODELS

2.96 Frustratingly, our research did not lead us to the 'perfect' model for forensic science to which we could simply point with confidence. While many countries have a mixture of public and private based forensic expertise, on the whole, forensic delivery remains a publicly funded part of most justice systems. England and Wales are still the only jurisdiction to have a fully commercial delivery model, albeit this epithet is increasingly misleading given the 'public' police provision.

2.97 The Netherlands Forensic Institute (NFI) is held in high regard internationally, and we visited their laboratories in The Hague to discuss their constitution. We found that their government too are responding to capacity pressures like those faced by the FSS and are resorting to private provision. They were aware of the issues resulting from the decisions taken by England and Wales and are concerned that they may already be on that same path. The NFI expressed fears that with the private provider (Eurofins) undertaking some of their 'rapid/cheap' testing services, at lower prices, the NFI was now starting to be viewed as 'expensive' and slow. Again, the police are being given false expectations with varying costings of apparently similar 'tests', ignoring all the additional work that the NFI undertake, particularly in research and development, but also national training, and advice. They voiced concerns that private provision will increasingly be seen as more 'cost-effective' and the NFI will be required to justify their higher costs. Their current 'hybrid' model, while presently working, runs the obvious danger, apparent to all those we met, that their fate might soon resemble that of England and Wales.

2.98 In the UK, we visited both Eurofins Forensic Services' new laboratories at Tamworth and Key Forensics' facilities in Coventry. The Eurofins investment in state-of-the-art laboratories (and central warehousing) has resulted in extremely impressive facilities, demonstrating what the market can achieve as well and the benefits that accrue from being a large multi-national organisation able to secure significant funding and other financial advantages. With their streamlined case-centred processing, protection of niche chemistry services, highly sophisticated vertical exhibits storage, and extensive consumables hub can surely only enhance capability, with efficiency savings, better contamination control and improved cost effectiveness. Replication of such a facility, if properly utilised, could again help to make forensic science and England and Wales world leading.

2.99 Key Forensics are operating on a much smaller scale with 18% market share and recent emergence from administration. They have clearly worked hard to survive the last few extremely challenging years and have managed to adapt, with a prisons drug testing contract of approximately £16 million p.a. plugging some financial gaps. They have been forced by financial constraints to be both responsive and nimble, adapting their facilities to manage trends and changing customer requirements. They represent a very different offering to Eurofins, with more limited capacity and capabilities but they continue to invest in forensic science in England and Wales. Their survival and growth clearly should not be overlooked when considering the future composition of the market.

2.100 We also visited Scotland Police Authority's (SPA's) 'Forensic Services' and discussed their 'crime scene to court' provision, which was the result of major structural operational and governance changes in the organisation of policing in Scotland from 2007. These changes, and the move to one Police force in 2013, required significant cultural change and modernisation. They are fully integrated within the Scottish Policing Authority, importantly, reporting to them independently and at the same level as the police. While they share premises with the police and other 'administrative' facilities (such as HR and finance), they maintain a figurative 'sterile corridor' between their operations and the police. There were many obvious benefits to this shared provision (not least the savings made when not paying for certain overheads), with forensic services staff delivering all forensic activities, including crime scene investigation and fingerprints, but currently not digital forensics although this is ultimately anticipated.

2.101 The current apparent health of the SPA Forensic Services was not achieved without significant upheaval and investment. The independent forensic services as they are configured now were the result of a national strategy, with clear direction and steering, borne from the need to respond to both the high-profile scandal resulting from the Fingerprint Inquiry in 2011, and the move in 2013 to one 'Police Scotland' force (second only in size to the Metropolitan Police). Clearly, they still face challenges (particularly in toxicology and forensic pathology), and resources must continue to be justified. There are clear pressures in maintaining capacity and capabilities, in modern, well-equipped suitable premises. However, there was a lack of dedicated research and development funding. Their funding of £45 million per annum (for approximately 22,000 cases p.a.) however, does allow for better pay and conditions and so they currently face fewer staffing challenges than in England and Wales (see Chapter four). They also run a fully accredited service.

2.102 Our commissioners were also generously hosted by West Yorkshire police at their shared facilities in Wakefield, and the Metropolitan police forensic laboratories in the capital. Both again had many outstanding attributes. They house the police provision of many forensic activities, while maintaining at least some semblance of physical separation from wider police operations. In Wakefield, there is some private provider presence with Eurofins having some small laboratory space (again, with a 'sterile corridor'). The facilities at Wakefield incorporated a particularly impressive regional 'CSI' hub, where all CSI activity is centralised, co-ordinated and monitored, to apparently great effect. There is clearly benefit also from having shared capacity across the five collaborating forces, with different disciplines being housed under one roof. This collaboration and co-location of forces and forensic disciplines appeared to be able to overcome at least some issues with fragmentation and lack of communication, with opportunities for pooling of expertise and passing on of experience.

2.103 The Metropolitan police (MPS) have their own laboratories, expanding after the closure of the FSS, and now employing 1,300 staff, making them the biggest forensic service providers, albeit there are currently threats of a 10% cut to their forensic budget. The MPS submitted to us that despite their significant and diverse in-house provision, they still work closely with private providers: "*much of the most significant operational forensic science in London in the last 20 years has been achieved in partnership between the MPS and our commercial partners*." Despite both Wakefield and the MPS having expansive facilities, and notable capabilities, demonstrating the value of working across disciplines and collaboratively with other forces, their underlying premise is that police can be trusted to provide forensic activities safely without risking the impartiality and independence of the science.

2.104 We believe such a claim remains unsubstantiated. We heard examples of scientists presenting evidence lacking a solid scientific underpinning, resulting in a report where the significance of the DNA findings was heavily overstated in favour of the prosecution case. This was only identified during a review by a scientist for the defence who pointed to the DNA being meaningless in fact, in the case circumstances. This case (and others along similar lines) led to changes, but other processes in this laboratory and other police-led forensic units lacking independence from the police, may still allow prosecutorial bias to go unchecked. We therefore remain concerned that cases like this, still proceed to court undetected, when not caught by a vigilant defence lawyer or scientist, potentially resulting in miscarriages of justice.

REFORMING FORENSIC DELIVERY

Stabilising and re-invigorating the market

2.105 There is universal agreement that urgent steps are necessary if we are to pull the forensic science sector out of its graveyard spiral. It now looks possible that having fought against the odds to survive, those that remain in the market will either soon retire, be forced to leave the sector, or become 'sub-contractors' for the last provider standing. We believe this poses a significant and unjustifiable risk to the criminal justice system. We are not persuaded however, that nationalisation is the only option as there remain many lessons that should be remembered from the demise of the FSS. Significant efforts will be required to support the providers that remain, but a healthy competitive market remains the best means of securing effective and high- quality, trustworthy, and innovative forensic science. In the short-term, stabilising delivery must be a priority.

2.106 Acknowledging the need for rapid and responsive support for police investigations and critical defence expertise, there must be short-term measures put in place to maintain current service provision, preventing further shocks and potential service failures. We appreciate that significant government investment for ambitious or radical solutions will be difficult to secure but one should ask whether the alternative is acceptable for the criminal justice system. Without the prospect of an immediate, and most likely significant long-term funding injection into forensic science, we are forced to take a pragmatic approach to reform. In the short term, this means maintaining current service delivery while new arrangements are put in place as swiftly as possible. The rapid and destabilising effect caused by the immediate closure of the FSS should remain uppermost in the minds of reformers.

2.107 Any business that does not have a charging structure and pricing which permits balanced books will eventually fail. Immediate steps should then include extending the scope and scale of the Association of Forensic Science Providers (AFSP), granting it the powers and status of a Trade Association. One of their first tasks should be to work with the police and Home Office to develop an appropriate tendering and contracting model which takes account of the true costs of performing forensic activities (including but not limited to critical pre, and post-testing activities, and on a broader front, training, facilities, accreditation and research costs). This should not be based solely on commoditised 'testing' products, nor involve irrelevant comparisons with police in-house services that are heavily subsidised. Critically, this first step should be augmented by an extension of the Forensic Science Regulator's role to include economic as well as quality regulation (see Chapter four). The Regulator should work to ensure that credible providers will be able to secure work, encouraging providers to stay, and perhaps others to consider entering, or even re- entering the market.

Building blocks of a new delivery model

2.108 In the short-term it will be necessary for police to continue to provide forensic activities currently delivered in-house. Rapidly ceasing these activities would entail too great a disruption to ongoing investigative capacity but there should be no further expansion of in-house capacity or capabilities. Police investment and efforts should be focussed upon those aspects of policing that are currently impacting negatively on the safety and reliability of forensic evidence. This includes: police staffing (detectives, CSIs and CSMs, and collision investigators and digital forensics in particular but also other - experienced and well trained- scientific support staff including those in forensic submission and strategy roles); the training of response officers; the support and supervision of junior staff by those more experienced, and closer collaboration with scientists.

2.109 These vital police roles are fundamental to successful investigations and prosecutions and must be a priority. This should still align with the police strategy of becoming a 'science-led' profession (see Chapter four), and will be safer, and more effective, more quickly, than speculative investment in technology of questionable effectiveness, which will facilitate the future retrenchment of forensic scientists. A 'science-led' police profession should aim for the police to work with greater insight and intelligence *with* science and scientists, not seek to take the place of scientists, or 'dumb down' the science sufficiently that ordinary police staff can 'dabble,' reducing the value of forensic evidence and encouraging misunderstandings or misapprehensions that can result in miscarriages of justice.

2.110 There ought to be implementation across all police facilities, of the more overtly scientific Case Assessment and Interpretation (CAI) approach, particularly when making decisions about which items to examine (and how) in casework. This should go some way towards ensuring more scientific and effective strategy and triaging decisions that deliver better, more cost-effective results. All policing forensic activity should also be undertaken in line with the Forensic Science Regulator's Codes of Practice. There should be no (further) tolerance for police conducting forensic services that are not reliably producing high-quality evidence. If adherence to the Regulator's Codes is creating obstacles or having adverse consequences, as with crime scene investigation, then this should be addressed a far as possible without diminishing or abandoning the commitment to the principle that police must reach the same quality standards that they rightly demand from external providers. In a stabilised market, external providers should be able to help refine accreditation requirements so that scarce funds are not wasted in over-interpretation of standards. There cannot be a 'two-tier' system where police provide services that do not have to reach quality standards, while private providers must comply with the Regulator's Codes of Practice.

2.111 In the medium term, there should be increased regionalisation, to counter the 'postcode lottery' in forensic science provision. A network of regional forensic science facilities, or 'hubs', should be created, rationalising existing in-force facilities.[111] These hubs should seek to increase efficiency and cost effectiveness whilst reducing inconsistency and fragmentation, as seen in Wakefield. Independent private laboratories should continue to provide services as per their current contractual agreements and be at least either co-located, or near these regional hubs. Regionalisation may also partially offset the dominance of larger forces in national policy forums where we were told smaller forces struggle to be heard even when they may have good ideas or better systems. Well-equipped and properly staffed regional hubs could also combine service provision and research with complimentary areas of expertise and excellence, with specialised police officers working beside forensic experts.

2.112 These steps towards a new delivery model need to be coupled with a longer-term national vision that will re-calibrate forensic science to secure a more resilient responsive and reliable sector. Ultimately all forensic activities should be taken outside of police control. This may be considered a big step, (and while Scotland has achieved it, it is recognised that they are considerably smaller), but radical reform in policing has been successful in the past, just as prosecutorial powers were removed from the police and given to a newly created Crown Prosecution Service. The NCoP and Director for Forensic Services, rather than seeking to bring more forensic activities into policing, should focus on the work necessary to ensure we are equipped to work within, and support, a viable commercial market. They must secure the future external provision of dual-track services, providing rapid scientific support to police investigations (including those services normally undertaken by the police such as: scene investigation; triaging and strategy setting; fingerprinting; presumptive testing and screening, and some digital testing, etc.) coupled with more complex and 'niche' services, delivering the full range of forensic services and holistic investigations.

2.113 A sustainable forensic delivery model should provide for:

- Forensic services that are delivered by scientific organisations who have proven forensic expertise, ensuring safety and reliability through scientific method and excellence.
- The competition necessary to drive improvements in efficiency and cost effectiveness
- Independence of scientists and scientific services from police and/or prosecution, to ameliorate bias and bolster impartiality, thereby mitigating risk and increasing public trust.
- Strengthened services for the defence as well as policing and prosecution - as required by our adversarial system of criminal justice. This will require realistic funding where, once again, the focus is not solely on price, an appropriate accreditation system for case review work, and a requirement for a second opinion in any case where forensic science is intended to form a significant part of the prosecution's case (see Chapter four).
- Plurality among providers to guarantee diversity of thought, provision and expertise, essential for encouraging innovation and development of forensic science.
- The training of the scientists of today and the future to nurture, retain and expand our knowledge and skills base, and with a contribution to national training for users of forensic services, such as the police and legal profession to ensure they make best use of it.
- Flexible, intelligent and simplified contracting, aligned with better demand forecasts, enabling providers to cope with peaks and troughs in demand without the creation of backlogs, with realistic pricing for services that enable providers to thrive.
- A streamlined interface with police operations via regional hubs, for better responsiveness and greater collaboration between operational police staff and forensic

[111] Similar perhaps to the vision of a 'UK Crime Campus' supported by a series of 'Regional Crime Campuses' recommended by Sir Craig Mackey QPM in his Independent Review of Serious and Organised Crime in 2021.

sci-entists. This should improve the quality of laboratory submissions and outcomes, and promote holistic approaches, including in cold case reviews.

- The full range of forensic activities, including niche services, and capacity for complex and holistic investigative approaches, solving more cases first time around, and preventing the extinction of specialists and loss of experience in complex casework.

- Support from a centrally funded R & D programme and through the academic REF system – for innovation (including technology transfer), and data sharing, allowing forensic science to continually improve, while avoiding 'black box' developments which cannot be properly tested by others or assessed in the courtroom.

A NATIONAL FORENSIC SCIENCE INSTITUTE

2.114 In common with many countries around the world, we too should be home to a National Forensic Science Institute. Indeed, the New Zealand government have just announced (May 2025) that they are over-hauling their science system with the creation of three new public research institutes, one being the New Zealand Institute for Public Health and Forensic Science, enhancing disease response and public safety.[112] Since the closure of the FSS and with it their Central Research Establishment (CRE), the House of Lords explained that investment in forensic science research was inadequate and that the Home Office had: "*abdicated its responsibility for research in forensic science*". They recommended that the UK Research and Innovation "*urgently and substantially increase the amount of dedicated funding allocated to forensic science for both technological advances and foundational research, with a particular focus on digital forensic science evidence and the opportunities to develop further capabilities in artificial intelligence and machine learning*."[113] They also envisaged an Institute that, working closely with police, judiciary, providers, universities, and the Regulator, would set strategic priorities, and coordinate and direct research and funding.

2.115 We believe that the NFSI should become the 'home' of forensic science expertise and research, overseeing a network of 'academic centres of excellence in forensic science' (see Chapter four for further detail). The NFSI would support the regional hubs delivering responsive forensic science, providing centralised scientific advice, guidance and sharing of best practice for quality management, and meeting regulatory requirements. Existing finance streams could be diverted from those facilities and agencies no longer required, supported by central funding from the Home Office, the Ministry of Justice and the research councils.

2.116 The Institute should initiate and maintain a national forensic R & D programme addressing operational needs, promoting collaboration between police and scientists, and outreach to academics and specialist industrial partner. This should include horizon scanning of emerging technologies. A national R & D capacity should ensure that results are held centrally, to be communicated across all forces and agencies, liaising closely with the Office for the Police Chief Scientific Adviser. Priority should be given to research into determining value for money associated with the end-to-end (crime scene to court) use of forensic science. Demonstrating a cost- benefit analysis should facilitate the intelligent deployment of forensic science capacity to maximise impact, while also elucidating the risks of not using forensic science or relying on poor quality forensic science.

2.117 The NFSI should protect specialist scientific disciplines by providing underpinning support and co-ordination to maintain expertise nationally. The NFSI should also facilitate centralised training for police, CSIs, detectives, scientists and lawyers to ensure proper scientific grounding and better understanding and integration of scientific evidence, as well as up-to-date training in use of science in their investigations/court cases. The Institute could then help to sustain a cadre of specialists by ensuring that all scientists, CSIs and police investigators, were aware of capabilities, and understand how to integrate forensic expertise into investigations. These specialists would also be available to defence legal teams, providing defence services across all scientific disciplines (charging the Legal Aid Agency to further support the work of the Institute). This also ensures scientists will be able to undertake both

[112] https://www.esr.cri.nz/news-publications/esr-to-become-the-new-zealand-institute-for-public- health-and-forensic-science/
[113] House of Lords 'Blueprint'. para. 187.

prosecution and defence work (in different cases) – entirely within their remit as independent expert witnesses to the court and help to ensure a balanced outlook.

2.118 A National Forensic Science Institute should support all forensic science activities in England and Wales (including digital forensic services), in close collaboration with the devolved nations. Run by a Director and supported by an independent Board, it would require engagement with all the major stakeholders in the criminal justice system. For instance, the Institute would work with organisations such as the Chartered Society of Forensic Science (CSFS), the Association of Forensic Science Providers (AFSP), and the Forensic Science Regulator (FSR) and their specialist working groups.

Inter alia, it would:

- Develop a national strategy for forensic science informed by an audit of current delivery and underpinned by the principles of independence, scientific method; quality assurance, collaboration and innovation
- Provide advice and guidance to organisations such as the Legal Aid Agency on commissioning defence expertise, and the CCRC on decisions about which cases require forensic support
- With operational partners, facilitate training for forensic scientists, police investigators, lawyers and judges, and co-ordinate proficiency and on-going competency testing of scientists
- Initiate and administer a national R & D programme using central funding (e.g. from traditional funding sources, including UKRI and the OPSCA). Early projects would include continuing research evaluating the use of forensic science
- Work with providers and stakeholders to secure vulnerable niche services to ensure their continued availability.

2.119 While the crisis in forensic services provision might be largely explained by a combination of funding pressures, increased costs, and regulatory burdens, the current graveyard spiral has been accelerated by the continued paring back of demand from police, growth of in-house provision, and prioritisation of 'rapid/cheap' testing in sustained efforts to meet budgetary demands. The fragility and unprofitability of the forensic marketplace has led to reduced investment, with the monopolisation of full-service forensic science provision and extreme precarity among smaller providers. Both capacity and capabilities have narrowed resulting in impoverished forensic strategies and the endangerment of 'niche' disciplines.

Recommendation 1 - There should be a full national audit of forensic services, to assess what support can be urgently put in place, to shore up current provision and prevent further deterioration in capacity and capabilities whilst substantial reforms are commenced.

Recommendation 2 - Whilst reforms are being implemented, further expansion of police in-house provision should cease, and all police provision should operate in full accordance with the Forensic Science Regulator's (FSR) Codes of Practice.

2.120 Forensic science starts with timely, effective, scene attendance by expert examiners. Cutting corners at the outset leads to increased costs, lowered detection rates, slower investigations and weaker prosecution cases. This impacts negatively on public trust and confidence and increases the risk of miscarriages of justice. There should be an assessment made of the unmet demand and how this demand could be met.

Recommendation 3 - The effective and efficient attendance and examination of crime scenes must be scrutinised urgently and any inhibiting factors e.g. overly prescriptive approaches to accreditation, dealt with. Individual force policies on scene attendance should be set in line with nationally agreed best practice and monitored. All scenes should be examined to a proportionate extent, with meticulous and generous sampling, with all evidence properly archived, to facilitate future use.

2.121 Police triaging of submissions impacts upon the potential of forensic investigations, as well as giving rise to concerns about independence and bias. The lack of collaboration between experienced police and scientists limits assistance with both forensic strategy and the interpretation of results. There is a lack of institutional support for investigators, particularly in respect of decision making and forensic strategies.

Recommendation 4 – His Majesty's Inspectorate of Constabulary, Fire and Rescue Services (HMICFRS) should scrutinise police forensic investigative strategy setting (including the use of tools such as CAI to ensure best forensic focus in triaging) and in-house provision of forensic services should be incorporated within PEEL inspections of investigative performance. This should include CSI provision, forensic submissions units, and forensic strategy within both volume and serious crime until longer term arrangements have been made for this activity to be transferred to independent organisations.

Recommendation 5 - Scientific support for police investigations must be strengthened. The National Police Chief's Council (NPCC) and College of Policing, supported by Forensic Science Providers (FSPs), should immediately address the national shortage of trained detectives with experience in forensic investigations. There should be national prioritisation of both training and greater support for all investigators, particularly Senior Investigating Officers. Scientific support officers should be in place within all Criminal Investigation Departments.

Recommendation 6 - Both FSPs and police should work to create a trusted and transparent relationship, while maintaining their operational independence and respecting professional boundaries. This must include assisting with forensic strategy setting, deciding casework requirements. Police should work closely with FSPs to understand demand forecasting and how to best manage peaks and troughs in workload, rationalising any contractual penalties.

Recommendation 7 - The HMICFRS recommendation to bring digital forensic services under the wider forensic science structure should be acted upon. Thus, in the long term, digital forensics

should be removed from direct police provision and be undertaken by independent specialist organisations working closely with investigative teams to ensure the rapid production of valuable, reliable information that supports active investigations from an impartial stance.

2.122 At its inception, commercialisation was a success. Poorly conceived contracting arrangements, combined with years of austerity, resulted eventually in financial instability, downsizing and loss of scientists and companies. A situation which has worsened until we find ourselves today with a broken market. There is currently no incentive for new entrants into the market and little incentive for further investment. To address this, more realistic pricing and a better contracting model should provide for guaranteed returns which will encourage long term growth and investment. There are commercial providers committed to the sector, but they can only sustain this commitment if there is a future in the market. High quality scientists will only be retained through training, career progression opportunities and competitive salaries. These scientists must work in modern, well-equipped facilities, which support research and development. Any green shoots to be found across the sector, need support and reassurance of brighter days ahead.

Recommendation 8 - After stabilising what forensic provision remains, there must be a plan for re-creating a market and making it attractive for investment. To encourage new entrants and investment into the market, sustainable contracting and realistic costing must be introduced urgently. Pricing should reflect the true cost of delivering high quality forensic services, including the full range of activities required for casework and testing.

Recommendation 9 - The Association of Forensic Science Providers (AFSP) should become a trade association, and work with the police, Home Office and others, to re-calibrate contractual arrangements. The Forensic Science Regulator's powers should be extended to include regulating the market.

2.123 The precarity of the forensic market and its monopolisation pose significant risks to the operation of the criminal justice system. If the forensic market cannot be pulled out of the graveyard spiral, it may become inevitable that forensic provision will be 're-nationalised'. There is little confidence that this could be effectively managed, and it would be both regressive and very costly. It might appear a better outcome than a pure monopoly, but what must be avoided is a national service under the control of the police. There must then be a pragmatic, short term strategy to ensure continuity with a medium-term regionalisation strategy to rationalise delivery and make it more efficient and effective. The police and forensic providers must collaborate to ensure that the 'dual tracks' of forensic science – the delivery of rapid results, coupled with more complex investigations, can be delivered.

Recommendation 10 – The Government must consult with all stakeholders involved in the criminal process – from crime scene to court and beyond - including prosecution, defence and appeal lawyers, judiciary, government departments, police and agencies such as the Legal Aid Agency and CCRC. Reform must seek to make forensic science work for all parties, meeting the requirements of good forensic science to ensure that crimes are properly investigated, trials are fair, and miscarriages of justice are prevented, uncovered and overturned.

Recommendation 11 - The Home Office and NPCC should rationalise current police service forensic facilities and arrangements reducing duplication, fragmentation and minimising national inconsistencies. Regional collaboration should be facilitated to ensure quality, consistency, and improved cost effectiveness, streamlining the boundary between policing and scientific support. Existing collaborations should continue to deliver current police services during the transition period to full regionalisation. This could include fingerprints, digital forensics, crime scene management, but not seek to expand into other areas.

2.124 In common with many countries around the world, and in line with many previous recommendations, the UK should be home to a National Forensic Science Institute (see also Chapter four).

Recommendation 12 - A National Forensic Science Institute (NFSI) should be created as the central authority on forensic science. The NFSI, working closely with police, lawyers, judiciary, providers, universities, industry, other government agencies, and the Regulator, should set

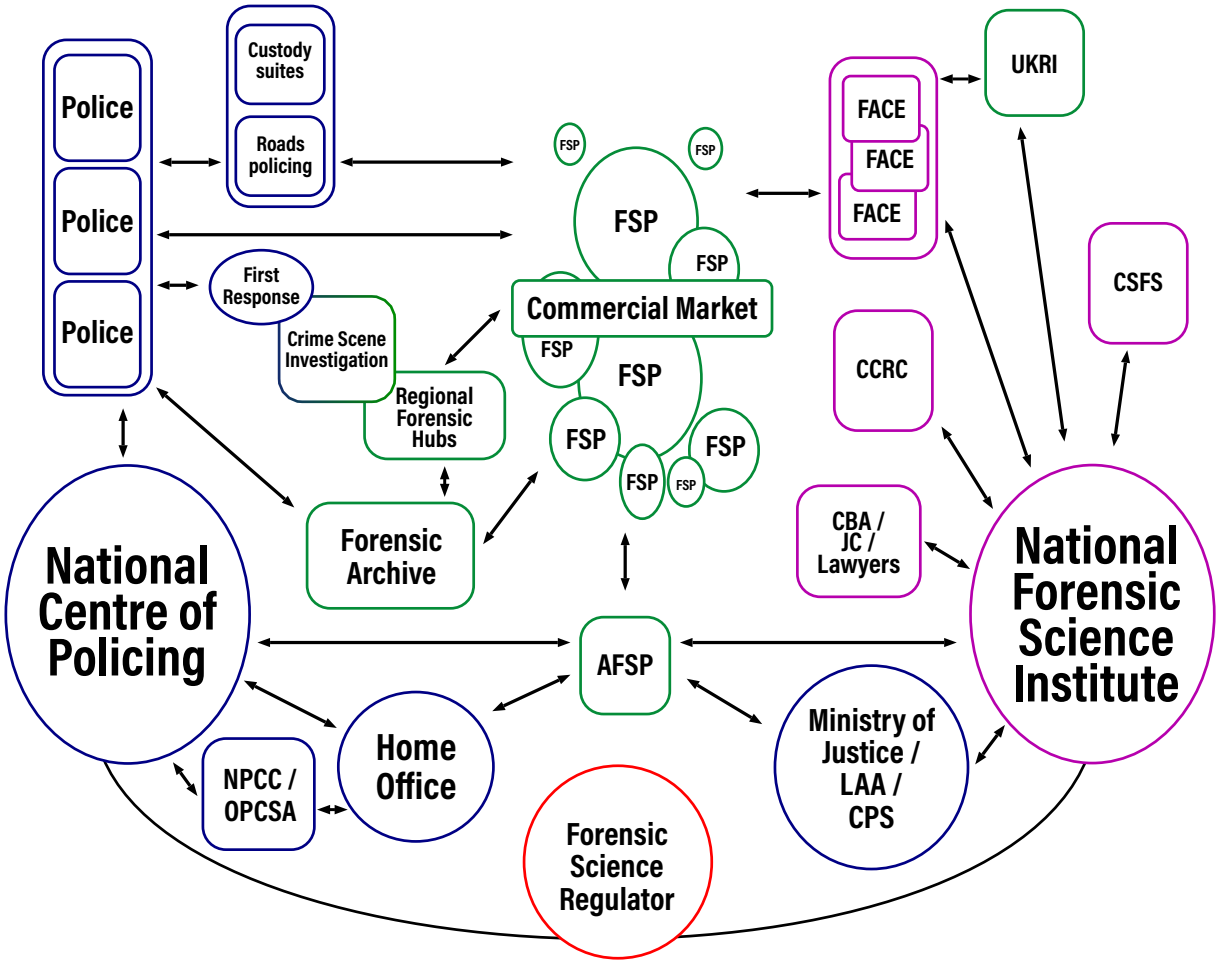
strategic priorities, and coordinate and direct research and funding. The NFSI should protect niche services, facilitating training and professional development.

2.125 The long-term aim should be to ensure that all forensic activities are delivered independently of the police. This vision for forensic science should take inspiration from Scotland, where all forensic activities, including scene investigation and fingerprinting, are no longer the preserve of the police. The NCoP, regional hubs, and the new National Forensic Science Institute should build close working relationships, but forensic science should be considered external to the police. Independence and impartiality are essential to both science and justice. Critically, the public perception of this independence is key to maintaining confidence and ensuring trust in policing. Forensic science must be led and driven by scientists, while lessons from the FSS should not be forgotten.

Recommendation 13 - A national forensic strategy must aim in the long term, to remove all forensic science provision from police oversight. Activities such as crime scene investigation, triaging, digital forensics, and fingerprints and other marks etc., should ultimately be undertaken by forensic scientists working independently of the police.

2.126 Our inquiry has sought to identify the adjustments necessary to pull the forensic science sector out of its graveyard spiral. The route to reform will require the engagement of a range of agencies, organisations and stakeholders. This is not a role for policing and the Home Office alone. There already exist many of the building blocks necessary to support a healthy market, and a sustainable, high quality forensic science sector. In the long term, the summation of our recommendations we have approximated in the following diagram.

Figure 2: Forensic Science Sector Model.



Forensic evidence and equality of arms

3.1
The results of forensic investigations require translation into evidence that can be relied upon by police and prosecutors in deciding upon criminal charges and weighed at trial by judges and juries. The **effective communication** of this forensic evidence among all parties, and their understanding, **is key to the quality** of decisions reached. The presumption of innocence and burden and standard of proof mean that the prosecution must ensure their evidence is reliable and clearly communicated, with all relevant caveats and limitations made explicit. The necessary pursual of equality of arms in our adversarial system also demands that the defence have every opportunity to challenge prosecution evidence, and to avail themselves of their own expert opinion if evidence needs clarification or is disputed. These burdens on the prosecution shift post-conviction, but reliable forensic evidence must also be available to appellants, in order that wrongful convictions can be corrected.

Yet too often our system is continuing to fail to not only ensure the prevention of miscarriages of justice, but their speedy identification and resolution when they do occur. Just the most recent high-profile cases, the Post Office victims, Andrew Malkinson, and now Peter Sullivan, all spent decades fighting, until the system was finally unable to deny them justice any longer.

3.2 Shortcomings in investigations, such as those detailed in Chapter two, can set miscarriages of justice in motion, which are hard to reverse unless these failings can be identified. Yet Professor Ruth Morgan told us that "we're seeing real issues, particularly in miscarriages of justice, often because the defence didn't have access to the forensic services that would have offered a second opinion, or the prosecution haven't been able to have the full range of science available to them". A leading defence expert, David Schudel, reported that of the approximately 2,000 cases that Keith Borer (defence forensic experts) work on each year, between 10 and 20 are 'near misses', cases that have a "critical failing in the forensic science that's been produced". Most are a result of evidence that was not collected, or collected but not submitted for testing, or submitted but key tests had not been requested. There were also cases where the case context had not been accounted for when results were interpreted.

3.3 None of these 'failings' are covered specifically by accreditation or the Forensic Regulator's Codes of Practice, so while forensic science activities – largely within laboratory settings - is regulated, and quality has improved, there are still failings that can only be 'caught' by diligent case review, and full access to forensic expertise for both the prosecution and defence. All forensic evidence needs to be disclosed, and transparently communicated between parties, to ensure that these 'near misses' are caught. Our findings suggest that the system currently does not guarantee clear communication, full disclosure or equality of arms, and this situation worsens still post-conviction. This means that there are likely to be many other cases which have not been subjected to such scrutiny where flaws pass through our legal system unnoticed and uncorrected.

COMMUNICATING FORENSIC EVIDENCE

3.4 Lawyers are not scientists. They must deal with evidence and a wide variety of expertise but should not be expected to become scientifically, as well as legally trained. The responsibility always lies with the prosecution expert to convey evidence clearly, fairly and accurately, including communicating limitations and caveats. Forensic reporting should underscore the relevance and significance of the evidence, so that lawyers can respond appropriately. We were reminded time and again of the vital importance of context when determining the relevance of scientific findings. However, the police triaging of submissions, and scientists often being unaware of case-specific details or the existence of other exhibits, meant that reported findings are often partial and must be qualified.

3.5 The risks when reporting results without proper interpretation are exacerbated when it is too difficult (or late) to source a second opinion. It is then left to lawyers to understand the significance of the evidence in the case. Yet we know that the poor communication of evidence and its misinterpretation is where forensic science can give rise to miscarriages of justice. A particular instance demonstrates the difficulties, with a case involving canine DNA. The prosecution evidence at first sight seemed compelling and a defence expert was not instructed until late in the process. There was complex interpretation required, and due to the time constraints, the forensic report for the defence could not be delivered until the day before trial. At court, the defence argued that the prosecution evidence was essentially meaningless, but the judge had already spoken to the defendant, explaining that there was strong forensic evidence against them, leading them to plead guilty and receive a suspended sentence. This conviction and sentence were then obtained even though the defence expert demonstrated that ultimately there was no forensic evidence against the defendant.

3.6 The timely disclosure of forensic evidence is essential if it is to be considered with the required diligence. This is particularly acute when evidence is complex, and especially so when involving statistical analysis. But we heard repeatedly of expert reports disclosed with insufficient time for lawyers to digest and respond. We were told of the significant risk that forensic evidence may increasingly be accepted by parties because there was simply no time or resources to fully interrogate the significance of an expert report. While acknowledging that experts are under time pressure, often with unrealistic reporting deadlines, the onus remains on those producing reports to provide sufficient information for a decision to be taken as to whether further action is advisable.

3.7 Choices that have been made concerning how to regulate forensic science mean that currently, our system of forensic regulation has little power here as the Regulator's Codes of Practice are geared toward the quality control of forensic 'testing' and standards for interpretation remain outstanding. At trial, dependence is placed upon the barristers employing the Criminal Procedure Rules and Criminal

Practice Directions (and deft cross examination) to challenge forensic evidence. However, important decisions – particularly guilty pleas – are often taken on the basis of evidence/intelligence produced during an investigation. The reporting of forensic evidence pre-trial lacks transparency and can easily evade proper scrutiny and these risks are heightened by Streamlined Forensic Reporting.

Streamlined Forensic Reporting

3.8 Streamlined Forensic Reporting ('SFR') was introduced in 2012 to improve efficiency by removing the need to provide detailed forensic reports in every case. The SFR process requires the production of standardised reports known as 'SFR1s' or 'SFR2s'. An SFR1 is not a witness statement or an expert report to which Criminal Procedure Rule 19 applies, it presents the result(s) of some forensic testing, upon which the prosecution intends to rely. This should be served as part of the Initial Details of the Prosecution Case (IDPC). An SFR1 usually then simply summarises the evidence, for example, "a swab of blood from broken glass produced a mixed DNA profile, which included D1's profile". At this point, the defence can accept this evidence, (making the SFR1 admissible as uncontested), alternatively, they can identify a 'real issue' with the evidence.

3.9 If the SFR1 is challenged, this initiates the production of an SFR2 Forensic Issues Report (MG22(c)) by the prosecution. This SFR2 is a short form expert report, which should be written by a reporting scientist and comply with the Criminal Procedure Rules. In practice, an SFR2 is often little more than a couple of paragraphs which will rarely explain the science behind the testing or include caveats and undermining material. If it is anticipated that an expert will be required to attend court to give evidence, there should be a full report produced, with attendant full disclosure.

3.10 The House of Lords in 2019 expressed concern about streamlined forensic reporting and serious issues remain. The process carries significant risk as it is currently operating by enabling poor science to go unchecked. SFR1 reports are often prepared by an administrative member of staff, and it is often unclear who exactly has undertaken the testing, or the nature of their qualifications. An administrator is unlikely to fully understand the results, spot inaccuracies, or be able to highlight points which may affect interpretation. Yet only the 'full evaluative reports' produced for trial are the sole prerogative of reporting scientists. This may well explain why our respondents had examples of SFRs being inaccurate or misleading, requiring correction or clarification – assuming they were picked up in the first instance.

3.11 If done well, streamlined forensic reporting can reduce potentially unnecessary scientific testing, cut costs and reduce demands on capacity. We found however, a lack of appreciation among police and some forensic providers of potential risks in over-reliance upon SFR1s, and an unwillingness to discuss their limitations. Early decisions may be taken based on partial or misleading SFR1s, with assumptions made that the reports have been interpreted correctly by police and prosecutors, lawyers and their clients. There will rarely be an opportunity (or motivation) to determine at a later date whether incorrect conclusions or over-estimations of the weight of the evidence have been made. There must be acknowledgement that not all pleas entered on the basis of SFR1s may be appropriate, exemplified by the case of Thomas Smart who pleaded guilty after an incorrectly worded SFR1 stated that a novelty bullet keyring was a regulated firearm.

3.12 Usually, there will be insufficient detail in an SFR1 to enable a lawyer or unrepresented suspect, to identify any 'real issue' that would prompt an SFR2. It is simply unrealistic to expect a busy defence lawyer to consult an expert at the SFR1 stage. There is nothing yet for an expert to consider, and solicitors fees are insufficient, and time too short, to allow for a speculative expert consultation. The Legal Aid Agency (LAA) would also not fund such a consultation before a not guilty plea was entered. Scientists for the defence are therefore not introduced into the forensic process until the SFR2 stage, which means that police, and lawyers on both sides, can be relying upon minimal information, which may be misleading, in the early stages of the case being constructed against a suspect.

3.13 Currently there is no way of gauging how often such problems occur, how serious they are, or what proportion are detected. Rather than introducing 'efficiencies', this process may then increase the likelihood of inaccurate charges and inappropriate advice, introducing further delay and imposing even greater strains on the public purse. A mechanism for feedback could be created via the Forensic Science Regulator's Office as currently work to improve the SFR process is undertaken by the Forensic

Capability Network in collaboration with prosecution scientists. With an opportunity for defence scientists and other parties to report issues with SFRs, highlighting where issues have been found may serve to improve the process and reduce risk.

3.14 An SFR1 will only suggest answers to questions that the police and prosecution put forward and so focus only on the 'points to prove'.[114] This report cannot then give a full account of the weight of the evidence and does not evaluate competing hypotheses (as the defence hypothesis can normally only be guessed at this stage). Thus, any police and prosecutorial bias will permeate the report. However, we were told that it would be incredibly rare for an SFR1 to be re-evaluated in light of further evidence, greater context, or a defence request. That would require the production of an SFR2, which may or may not be ordered, and will certainly not be provided until much later. Defence lawyers complained however, that reports do not alert them to caveats and that prosecutors can be reluctant to commission an SFR2 even where an SFR1 is being contested. Raj Chada, a criminal defence solicitor explained that "SFRs can be a good starting point, but the quality isn't there. They're used by the Crown as a conduit to try to shut the case down quickly rather than what they should be used for, which is a starting point to identify where there might be areas of dispute".

SFRs and disclosure

3.15 There is no requirement that SFR1s comply with the Criminal Procedure Rules on expert reports (in particular Crim PR 19.3 or 19.4), namely that any undermining material be disclosed to the defence, nor indicate where there might be any potential questions regarding the reliability of the evidence. The SFR1 need not even identify the test that was carried out, nor any contrary test results. We have been told that despite the requirement that SFR2s do comply with the Rules, frequently it is not until a full report is prepared that caveats and context which may fundamentally undermine the evidence are set out. The lack of disclosure of undermining material or caveats, before a defendant is required to answer the case, diminishes due process rights and risks injustice.

3.16 The need to provide a timely SFR2 report is critical yet late or non-disclosure of scientific evidence was repeatedly raised as a major problem. We were told that SFR2s and full reports are not always produced when requested or were too late. Even in murder trials reports are often served to the defence at the last minute. Defence experts all complained that they do not receive reports until very late in the process and without the attendant necessary and proper disclosure (including underlying data). We were told of instances where the defence must instruct experts to answer questions which ought to have been answered in a properly drafted SFR2. This costs money and causes more delay, particularly if mistakes must be rectified.

3.17 SFRs also include disclaimers for responsibility for full disclosure, stating that it is for the defence to request a full list of exhibits from the investigating officers. This is contrary to the fundamental disclosure principles which underpin the criminal justice system. Failures in disclosure are one of the main causes of miscarriages of justice and the disclosure process is strictly governed by the Criminal Procedure and Investigations Act 1996 (CPIA). Given that the SFR will only relate to exhibits submitted for examination, a full list of exhibits should be routinely disclosed to the defence without demands that a specific request be made. In an ideal system, timely and full disclosure would also allow for pre-trial meetings between experts, yet forensic experts tell us that they remain rare. Such meetings should permit the production of joint reports which can provide clarity, focussing the trial on the issues in dispute, and should always be strongly encouraged.

Transparency and prosecutorial responsibilities in the SFR process

3.18 It is our view that streamlined reports have a legitimate role when they are produced pre-charge, to provide intelligence to investigators and prosecutors, giving an early indication of forensic evidence

[114] The 'points to prove' in a prosecution are those points which must be evidenced in order to prove that the defendant has committed the offence charged. For example, when prosecuting the offence of Dangerous Driving contrary to s.2 of the Road Traffic Act 1998, three points must be proven: 1) that the defendant drove a mechanically propelled vehicle; 2) on a road or public place, and 3) did so dangerously. Each criminal offence will have their 'points to prove' and evidence must be sufficient to prove all of them.

that may be available. Producing unequivocal reports quickly should direct police strategy and later enable informed legal advice as well as charging and plea decisions. However, steps need to be taken to mitigate risk and improve transparency.

3.19 SFR1s should be signed by a reporting scientist, certifying that they have read the report and any potential scientific issues/limitations have been highlighted. This should provide a safeguard to try and ensure that mistakes and inaccuracies are detected, and that the limitations of the results and techniques used in the context of the case are clear to a lay person. An SFR1 should not be signed off if it could lead to the wrong conclusions being drawn, or the weight of the evidence being over- estimated. If the defence do not accept the SFR1, the prosecution should produce an SFR2 without requiring the defence to disclose their case. The sentence credit gained by an early guilty plea is the incentive to accept the SFR1 and so further pressure should not be applied to the defence to accept an SFR1.

3.20 The standard text of SFRs should include basic explanations behind the most common test results, as well as signposting to Royal Society primers where relevant. The text should also be re-written from a neutral perspective. Currently, SFRs are interpreted as trying to dissuade defence lawyers from interrogating legitimate points. The text tells defence lawyers that the onus falls on them to identify their exact points of challenge, while 'respectfully highlighting' that they should not attempt to 'ambush' the prosecution or take technical points, and that pushing the Crown to 'strict proof' is not in-keeping with the spirit of the Criminal Procedure Rules. In a justice system based upon mutual respect among professionals, neither scientists, police nor prosecutors ought to feel the need to 'respectfully' or otherwise, remind defence lawyers of their duties. The defence retain the right – despite these assertions - to explore the limitations of any evidence, and there should be no efforts made to restrict this to occasions when they can identify 'the exact issue to be addressed'.

3.21 The SFR text is often accompanied by a statement such as:

> "The prosecution will not ordinarily undertake further forensic analysis unless and until the exact issue that such analysis needs to address has been identified; and only if, in light of that issue, it is appropriate that the next stage of analysis should be undertaken by an expert instructed by the prosecution rather than an expert instructed by the defence. Important: Where real issue(s) are identified and if additional forensic work is necessary, please notify the agreed Force contact in writing, listing the issue(s) to be further addressed. Delivery dates for additional forensic work to be agreed on a case-by-case basis."

3.22 We suggest this is wholly inappropriate and raises questions. Firstly, this passage seems to undermine the burden and standard of proof, which require that the prosecution provide scientific evidence in a proper format. If a defendant denies their presence at a scene for example, then any evidence which purports to prove presence is in dispute and a full report will be required irrespective of whether the 'exact issue' has been identified. Secondly, neither prosecutor nor judge should attempt to curtail legitimate defence inquiries or force the defence to lay out their specific points of contention before trial. This is prosecutorial gatekeeping. If the defence request an SFR2 and/or require the prosecution expert witness to attend trial, then ordinary procedural rules should apply (i.e., the expert's report complies with the Criminal Procedure Rules).

3.23 Furthermore, scientific issues will not be spelt out in an SFR1 so the 'exact issues' may not be immediately apparent and the procedure and timetable for disclosure of the defence case is governed by the CPIA (Criminal Procedure and Investigations Act, 1996), not the prosecution. Issues with the forensic evidence may only emerge upon further disclosure, and exploration and scrutiny by another expert, and perhaps further testing. But a defence expert would not be able to provide a (realistic) quote for such work without more than the SFR1. The pressure on the legal aid budget risks being significantly increased by suggesting that the basic explanation of scientific evidence relied upon by the prosecution should be funded by the Legal Aid Agency (LAA). It also remains unclear who is deciding if there is a 'real issue'. Is this assessment made by the CPS, or the investigating police service? And will it always be appropriate that the next stage of analysis is decided upon by the prosecution expert – what if the defence expert has a different opinion?

3.24 A fundamental principle of our adversarial system is that the prosecution brings the case and bears the burden of proof. Any abrogation of such fundamental principles should never be introduced in the pursuit of efficiency and would require a legislative change passed by Parliament. The defence should not be

required to disclose their case before the prosecution has served theirs and they should not be required to undertake the prosecution's work for them. This simply undermines the pursuit of, and intent behind, equality of arms.

EQUALITY OF ARMS

3.25 The streamlined forensic reporting process has serious implications for decision making pre-trial, but there are also other significant barriers to ensuring that the defence are not further divested of the capacity to challenge the prosecution. The ability of defence lawyers to seek, and secure forensic expertise, is under severe pressure. There needs to be a realistic re-assessment of how equality of arms can be achieved, when there is simply insufficient time or money for defence lawyers to avail themselves of assistance from experts. There are also significant challenges for the few defence scientists who continue to work in the sector.

Funding of defence experts

3.26 The significant restrictions on legal aid, inconsistencies in approval for funding, and requests for defence experts being declined by the LAA with little justification, need addressing urgently. Identifying potential defence experts and securing their services is extremely time consuming and challenging, made harder by the LAA demand that solicitors provide three quotes for work. There are also maximum hourly rates for defence experts. Most often the LAA will approve the lowest quote, sometimes even stipulating the fee they deem appropriate instead. The selection of experts is then primarily decided on the basis of cost, by the LAA rather than by the needs of the solicitors. The LAA will ordinarily accede to commissioning the minimum amount of work, for example, funding only a case review or 'paper exercise', rather than an inspection of actual exhibits or further testing, which can be vital in respect to the interpretation of evidence.

3.27 Defence work for scientists is often deeply unappealing, with experts paid very poorly and very late, and at significantly lower rates than prosecution experts can charge. We were informed that scientists are regularly paid 1-2 years after completing their work. While some large forensic service providers have had some small success in achieving a minor uplift, the primary provider of forensic services still informed us that they do no defence work because it is simply not cost effective as LAA rates are too low. This means that their scientists are always working for the police/prosecution, giving rise to real concern in respect of cognitive bias. Eurofins have since acquired Keith Borer Associates, a major defence forensic provider, courtesy of their purchase of Cellmark, but it will be unlikely that staff will move freely between Keith Borer and Eurofins, although we do not yet know their intended arrangements and their businesses remain separate at the time of writing.

3.28 While providers have struggled to work at many police contract rates when providing prosecution evidence, defence experts rates paid by the LAA have failed to keep pace, creating an uneven playing field. The poor remuneration of experts and burden of accreditation and adherence to the FSR Codes of Practice can make forensic work untenable for small or sole traders, which is where most defence expertise is located (see Chapter four). Defence solicitors and experts are also frequently expected to bear extra costs and overcome challenges. For example, forensic providers will advise the prosecution that exhibits can only be examined in accredited laboratories. With defence experts rarely having access to accredited facilities, this will then force long negotiations and delays before laboratory and exhibit access is agreed. Prosecution forensic providers can also frequently demand significant sums for simple administrative issues such as the photocopying of notes. These costs and delays make obtaining defence expertise a highly unattractive prospect to solicitors, who simply cannot do this within the fees that they are currently paid. Ultimately, the financial pressures means that, in common with defence practitioners who are leaving criminal law in their droves, many defence experts have left, or are leaving, the sector.

Securing specialist defence expertise

3.29 Experts with specialisms may be in such demand that they cannot take on new instructions and the long delays before hearings. Increasingly this means that experts have moved on or have retired

before trial. These capacity issues, and delays in the system combined with the funding and access challenges, deters both defence lawyers from seeking expertise, and experts from offering their services. Again, we see the graveyard spiral, with the decline in demand leading inexorably to the demise of defence expertise capacity (particularly in niche areas), leading to further decline in demand and the reservation of defence forensic evidence to only the most serious cases, or rare cases with wealthy defendants.

3.30 If suitable experts can be identified and are available, they are often instructed very late in the process. Court dates are then regularly missed, with defence reports demanded within unrealistic timeframes, particularly when experts are regularly kept waiting for disclosure and the service of prosecution reports. An expert told us: "*you can't prepare the case if you are rushing to get things done last minute. But it's always rushed and last minute*." Barristers informed us of trials at risk of being discontinued by judges losing their patience in the face of intractable problems with securing expert reports or their attendance at court. Raj Chada spoke of the need for increased funding and a new approach to case management in an office space rather than a courtroom with judges given the power to summon the LAA (and experts) to update them with progress in early case conferences.

3.31 The oral testimony of defence experts is often 'slotted in' to a trial with little notice, in contrast to prosecution experts who have a specific date for their evidence. Pressures on courts may also sometimes mean last minute changes in court attendance requirements for experts, which may not be communicated in a timely fashion, sufficient to prevent travelling to a court unnecessarily. This again has a detrimental impact on profit margins and puts further pressure on the sector.

3.32 The shortage of experts (both defence and prosecution) increases the risk of inappropriate or un/under qualified experts being employed. Reliance upon flawed expertise, or experts trespassing beyond the boundaries of their expertise are hallmarks of miscarriages of justice. The Criminal Procedure Rules 19.2 provide that an expert must help the court to achieve the overriding objective by giving opinion which is objective and unbiased from within their area of expertise. This is supplemented by a series of provisions in both the Criminal Procedure Rules and Criminal Practice Directions, which direct experts on their obligations and the content of their report, including declarations of truth. These provisions should ensure that only reliable evidence should enter court, provided by fully competent and qualified experts. It is clear that this is not always the case.

REGULATING EXPERTS

3.33 The shortage of defence expertise in England and Wales has led, in some cases, to the appointment of experts from overseas. The risks of unregulated experts are clearly magnified if sourcing from different countries – where qualifications and experience may not be as relevant, or methods and standards may differ significantly. Albeit it should not be the case that one side can challenge experts simply because they are from overseas, nor dictate methods or veto an expert by accusing them of using different methods, particularly if the defence are hampered by lack of access to exhibits and testing facilities. This is not to suggest that either side should be given unjustified leeway or be able to evade quality checks. Similarly, the parties should not seek to simply challenge the accreditation status of an expert, without this having any bearing on the relevance or reliability of their evidence.

3.34 There must, however, be zero tolerance of recourse to experts without demonstrable, relevant, and up-to-date expertise. While the CPD and Forensic Science Regulator Act, direct experts to declare whether they are under investigation by the Regulator,[115] or have been subject to any previous censure by the courts, it remains unclear how effective these requirements are at excluding unqualified or incompetent experts. Despite these measures to address the use of problematic experts, they can remain unchallenged and their shortcomings undiscovered.

3.35 We were told of concerns regarding the quality of some experts, with Mark Mastaglio suggesting that there could be a 'competence framework' for experts, while David Schudel and others referred

[115] The FSR Act 2021 Section 5 provides the Regulator the power to investigate persons who may be undertaking forensic activities in a way that creates a substantial risk of impeding or prejudicing the course of justice in any proceedings.

to the need for a certification process. This was thrown into sharp context when we heard two similar examples whereby highly experienced BPA scientists working under instruction from the police attended scenes and failed to identify key blood patterns. This led to misinterpretation of the possible actions causing the blood staining and incorrect support for the prosecution case. This was only noticed when a detailed examination by the defence was undertaken and errors were identified due to photography of the scene, which fortunately in these cases, captured the stains and patterns of key interest.

3.36 We recognise there is a tension here. Experts work for the court and so should not identify as 'prosecution' or 'defence' experts, although their employment normally means that realistically, this is inescapable. Quality standards must apply to all experts, but regulation must be sensitive to the need to maintain the little defence expertise that is still available. There are also further concerns (detailed in Chapter four) about the inexperience of many forensic scientists, with junior scientists rarely, if ever, being called to give evidence. Important lessons in how to give fair and accurate testimony are then never learnt.

3.37 If unreliable evidence has been adduced or quality failings noted, or the credentials of an expert have been questioned, this ought to be reported to the Forensic Science Regulator for investigation. The Regulator "*endorses the positive culture of self- reporting in the forensic science sector and encourages forensic units to bring to the attention of the Regulator any non-conformances, to ensure these issues are given proper consideration*".[116] The Regulator received 114 referrals between July 2022 and 2023, and of those 80% were self-referred.[117] It is not clear how many, if any, of the referrals related to written reports or oral testimony. But forensic experts should be encouraged to report concerns to the Regulator relating to the delivery of forensic evidence (written and oral), as well as its production.

3.38 Forensic scientists have no governing body, or professional regulatory authority. The Chartered Society of Forensic Science (CSFS) is a professional body, that describes itself as the 'voice of forensic practitioners', providing: "*opportunities for practitioners, academics and interested parties to congregate, communicate and collaborate and is committed to providing opportunities for professional development*".[118] While it 'promotes professionalism', membership is entirely voluntary, and scientists cannot be disciplined by the Society. The CSFS also accredits forensic science university programmes, but again this is entirely voluntary and while there is a QAA benchmark for forensic science, this too is advisory, and there is no body that mandates what education or training a forensic scientist must undergo. Only the Forensic Regulator has the authority to prevent an individual or company from undertaking forensic activities.[119]

3.39 This can be contrasted with other fields of forensic expertise where there may be mandated educational and training requirements, and practitioners must be 'registered', and as such, can be subject to disciplinary action. This of course does not guarantee that such professions do not experience failures. The 2019 Hamilton Review followed the death of a child and conviction for gross negligence manslaughter of a senior paediatric trainee. Hamilton pointed to a widespread concern about arrangements for obtaining good quality and objective expert medical opinion, referencing guidance and principles that exist to ensure quality, but which are not always followed, raising concerns that echo those we heard in respect of forensic experts that included:

> "the difficulty of finding suitable experts, questions about the genuine expertise of those who put themselves forward for such roles and complaints about their objectivity and familiarity with the reality of practice in the relevant field at the relevant time... [also]... the readiness of experts to tailor their opinions according to clients' needs, failure to understand their role in the legal process, and the lack of quality assurance of their work."[120]

---

[116] Forensic Science Regulator Annual Report July 2022 – July 2023, p. 37
[117] ibid p.37.
[118] https://www.csofs.org/about-us/
[119] If a forensic expert works in an area that has its own governing body, it might be that there is regulation of their training and professional practice under the umbrella of that body.
[120] General Medical Council. Independent review of gross negligence manslaughter and culpable homicide. Jun 2019. https://www.gmc-uk.org/-/media/documents/independent-review-of-gross-negligence-manslaughter-and-culpable-homicide---final-report_pd-78716610.pdf page 35.

3.40 The Hamilton review considered a range of different solutions "*which would reinforce the standards expected of those providing expert evidence, while making the pool of available expertise more widely available and accessible.*"[121] These solutions and the recommendations, seek to improve the standard of expert medical opinion while encouraging experts to provide expert opinion when required. There are similar mechanisms for dental experts, and indeed other disciplines that may fall within 'forensic' categories, including anthropology. While not providing guarantees, they are worthy of further consideration by the forensic community.

3.41 For the sake of comparison, in the field of medical expertise, the Kirkup Report of 2020 made a series of recommendations about the reaction to clinical error by professionals, and systemic approaches to failure.[122] These included reforming clinicians' core training curricula to include training in error, reactions to error and responding with honesty,[123] and that error should be openly disclosed, investigated and learned from, with zero tolerance for cover up, deception or fabrication in the aftermath of error.[124] The Report also commended the so-called 'Hillsborough Law' now contained in the Public Advocate and Accountability Bill. This Bill is intended to "*address the unacceptable defensive culture prevalent across too much of the public sector*", by introducing a statutory 'duty of candour.'[125] If passed, the law would introduce a general duty on public authorities, public servants and officials to act at all times in the public interest, and with transparency, candour and frankness (Clause 6(1)) as well as a duty to assist court proceedings, official inquiries and investigations (Clause 6(2)).

3.42 A duty of candour was introduced in 2014 for NHS Trusts after the Francis Inquiry identified a lack of openness and transparency in relation to its failures.[126] The College of Policing in 2023 also included a duty of candour in their Code of Practice for Ethical Policing, produced in response to the Hillsborough Families Report. If the Public Advocate and Accountability Bill (or a version thereof) were to be passed with these clauses, forensic experts could be classified as public servants, so this duty would apply. This should be considered to include ethical responsibilities,[127] further encouraging full adherence to quality standards and animate referrals to the Forensic Science Regulator wherever professional practice falls below acceptable standards.

ADMITTING FORENSIC EVIDENCE AT TRIAL

3.43 Respondents and witnesses alike remarked that the courts are still too readily admitting potentially unreliable evidence or allowing questionable expert testimony. In the Forensic Science Regulator's Codes of Practice, it is stated that the aim of regulation is to ensure the accuracy and reliability of scientific evidence in criminal investigations *and in criminal trials* (our emphasis). Currently however, the Codes concentrate on standards for carrying out 'forensic science activities', with a focus on testing protocols, quality management systems and accreditation to ISO standards (see Chapter four). Yet the translation of the results of forensic investigations into written reports and oral testimony can see references to important limitations omitted, with insufficient attention paid to caveats, contextual nuances, and attendant uncertainties. Variation in the reliability of evidence types, and the complexity of interpretation can also be lost on both legal professionals and jurors, who may accept the evidence of experts uncritically.

3.44 Efforts have been made in recent years to ensure that only relevant and reliable expert evidence is admitted at trial. Evidence from a wide range of areas can be considered under 'expert evidence', including medical, pathological, and psychiatric evidence for example. While perhaps not 'forensic scientific evidence', there are many commonalities. In response to the 2005 '*Forensic Science on Trial*'

---

[121] ibid., p.36.
[122] Bill Kirkup, 'The life and death of Elizabeth Dixon: a catalyst for change', November 2020, HC 1025. This report examined the failings surrounding the death of Elizabeth Dixon.
[123] Kirkup Report Recommendation 5.
[124] Kirkup Report Recommendation 6.
[125] The King's Speech 2024: background briefing notes, page 86.
[126] Robert Francis QC, Report of the Mid Staffordshire NHS Foundation Trust Public Inquiry, HC 947 London: The Stationery Office.
[127] For detailed discussion of ethical responsibilities in forensic genetics, see M. Wienroth, & C. McCartney, 'Noble Cause Casuistry' in Forensic Genetics' *WIREs Forensic Sci* (19 October 2023); M. Wienroth, Amankwaa, A., and C McCartney, 'Integrity, Trustworthiness and Effectiveness: An Ethos for Forensic Genetics' Genes (2022), and M. Wienroth *et al*, 'Ethics as Lived Practice. Anticipatory Capacity and Ethical Decision-Making in Forensic Genetics' *Genes* (Nov 2021).

report, and a series of convictions marred by flawed evidence relating to 'ear-printing,' sudden infant deaths and so-called 'shaken baby syndrome', the Law Commission recommended in 2011 that there be a statutory test for the admission of expert evidence. Their draft Act set out factors to be considered by judges to assess whether the evidence was 'sufficiently reliable' before admission.[128] The government decided that the associated costs of extra pre-trial hearings and delays resulting from such a reform, had not been justified as the Law Commission could not be certain of the scale of problem, nor the benefits to be accrued. Instead, they recommended that the Criminal Procedure Rules be amended to permit judges to have more information available so they may decide upon admissibility.

3.45 There has since been a series of amendments to the Criminal Procedure Rules (CPR) and the Criminal Practice Directions (CPD) pertaining to expert evidence, which in 2023 were updated to include 'sufficient reliability' as a specific admissibility criterion. Despite this and other efforts, including the production of scientific primers by the Royal Society and CPD training for lawyers, there still appear to be barriers to effective engagement with questions of reliability. Judges have been reminded of the need to take a "*rigorous approach*" to the admission of expert evidence,[129] yet we were told that some judges are still not discharging their 'gatekeeping' duties, admitting questionable evidence types that lack solid scientific foundation or validation (i.e. gait analysis and bitemarks).

3.46 Recognising the lack of capacity in the forensic sector and demands of trials to secure forensic evidence when required, it may be tempting to lower standards, overlook quality concerns, or accept prosecution expert evidence at face value. This must be strongly resisted if there is a genuine intent to avoid miscarriages of justice. Lessons ought to have been learnt from previous scandals where insufficient scrutiny of prosecution expert evidence led to large scale injustice. For example, it was discovered in late 1998 that since February 1987, the Greater Manchester Police had been using ethanol-based towelettes in their blood testing processes, leading to contaminated samples being sent for alcohol analysis. The CPS were forced to review 2,000 drink driving convictions. Eventually, 1,427 cases were referred to the Home Secretary for consideration of a free pardon. Among these were two people who attempted suicide, a man who was jailed for three months, and one who lost his business. The Home Secretary refused all of the pardons, a decision which was judicially reviewed, and between 60 and 70 convicted motorists were awarded compensation.[130]

3.47 In 2021 there was again a major re-investigation required, this time into drug-driving convictions, when blood tests carried out by Synlab were found to be unreliable. This exacerbated toxicology capacity pressures, when over 4,000 samples required re- testing, resulting in 831 test results no longer being able to be relied upon.[131] It was later reported in the media that further investigations had led to the discovery of around 1,700 potential wrongful convictions of drivers for drug-driving offences.[132] The impact on individuals of wrongful convictions for motoring offences should never be downplayed, remembering that even penalties for low-level offences can be severe and life changing. In the case of serious offences such as causing death by dangerous driving, life imprisonment may result.

3.48 The Forensic Science Regulator stated in October 2024 that: "*While we have seen some admissibility challenges based on a lack of compliance with the Code, I think we are still in the early stages of the criminal justice system adjusting to the statutory regulation of forensic science.*"[133] Courts should be very reluctant to admit expert evidence which has not been closely scrutinised and the criteria in the Crim PR and CPD carefully considered. In particular, admission should never be decided on the basis of an expert's assertion that their evidence is reliable. The Court of Criminal Appeal must also take every opportunity to enforce intolerance of the admission of unreliable expert evidence.

3.49 This intolerance is particularly urgent when new fields of expertise or phenomena (such as AI generated evidence and manipulated data) are entering the courts before there has been time to carry out the necessary analysis of issues raised by such evidence. Accreditation, and where required,

---

[128] "Expert evidence in criminal proceedings in England and Wales" (Law Com No 325)
[129] *R v H* [2015] (at 44).
[130] Law Commission (2025) 'Criminal Appeals: A Consultation Paper 268', FN 38
[131] NPCC, Review of drug driving samples analysed by Synlab Laboratory Services Limited, 19 Aug 2021.
[132] Steve Robson, Police use of forensics slashed by 99% as 'awful' crisis unfolds, the i paper. 28th April 2024.
[133] Forensic Science Regulator newsletter: Number 6, 19 December 2024 available at: https://www.gov.uk/government/publications/forensic-science-regulator-newsletter-number-6/forensic- science-regulator-newsletter-number-6-accessible

compliance with FSR Codes, do not automatically mean evidence is reliable. But similarly, a lack of accreditation should not automatically disqualify experts. Using accreditation and compliance to the Forensic Regulators Codes as a proxy for reliability should not preclude necessary inquiry into the validity of the evidence or the competence of the witness. The essential pre-requisites of relevance and probative value in the specific case must also not be overlooked.

FORENSIC EVIDENCE POST-CONVICTION

Investigating miscarriages of justice

3.50 Research into wrongful convictions demonstrates that in many cases, getting the right experts involved (and earlier) may have prevented investigations taking a wrong turn, and judges and juries from being confused or misled. Experts are also vitally important when investigating potential miscarriages of justice. We turn to forensic scientists to reconsider evidence used by the prosecution, and look at cases in a new light, perhaps finding new evidence. Crucially, this is also necessary for the important work of cold case reviews, where experts can be essential to reviving stalled investigations.

3.51 Case review, whether it be defence reviews of prosecution evidence, cold cases, or examining alleged miscarriages of justice, currently stands outside of the Regulator's Codes of Practice. While the Regulator acknowledges: "*Case review is an extremely important part of the criminal justice system*", progress towards writing standards is slow because: "*this is not going to be easy and will need careful thought*."[134] It should be uncontroversial that the importance of case reviews demands regulation and should always be conducted to the highest standards by highly competent and experienced experts. The confirmation of standards for case review should therefore be expedited.

3.52 Again, there are echoes of problems we heard about in earlier stages in the criminal process when working in the post-conviction stage. There are significant hurdles to obtaining scientific expertise critical to investigating potential miscarriages of justice. Appellants and their representatives (assuming they have some) are forced to seek their own forensic expertise and commission their own investigations. Yet locating and engaging experts, and funding their work, is all the more difficult for the wrongly convicted. Most often this work requires experts to work pro bono or charitable organisations to pay for testing. Presently, as Louise Shorter, investigative journalist, told us: "*all the forensic might in this country is prosecutorial, and weighted against the suspect or defendant*".

3.53 The charity APPEAL have stated that: "*Advances in forensic science have the potential to exculpate more people who've been wrongly convicted – but only if proper resources are put in place to cover the work of forensic scientists, appeal lawyers and the costs of DNA testing*."[135] The power of forensic science often lies in correcting flawed assumptions which could have prevented mistakes, and it is critical to overturning miscarriages of justice. It is key that we enable forensic scientists:

> "to increase their capacity to both prevent and cure wrongful convictions. For while there are cases of wrongful conviction which feature forensic science, simultaneously wrongful convictions are identified by the work of diligent forensic scientists, and forensic science has proven critical to the successful exoneration of innocent victims of wrongful convictions. This vital role must not be diminished."[136]

There are extreme shortages of criminal appeal legal specialists, as well as experts, with most victims of a miscarriage of justice wholly reliant upon the Criminal Cases Review Commission (CCRC) identifying problematic scientific evidence, or commissioning case reviews or further testing by experts. The CCRC have proven woefully inadequate in this regard.

---

[134] FSR October 2024 Conference Speech: available at: https://assets.publishing.service.gov.uk/media/67b5a8d83e77ca8b737d3874/Forensic_Science_Regulator_con ference_speech_October_2024_.pdf

[135] Steve Robson, Police use of forensics slashed by 99% as 'awful' crisis unfolds, the i paper. 28th April 2024.

[136] McCartney, C. 'The Forensic Science Paradox' in: King, Lennon & McCartney (eds) *Counter-terrorism, Constitutionalism and Miscarriages of Justice* (Hart Publishing, 2019). p.246

3.54 While the performance of the CCRC has been criticised for many years, the failings of the Commission have now become obvious to all. The first APPG Westminster Commission Report focussed on the work of the CCRC, with many issues mirroring those we have found:

- significant underfunding
- a lack of independence
- a severely compromised capacity to carry out effective investigations
- a lack of powers and ineffective use of the powers that are available to them
- a lack of accountability and transparency, and
- poor communication[137]

3.55 There are still inquiries ongoing into the entirety of what went wrong in the case of Mr Andy Malkinson, an innocent man who spent 17 years in prison before finally being exonerated in 2023. The report of Chris Henley KC has shone a spotlight on major failings in the CCRC handling of the scientific evidence in his case.[138] Perhaps most alarmingly, the CCRC had clearly not learnt any lessons from their mishandling of DNA in the Victor Nealon case in 2014. In both cases the CCRC overlooked important forensic opportunities and declined further critical forensic testing. It was only when their own defence lawyers undertook the necessary further testing in each case, that new DNA evidence was finally sufficient to prompt a referral from the CCRC, Henley KC concluding that: "Too cautious or restrictive an approach was taken in both cases."[139]

3.56 We were concerned that despite these revelations prompting the launch of a review of 5,500 closed murder and rape cases where advanced DNA technology may now impact the application,[140] there was still apparent complacency in respect of a lack of scientific knowledge and understanding among CCRC staff. This complacency has again been evidenced most recently in questioning by the House of Commons Justice Committee.[141] Those tasked with taking important decisions at the CCRC clearly often have insufficient understanding of forensic issues themselves and are unable to recognise or acknowledge this deficit. One investigative journalist, David James Smith, told us that there was "*no culture of curiosity' at the CCRC, and that the organisation had a 'negative mindset' and 'no independence of mind*." Even allowing for their justifications for case review officers – and even managers – not requiring scientific backgrounds, it is inexplicable that this is then not compensated for by knowledge located within the wider organisation, or processes that place scientific expertise at their fingertips.

3.57 The CCRC assured us that they can obtain such expertise when it is required. Here again we come up against the challenge of practitioners with limited or no scientific knowledge making a determination of when they require forensic expertise. This leads to questions not being asked, evidence being misunderstood or its importance overlooked. The CCRC have stated that they have recently appointed a 'Forensic Advisor' but apparently this role is only in relation to their ongoing review of rape and murder cases that may have new DNA evidence opportunities. In the recent overturning of the wrongful conviction of Peter Sullivan, there has been mixed messages about the DNA evidence. These questions include why there was a long period between DNA testing becoming available, being undertaken, and most concerningly, why the new results obtained in 2023 were sufficient for Merseyside police to re-open the murder investigation, but it took a further two years for Peter Sullivan to be freed from prison.

---

[137] '*In the Interests of Justice: An Inquiry into the Criminal Cases Review Commission*', APPG on Miscarriages of Justice, (2021) Available at: https://appgmiscarriagesofjustice.wordpress.com/committees/commission-on- miscarriages-of-justice/

[138] Independent review by Chris Henley KC of the CCRC's handling of the Andrew Malkinson case, Report & CCRC Response, Redacted Copy 29.5.2024. Available at: https://cloud-platform- e218f50a4812967ba1215eaecede923f.s3.amazonaws.com/uploads/sites/5/2024/07/Integrated-Report- Response-Redacted-Copy.pdf

[139] ibid., para 128.

[140] Closed cases under review by CCRC to identify new forensic opportunities as scientific techniques improve (15 April 2024) https://ccrc.gov.uk/news/closed-cases-under-review-by-ccrc-to-identify-new-forensic- opportunities-as-scientific-techniques-improve/

[141] The Justice Committee questioned senior leaders of the Criminal Cases Review Commission (CCRC) during a one-off evidence session on Tuesday, 29 April on its work. https://committees.parliament.uk/event/24046/formal-meeting-oral-evidence-session/

3.58 In respect of DNA evidence in particular, Henley recommended that it should be mandatory for all members of CCRC staff to read a guide to DNA, with annual group training days to ensure that "all staff remain completely on top of this challenging, but hugely important topic," with such training to include "a rehearsal in detail of the history of the Nealon and Malkinson cases to illustrate the errors that can be made, and how to avoid them".[142] Given the breadth of disciplines and expertise which many miscarriages of justice involve, while we agree that understanding DNA evidence is vital, a broader understanding of scientific evidence will also be necessary to address their institutional scientific illiteracy.

3.59 The risk of this total reliance upon the CCRC to commission forensic testing, is magnified when they are meant to be the 'safety net' for those who are seeking disclosure of case materials to find new evidence. The 'Nunn' ruling at the Supreme Court in 2014, assured those seeking post-conviction disclosure that if they were unable to persuade the police to disclose, then the CCRC would use their powers to obtain disclosure.[143] However, this ruling appears to be subject to wide misinterpretation. The Supreme Court required the disclosure of evidence where there is a "real prospect" that the integrity of the conviction may be affected, researchers have found that this decision is being relied upon to deny disclosure requests and that there is a misconception that there is a minimal right to disclosure post-conviction.[144] Lawyers and miscarriage of justice investigators report facing increasing refusals from police to disclose evidence, with even the CCRC stating that police services are taking inconsistent approaches and that: "there seemed to be a misunderstanding of obligations across police forces."[145]

3.60 The Law Commission Consultation on Criminal Appeals, published in March 2025, details the concerns of many, that the CCRC is not a 'safety net', given their lack of resources, and their reluctance to seek disclosure and undertake new testing. The Nunn case itself was being litigated because the CCRC had refused repeatedly to undertake DNA testing. The Westminster Commission Report on the CCRC concluded that CCRC investigations "lack the scope and rigour to identify potential miscarriages of justice".[146] The Law Commission are currently consulting on proposals to create a statutory regime for post-trial disclosure. This would place a duty on police or prosecution to disclose to the convicted person "any material which comes into their possession which might afford arguable grounds for contending that a conviction is unsafe" unless there is a compelling reason of public interest. Where a reason exists (e.g. Public Interest Immunity material), then disclosure can be made to the CCRC (notifying the applicant).[147]

3.61 The Law Commission have considered whether convicted persons should have a 'right' to require testing or retesting in certain circumstances, preferring instead reform of the CCRC so that they take a more proactive approach.[148] The Commission do propose that the convicted person should be entitled to access material for the purposes of testing where it is possible to undertake non-destructive tests, that might have only come about because of scientific developments - so obviously demonstrated in the case of Peter Sullivan. They conclude that there would be value in limited rights to retesting where scientific developments (such as in DNA capabilities) might now yield probative evidence.[149]

3.62 We would also suggest that if scientific testing could be determinative of guilt or innocence, then this should not be precluded simply because there has been no 'scientific development' as such. Given that we know about oversights, lack of evidence seizures, and triaging and testing gaps, it should not be a question of whether there has been a scientific development but whether the tests have yet been done. If the tests proposed are destructive of the material (but would not prevent any future testing) they should be entitled to access to some material, but the police should have the right to restrict access to material to the convicted person's legal representatives or to accredited testing facilities.[150]

---

[142] Henley Report, FN 137. para 91.
[143] *R (Nunn) v Chief Constable of Suffolk Constabulary & Anor* [2014] UKSC 37.
[144] Lucy Welsh, and Louise Hewitt, quoted at 15.55 – 15.57: Law Commission, (2025) 'Criminal Appeals: A Consultation Paper,' Consultation paper 268, available at: https://lawcom.gov.uk/project/criminal-appeals/
[145] ibid., para. 15.56
[146] Westminster Commission Report, FN 136., p 69.
[147] Law Commission 'Criminal Appeals Consultation paper' para. 15.171
[148] ibid. para. 15.180.
[149] ibid., para. 15.181.
[150] ibid., para. 15.184

Evidence retention and archiving

3.64 Operationally, difficulties in securing forensic investigations are even worse post- conviction than pre-trial, because there is no requirement for the police and/or forensic providers to cooperate. It is also impossible to re-investigate a case unless all relevant material can be located and interrogated. But securing access to exhibits can be challenging and we were told that digital exhibits are not being disclosed for review. This is of particular concern where there are already a lot of warning signs that digital forensics may be involved in miscarriages of justice. Of course, while the police reluctance to disclose evidence and exhibits to potential appellants is a significant obstacle, this becomes insurmountable when the evidence has not been retained, or the conditions of its retention have rendered it suboptimal for further testing.

3.65 The retention and archiving of investigative materials are a 'backroom' activity that is nonetheless critical to the operation of the criminal justice system. The Forensic Archive Ltd (FAL) was created by necessity after the closure of the FSS in 2012. Since this time, the police have had the responsibility to store all their evidential materials. Yet for each force to have their own storage is both expensive and risky. The police very rarely have either the budget or expertise to run complex storage facilities and when there are losses, contamination or disclosure delays, prosecutions are dropped, the appellate system fails, and cold cases remain unresolved. Large cracks in this system are now appearing. Dennis Eady, an investigator of miscarriages of justice told us that lost or 'disappearing material' was now a bigger problem than disclosure, mentioning examples where flood damage in police stores had destroyed evidence, and CCTV footage had gone missing. Such losses mean there is no way of pursuing such cases further, exemplified by the case of Roger Kearney, who remains protesting his innocence from prison, the crucial evidence that could overturn his conviction having been 'lost' by the police.[151]

3.66 A further clear example of difficulties that arise when evidence is lost is provided by the case of Stuart Lubbock, a 31-year-old man whose lifeless body was found in a swimming pool after a party in March 2001. A post-mortem examination revealed injuries indicating that he had been subject to a severe sexual assault shortly before death. The police appear initially to have assumed that he had been the victim of a tragic accident, and the scene was not immediately secured and not examined by forensic scientists until August of that year. Some items had been seized for potential examination, including a nappy which had been placed on Stuart during resuscitation attempts at the hospital. This was shown to contain mixed body fluid staining, but now neither the nappy nor what might remain of intimate swabs can be located, preventing analysis which might conceivably clarify the circumstances surrounding the death. Stuart's father campaigned tirelessly over many years but died in 2021 not knowing what had really happened to his son that night.

3.67 The House of Commons Science and Technology Committee warned in 2013 about evidence archiving fragmentation and suggested that either there should be a National Forensic Archive (potentially simply expanding Forensic Archive Limited); or that at least there could be "virtual" consolidation: "*whereby all archived materials would be accessible through a common indexing system*."[152] This second option however, still entails significant risk and relies heavily on police resourcing this capability. The Westminster Commission on the CCRC expressed their concerns that material may be destroyed by the police while someone is still in custody, as happened in the Malkinson case. We were likewise told of concerns about the adequacy of systems for retaining and disclosing forensic evidence, particularly post- conviction, with Rebecca Helm, Professor of Law and Empirical Legal Studies at Exeter University, stating that: "*Original crime scene material is not always available and where it is there are huge delays in accessing it*."

3.68 There is a lack of consistent retention practices and ineffective disclosure processes that do not only impact on appeals, but resonate throughout the justice system, and ultimately erode trust.[153] The courts cannot adjudicate cases reliably when exhibits are lost or their chain of custody cannot be

---

[151] Roger Kearney's case and the missing evidence is documented in the TV series 'Conviction: Murder at the Station.'

[152] House of Commons Science and Technology Committee, Science and Technology Committee - Second Report Forensic Science (17 July 2013) para 108.

[153] C McCartney & L Shorter, 'You Don't Know What You've Got 'Til It's Gone: The Police Retention of Investigative Materials,' I*nternational Journal of Police Science and Management* (2023).

assured. Data from the CPS on cases discontinued because of 'E72' – 'lost or missing evidence', are at concerning levels, particularly as these cases are not investigations abandoned, but cases where the CPS are proceeding to trial. Research has revealed that on average for the past 5 years nationally, the trials of 1% of homicides and just over 1% of sexual offences were discontinued with 'E72' provided as a reason. In 2021-2022 alone this included 16 homicides and 123 sexual offences.[154] The 'E72' designation includes cases where forensic evidence has not been forthcoming, expert reports have not been served (in time), and/or exhibits have not been produced, or cannot be produced because they are 'missing'. Latest figures show a worsening of the situation, with 30,552 prosecutions having a non-conviction outcome as result of missing evidence recorded between October 2020 and September 2024, including 70 homicides and 554 sexual offences. This represents just over 2% of all prosecutions nationally, although there are variations between police services, with the Metropolitan Police having 4.6% of cases dropped because of missing evidence.[155]

3.69 Streamlined Forensic Reports can add to the confusion over evidence retention, with a 'Retention and Destruction Notice' on the end of SFRs which states that:

> "[*forensic provider*] will retain paper and electronic records for 6 years as described in the terms of contract or as specified in the NPCC Guidance document: Retention, Storage and Destruction of, Materials and Records relating to Forensic Examination, 2021. If you wish to extend this retention period then please contact (*Forensic science provider*)."

It is not clear to whom this notice is directed and appears to be contrary to the police duty to retain evidence. The defence are clearly not under any obligation to retain evidence, or request that retention be extended. It therefore cannot be incumbent upon the defence to become involved in the police responsibility to retain evidence or ensure that the police comply with their duties.

3.70 The Law Commission has included in its Consultation proposals regarding the issue of evidence retention, disclosure and archiving.[156] The Commission received 'clear evidence' that the fragmentation of forensic science provision risks material evidence not being retained or being lost, and that evidence is not being consistently returned by forensic science provider to police services.[157] They warn of the consequences of forensic science providers ceasing trading, an eventuality which has already occurred, leading to the potential for loss of evidence.[158] Given such risks, the Law Commission suggest that "requirements for the preservation of evidence need a much firmer legal foundation".[159]

3.71 The Law Commission concluded that it is likely to be more economical, and less fraught with risk, to expand the Forensic Archive Ltd. thereby subsuming individual police service facilities into the national storage capacity.[160] They also suggest that: "there would be considerable value in transferring all material that has been sent to independent forensic science providers for testing thereafter to a national Forensic Archive Service rather than returning it to police forces."[161] While clearly there will be a requirement for investment to create a national archive, the Commission explain that: "in principle it is hard to see why the costs of archiving material in this way would be any greater than the current costs borne by police forces in making their own arrangements. Indeed, there may well be economies of scale."[162]

3.72 In addition to retaining physical materials, it is also key to case reviews that trial transcripts are available where necessary. In cases where forensic evidence has been admitted at trial and is now contested or may provide a potential grounds of appeal, it must be scrutinised in case reviews,

---

[154] C McCartney and L Shorter "Police retention and storage of evidence in England and Wales" (2020) 22 *International Journal of Police Science and Management*; 155 Data obtained by the BBC Shared Data Unit and University of Leicester, April 2025.
[155] Data obtained by the BBC Shared Data Unit and University of Leicester, April 2025.
[156] Law Commission, 'Criminal Appeals: A Consultation Paper', Consultation paper 268, available at: https://lawcom.gov.uk/project/criminal-appeals/
[157] ibid. para. 15.108
[158] ibid. para. 15.109
[159] ibid., para. 15.110
[160] ibid., para. 15.144
[161] ibid., para. 15.144.
[162] ibid., para. 15.145.

to ascertain whether there were issues with the presentation of the evidence. This can be tri-aged (to save resources), so that forensic reports and the summing up at trial can be examined, and then if there is a suggestion that an expert's testimony may need closer scrutiny, then a transcription of this can be sought. This may not only assist in the instance of a particular case but would provide an important insight into how forensic evidence is conveyed at trial, a subject which is almost invisible. We still have much to learn about how best to communicate forensic evidence to lay people and non-scientists, having access to examples of both good and bad practice would inform efforts to educate, and train experts and legal professionals alike.

3.73 Poor communication of forensic evidence leads to oversights or misunderstandings which can impact on decisions made by investigators, prosecutors and defence lawyers, judges and juries. From the outset of any criminal investigation there must be prompt and clear communication of potential scientific evidence, coupled with full disclosure. While the usual call for further training for criminal lawyers can be easily repeated, this will not be a panacea and may only realise marginal gains. The responsibility for accuracy and clarity in communicating forensic evidence still lies firstly with the prosecution and their experts. Training however, on Streamlined Forensic Reporting should be mandatory for all parties, should be available nationally, coordinated through the National Forensic Science Institute and regional centres of excellence, and should incorporate materials such the Royal Society's judicial primers and provide guidance on the practicalities of challenging scientific evidence.

Recommendation 14 - The NFSI should coordinate training on the Streamlined Forensic Reporting (SFR) process for all police, lawyers, experts and judges in criminal practice. This should equip professionals with sufficient understanding of the process and how to identify potential issues with the forensic evidence.

3.74 While understanding the motivation to make pre-trial decision-making better informed and more efficient with Streamlined Forensic Reporting, we have been disturbed to note significant flaws, including oversimplification or misinterpretation of forensic evidence. The potential for poor quality police investigations to charge the innocent or to derail the criminal process is increased by poor quality and inappropriate forensic reporting. This can also lead to unjustified guilty pleas and increase the risk of wrongful convictions. This reporting process can bring 'scientists' into the reporting process too late.

Recommendation 15 - There should be efforts to improve the quality of all SFRs and remove inconsistencies with national standards. All SFRs should include a brief explanation of the underpinning science with links to other sources of information, for example, Royal Society primers or educational videos and accessible training. The SFR standard text should also be redrafted to remove bias and any suggestion of burdens upon the defence.

3.75 Every forensic report produced should provide an easily accessible link to any relevant scientific primer, providing lawyers and judges the opportunity to read an authoritative precis of the evidence type, including its potential strengths and weaknesses. Basic explanations included on all SFRs should provide an indication of where caution may be required, and guidance on how to weigh the strength of the evidence. The process for forensic reporting must augment, not limit, defence rights to challenge evidence and the CPS should not seek to deter defence expertise with the wording of SFRs. The process should not seek to place burdens on the defence.

Recommendation 16 - All reports, including SFR1s, should detail what tests have been undertaken and by whom, and be signed by the author and, if not a scientist, counter-signed by a scientist who has checked that the report reaches quality standards and any potential scientific ambiguity in relation to case context is highlighted. There should be a reporting system for all experts who submit SFRs that give rise to quality concerns to ensure their science is robust and is expressed correctly in all future forensic reports.

3.76 Equality of arms must be addressed urgently to retain the integrity of our adversarial system. Proper scrutiny of prosecution evidence is highly effective in preventing miscarriages of justice and should be considered advantageous when forensic evidence is being relied upon by prosecutors. Too much effort is expended in trying to secure defence expertise and then ensuring that the police and prosecution disclose the relevant materials. There must be ready access to properly qualified and regulated experts for all parties, at all points in the criminal process, including post- conviction. The Legal Aid Agency must not adopt the role of advance guard by virtue of refusing funding for the commissioning of expert reports or by continuing to fund the cheapest quote irrespective of the expertise and experience of the expert.

3.77 Our adversarial system cannot work if defence experts become the preserve of the wealthy defendant or only used in high-cost serious trials. The lack of legal aid for defence experts means very few remain in the sector. Operational pressures on experts and defence solicitors in an area of very low profit margins are driving more and more practitioners (scientific and legal) out of the sector. We have seen instances of this lack of domestic capacity and capability already impacting court management

processes with trials delayed and disrupted. Even if they exist and can be located, experts may refuse instructions because of the paltry fees and unpredictability of trials.

Recommendation 17 - The Legal Aid Agency (LAA) should fund the commissioning of defence experts, at realistic rates and on prompt payment terms, to facilitate equality of arms. A review of government-imposed set rates for experts, and an upgrade of those fees in line with inflation is required. There should also be a presumption that expertise will be funded by the LAA.

Recommendation 18 - The Forensic Regulator should liaise with the Ministry of Justice, lawyers, LAA and others, to instigate processes to oversee the fair and accurate communication of forensic evidence.

Recommendation 19 - The National Forensic Science Institute (NFSI) should seek to ensure that there are experts nationally available to the defence. These experts must operate under the Forensic Science Regulator's Codes of Practice which should be expanded to include case review and interpretation work with immediate effect.

3.78 Access to defence expertise arguably comes too late in the process, meaning any significant flaws may not be revealed until trial. Pre-trial disclosure must be sufficient and timely, but this is often not the case. Whenever forensic evidence is critical to the prosecution case, underpinning the 'points to prove', judges should enquire whether the defence has had the opportunity, or capacity, to obtain further reports from the prosecution, and their own expertise where necessary. The judge should ensure during Better Case Management processes that prosecution reports have been accompanied by proper disclosure, and are served in a timely manner, so that any barriers to a potential challenge by the defence against the prosecution forensic evidence are removed before trial. The Criminal Procedure Rules should mandate judicial inquiries to ensure that defence expertise has been secured when it has been deemed necessary by the defence.

Recommendation 20 - The Better Case Management or Criminal Procedure Rules Committee should consider standard directions in respect of cases where forensic evidence underpins the 'points to prove.' Where these are contested, standard directions should ensure robust disclosure and ensure defence experts are properly accessing exhibits and data within realistic timelines, with the prosecution required to certify that they have complied with these directions.

3.79 The judicial gatekeeping role must always be undertaken assiduously, and that 'sufficient reliability' criteria are fully considered. Judges must provide clear guidance on the weight of expert evidence to juries, particularly in complex cases and with respect to digital forensic evidence, which we were told is often presented as 'fact' rather than expert opinion. There should be greater reporting of expert evidence exclusion, and quality concerns referred to the Forensic Regulator, to facilitate the maintenance of high-quality science, and public confidence, and enable improvements in the communication of evidence.

Recommendation 21 - Judges should ensure strict adherence to procedures set down in the Criminal Procedure Rules and Criminal Practice Directions. There should be monitoring and reporting of the exclusion of experts under the Criminal Practice Directions and Forensic Regulator Act to facilitate learning, and improvements in science communication in court.

3.80 It is critical for the avoidance of miscarriages of justice that forensic experts are engaged throughout the criminal process but once a miscarriage is suspected to have occurred 'good' science is essential. We rely upon experts to do this vital case review and investigative work and yet those working on miscarriages of justice have to fight to get their own testing done to challenge evidence.

Recommendation 22 - The Criminal Cases Review Commission (CCRC) should have within their permanent staff members who have scientific backgrounds. They should also have access to a panel of experts with broader knowledge and expertise via the NFSI. In all cases involving disputed forensic evidence a forensic expert should be involved in initial case screening, advising on a forensic strategy and overseeing scientific inquiries. A decision on whether to refer cases involving scientific evidence to the Court of Appeal should always involve staff with relevant scientific, not just policing, expertise.

Recommendation 23 - There must be a cultural change at the CCRC in favour of testing. Where the CCRC decides not to undertake forensic inquiries or further testing, their reasoning should be fully explained and made transparent. This should be open to scrutiny and challenge without recourse to legal action.

3.81 Obstacles to (re)testing of evidence clearly become insurmountable if that evidence is mishandled or lost. The retention and archiving of investigative materials need urgent national planning and investment, with post-conviction disclosure rules put in place.

Recommendation 24 - The Law Commission proposals on retention and archiving of evidence should be accepted, including the creation of a national storage capacity independent of the police (or expansion of the existing Forensic Archive). This should guarantee adherence to retention guidelines, with new Regulatory Codes of Practice to ensure the retention of all evidence with integrity.

Recommendation 25 - Representatives of appellants should be afforded disclosure of a detailed account of all archived investigative material and have access to materials for inspection/testing purposes upon request and having identified a suitable laboratory to conduct the work. Trial transcripts should be available to appellants at reasonable cost to assess how forensic evidence was presented during the trial.

Forensic science: The science, and the scientists

Chapter 4 The Science, and the scientists

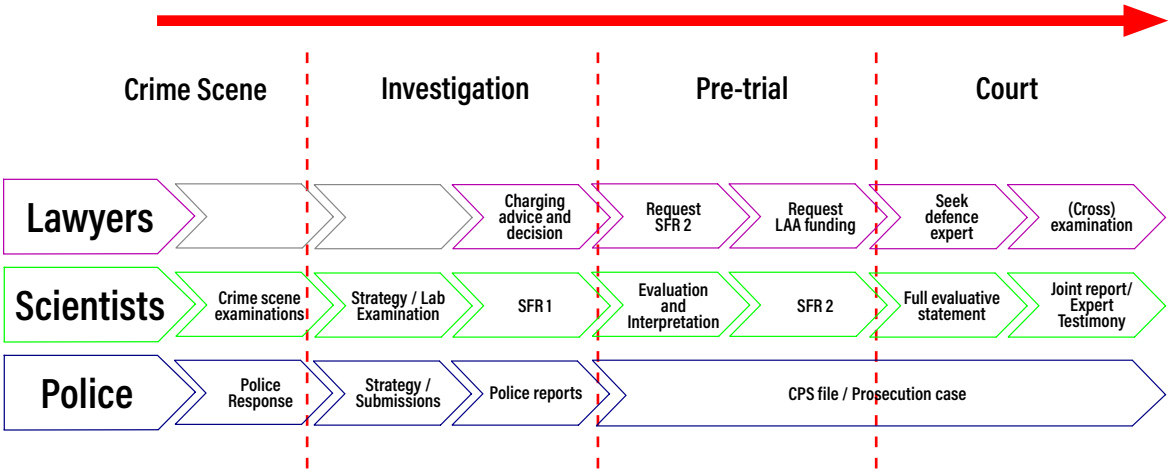
4.1
Intuitively, science is the bedrock of forensic science, underpinning its integrity and reliability, essential for inspiring confidence. Research and experimentation, in collaboration with, but not directed or conducted by police, is key to effectiveness but is not sufficient on its own to ensure that forensic science is trustworthy. During our inquiry we spoke with scientists frustrated that the science at the core of their work was increasingly undermined. If the **science** or **techniques** in use **become outdated** or their limitations go unrecognised, failed investigations and **miscarriages of justice increase**. Yet there is a lack of recognition that research and development are essential, and that the regulation of forensic science has had some adverse consequences.

We consider these issues and set out how the downgrading of 'science' and the difficulties facing scientists are central to the graveyard spiral.

4.2 To be trusted, forensic scientists require independence from the police, but further, the risks of both bias and human fallibility make essential robust regulation, with independent checks built into the criminal process. Yet the ambition of cutting police expenditure on external services, while increasing their own deployment of science and technology, is leading to the retrenchment of forensic scientists from the criminal justice system. One of the greatest challenges facing policing is the vast number of societal issues that are now considered to fall within their remit. Senior officers speak of an incessant growth in demand, often unrelated to 'crime', with no corresponding increase in resources. Police leaders face stark choices when trying to meet demand from shrinking budgets. Efforts to take more 'science' provision in-house are accelerated by these pressures, combined with a lack of evidence of the value of forensic science to the criminal process. We believe this is a miscalculation.

4.3 The work of scientists is central to the criminal process and the value of professional judgement of scientists acquired over years, cannot be overstated. The significance of the loss of national scientific capacity and capabilities becomes apparent when considering the centrality of scientists to the criminal process – exemplified by the diagram tracking the interactions of lawyers, scientists and police from crime scene to court.

Figure 3 – From crime scene to court. Interactions between police, scientist and lawyers.



Removing the scientists from this process or trying to combine the roles of police and scientists, very quickly leads to the inefficiencies and ineffectiveness we are witnessing. The police cannot fulfil both the role of investigator and independent scientist. In determining their priorities and resourcing decisions, senior leaders could choose to leave the science to the scientists. We believe this makes economic sense as well as serving to increase trust and confidence in both forensic science and policing.

THE SCIENCE IN FORENSIC SCIENCE

4.4 As forensic science has grown in importance to policing systems in the twentieth century, it has sought to mature as a discipline with self-examination in recent decades responding in part, to external criticism that has accompanied public failures and scandals. Despite being critical to the exoneration of many who have been wrongfully convicted across the world (particularly in 'DNA' exonerations), the blame for many miscarriages of justice is often laid at the door of forensic science. A succession of inquiries and critical reports internationally have also tarnished the reputation of forensic science and damaged morale. But most professionals in the forensic science community have accepted the repercussions, including greater scepticism and stronger regulation.

4.5 Both internal and external scrutiny has exposed a fault line in the bedrock of forensic science: "*the lack of a shared understanding and broad acceptance of the essence of forensic science, its purpose, and fundamental principles*".[163] Recent attempts to fortify the foundations have included the drafting of the 'Sydney Declaration' in 2022, the authors of which hope will underpin practice and guide education and

[163] Roux, et al, The Sydney declaration – Revisiting the essence of forensic science through its fundamental principles, *Forensic Science International*, Volume 332, 2022, 111182.

research, to make forensic science "*more relevant, effective and reliable*."[164] The Declaration comprises a definition of forensic science (detailed in Chapter one) and seven fundamental principles. The difficulty in reaching a broad consensus about what these principles ought to be, stems from the fact that the term 'forensic science' encapsulates a miscellany of sciences, techniques, and technologies, indeed: "*forensic science draws on almost every discipline*."[165]

4.6 Whatever the disciplinary origins or aims of any technique, each should be underpinned by the scientific method, as explained by the US National Academy of Sciences in 2009:

> "*Each has its own methods and practices, as well as its strengths and weaknesses. In particular, each varies in its level of scientific development and in the degree to which it follows the principles of scientific investigation. Adherence to scientific principles is important for concrete reasons: they enable the reliable inference of knowledge from uncertain information—exactly the challenge faced by forensic scientists*."[166]

4.7 Acknowledgment of such variances should not detract from taking this core principle seriously; that anything coming under the umbrella of 'forensic science' adheres to the principles of the scientific method. Because fundamentally: "A forensic scientist is first a scientist. When a scientist's knowledge is used to help lawyers, juries, and judges understand the results of scientific tests, the scientist becomes a forensic scientist."[167]

4.8 The heavily criticised[168] UK Forensic Science Strategy of 2016 characterised forensic science as simply: '*the application of science to a criminal investigation and court proceedings*."[169] There remains a powerful argument that forensic science is under- exploited and can make significant contributions to crime prevention efforts and other societal goals.[170] Just one example demonstrates the potential untapped power of forensic intelligence. It is now well established that there is a link, between abuse of domestic pets, and abuse of vulnerable children and adults.[171] We know that: "When animals are abused, people are at risk - and vice versa".[172] If animal sexual abuse is discovered to be taking place in a household, then child sexual abuse is also often occurring, and if imagery is found of one, then imagery is often likely to be found of the other too. Mary Wakeham in her recent research on coercive control gives numerous examples of where abuse or the threat of abuse of family pets was used to control female partners and children within a household. She concludes that while some progress has been made:

> "*there remain …. systematic failings in the approach to safeguarding victim- survivors who have animals. These failings are evident in reviews that follow the deaths of victims of domestic abuse where there were missed opportunities by professionals to recognise signs of animal abuse and poor animal welfare as an indicator of domestic abuse and to act on and share information about concerns*."[173]

4.9 Such forensic intelligence could provide a useful tool for identifying risk. Even broader horizons had been set out in the Chief Scientific Advisor's 2015 Annual Report 'Beyond Forensic Science', which recognised that forensic analysis has: "*the ability to deliver benefits to society that go far beyond the* Criminal

---

[164] Roux, et al, The Sydney declaration – Revisiting the essence of forensic science through its fundamental principles, *Forensic Science International*, Volume 332, 2022, 111182.
[165] Chief Scientific Advisor's 2015 Annual Report '*Forensic Science and Beyond: Authenticity, Provenance and Assurance*', p.14.
[166] National Research Council. 2009. *Strengthening Forensic Science in the United States: A Path Forward*. Washington, DC: The National Academies Press. https://doi.org/10.17226/12589. Page 111.
[167] American Academy of Forensic Sciences, 'What is Forensic Science?' https://www.aafs.org/careers-forensic- science/what-forensic-science
[168] The House of Commons Science and Technology Committee demanded that the Government redraft its Forensics Strategy; criticising the document as vague, incomplete and lacking a vision for forensic services or a route map to deliver improvements – see: *Forensic Science Strategy*, Fourth Report of Session 2016–17, HC 501.
[169] Home Office, *Forensic Science Strategy* March 2016. Cm 9217.
[170] Forensic science is essential to international security, development, and global justice systems, underpinning the United Nations Sustainable Development Goal 16: Peace, Justice and Strong Institutions. In particular 'humanitarian forensics', is increasingly important in the domain of human rights, while 'wildlife forensics' is playing a vital role in tackling international wildlife crime, and likewise 'environmental forensics' in tackling crimes impacting the planet. These are just a few examples of the breadth of forensic 'sub-disciplines' moving beyond the traditional role played by forensic science.
[171] See: www.thelinksgroup.org.uk
[172] Arkow, P. (1996), Family Violence and Sexual Assault Bulletin, 12 (1-2) pp29-34.
[173] Wakeham, M. (2025). Animal abuse as a strategy of coercive control. Journal of Gender-Based Violence (published online ahead of print 2025). Retrieved May 16, 2025, from https://doi.org/10.1332/23986808Y2025D000000076

Justice System."[174] That report hoped to '*stimulate the imagination*' of stakeholders and policymakers, to consider how to improve and develop new applications for forensic science, presenting a strong case that there were benefits still to be realised from existing and emerging forensic approaches.[175] While arguably failing in this effort to develop forensic science in the UK 'beyond the courtroom', there are expressed intentions, and efforts being made, to further augment the role of science in policing.

SCIENCE IN POLICING

4.10 Historically, the police undertook forensic tasks such as crime scene investigation and fingerprint development and comparison, because this is where these activities originated and evolved. Indeed, research into the Newcastle upon Tyne police in the early to mid-nineteenth century indicates a methodical, arguably scientific, approach to crime scene analysis.[176] So alongside fingerprinting (and other biometrics), the history of which is well known to be embedded within policing, it is uniformed police officers who historically drove the 'scientific' investigation of crime scenes.[177] In more recent years police have expanded their domain to include more 'forensic' activities such as digital forensics, as well as the screening of evidence, presumptive testing, and comparison work.

4.11 There is then, a long pedigree of science in policing in the UK, and great merit in the Office of the Police Chief Scientific Adviser's ambitious mission: "to deliver the most science and evidence-led police service in the world".[178] Widespread benefits could be realised from having a scientifically educated and oriented police workforce, using data, science and technology to "deliver transformative innovation and new technologies that improve all aspects of policing".[179] This vision is far broader however than the current (constrained) remit of forensic science.

4.12 Clearly, transforming police into a 'science-led' service cannot be achieved without forensic science but there needs to be clearer delineation between this aim of deploying science and technology adoption in policing, and forensic science as a discipline. Too often we see slippage, and even use of the confusing term 'police forensic science'. This conflation of forensic science, and science and technology for policing can lead to a misunderstanding that forensic science can be conducted, administered, and governed by the police. Indeed, the ambition to bring forensic services in-house and limit police reliance upon external provision can be seen throughout the history of forensic science delivery almost since the creation of the FSS (see Chapter two). The police have long tried to (indeed often been forced to) control their expenditure on external services, ostensibly because of budgetary pressures, but possibly also because of the institutional view that forensic services fall squarely within their remit.

4.13 Yet we are concerned that the resourcing of the latest 'science and technology' in policing, such as live facial recognition and 'AI' assisted technologies, will develop at the expense of science and could lead to a further diminution of police capacity to investigate crimes (see Chapter two). Live facial recognition for example, may detect those individuals on police watch-lists, but if the police have not already identified offenders during investigations, then the success of this technology will be curtailed by the fact that the police will not know who ought to be on their watch-lists.[180] Cost- benefit analyses then need to be very carefully conducted so that expenditure on such technology is truly beneficial

---

[174] Chief Scientific Advisor's 2015 Annual Report '*Forensic Science and Beyond: Authenticity, Provenance and Assurance*', p.4.
[175] 'ibid p.14'
[176] Clare Sandford-Couch and Helen Rutherford, '"13 yards off the big gate and 37 yards up the West Walls". Crime scene investigation in mid-nineteenth century Newcastle-upon-Tyne.' in Alison Adam '*Crime and the Construction of Forensic Objectivity from 1850*'. (Palgrave, 2019) pp161-189.
[177] Sandford-Couch and Rutherford document a murder case in Newcastle upon Tyne in 1863, where the care and skill demonstrated in the police handling of the crime scene, supplemented with rudimentary reconstruction and experimentation, and the testing of hypotheses, runs counter to the popular perception of constables as unskilled men whose chief function was crime prevention rather than investigation.
[178] Science and Technology in Policing: 'Vision and Mission' at https://science.police.uk/strategy/vision-and- mission/
[179] NPCC Strategic Objectives 2021-2025, (20 Mar 2023) p. 12 at: https://www.npcc.police.uk/SysSiteAssets/media/downloads/publications/publications-log/2022/national- police-chiefs-council-strategic-plan-2021--2025.pdf see also: NPCC Science and Technology Strategy V1.0 at: https://science.police.uk/site/assets/files/1253/npcc_science_and_technology_strategy.pdf
[180] We have not considered the police adoption of facial recognition technology in detail during our inquiry but note that significant investments have been made to rollout this technology. We consider this to be subsumed under our discussion of police adoption of forensic technologies, such as digital forensics, more generally although the use of facial recognition technology gives rise to a number of additional concerns around surveillance, police powers, accountability and so forth. Issues that the government are meant to be currently addressing.

(accounting for all costs, including a potential social and ethical price and broader risks to justice), and does not lead to unintended consequences. The (understandable) tendency to chase the latest silver bullet, encouraged by tech companies keen to profit, could be resisted in favour of ensuring that tried and tested methods - such as many forensic disciplines now considered 'niche' - are maintained.

4.14 Objectivity and impartiality are key principles of science, and critically, the public perception of independence is vital to maintaining confidence and ensuring trust. This truism was a key motivating force behind the creation of the FSS. Meeting the requirements for (cost-)effective, high-quality, sustainable, resilient, and responsive forensic science, thus places responsibilities on many bodies and organisations. While the police are the primary stakeholders, forensic science policy and practice should not be in their gift. Efforts to ensure the survival of forensic science must synchronise with police ambitions to further embed science and technology in policing, not run subordinate to them. The voices of forensic scientists should be foregrounded and any strategy and resulting policies must centre the science, and scientists, in forensic science.

CENTRING THE 'SCIENCE' IN FORENSIC SCIENCE

4.15 Forensic science must be trustworthy. This is a pre-requisite for the acceptance of the results of forensic tests and investigations, and reliance upon the expert opinion of forensic scientists. To be trustworthy, forensic science must maintain its integrity, ensuring it has legal, ethical, and moral standing based upon principled scientific practice.[181] The primacy of science must be at the heart of a national forensic science strategy, along with commitment to elemental values of integrity, including transparency and accountability.

4.16 For the discipline to secure and maintain its integrity, there needs to be a healthy research culture, with fundamental research underpinning disciplines, coupled with horizon-scanning and future-oriented research seeking innovation and developments that are the hallmarks of scientific progress. Such research, in common with casework, requires well equipped facilities with laboratories meeting international standards, staffed by appropriately educated and trained scientists. In addition to proving its reliability, forensic science must also be efficient and effective, and demonstrably so, to justify its resourcing. Finally, it needs credible and effective regulation to ensure quality standards are reached, maintained and improved, and ensure that a reliable system is in place to identify, and swiftly address and remedy quality failures.

Research and Development

4.17 Basic, or 'fundamental' research is the lifeblood of any scientific field. While portrayals of forensic science tend to focus on practical applications (crime scene examiners, experts giving testimony etc.), for these applications to be useful and reliable, they must be underpinned by valid science. Previous miscarriages of justice serve as testament to the dire consequences that can result when flawed, unreliable, or erroneous forensic evidence is relied upon, and continues to be relied upon if the technique is not sufficiently validated, as in the controversial case of 'bite-mark' comparison.[182] This requires resourcing not simply of those undertaking casework, but researchers keeping the disciplines healthy and up to date. For too long, this basic research has been neglected and the lack of a research culture within forensic science has been raised repeatedly.[183]

4.18 A 2021 editorial in Forensic Science International, the leading journal for forensic science, stated that "*it is no exaggeration to say that reliable forensic research and practice has never been as relevant or as necessary*."[184] While addressing an international audience, this observation is apposite domestically. The

---

[181] M. Wienroth, Amankwaa, A., and C McCartney, 'Integrity, Trustworthiness and Effectiveness: An Ethos for Forensic Genetics' *Genes* (2022)
[182] See Bitemark Analysis: A NIST Scientific Foundation Review, 2023, which concluded that this analysis was unsupported by sufficient data, available at: https://www.nist.gov/spo/forensic-science-program/bitemark- analysis-nist-scientific-foundation-review
[183] E.g. Mnookin, Jennifer L., et al. "The Need for a Research Culture in the Forensic Sciences." *UCLA Law Review*, vol. 58, no. 3, Feb. 2011, pp. 725–80, although for a critique of the view of the scientific culture of forensic science, see: Simon A. Cole, Forensic culture as epistemic culture: The sociology of forensic science, *Studies in History and Philosophy of Biological and Biomedical Sciences*, 44(1) (2013) 36-46.
[184] Editorial: Ethics in forensic science: Renewed commitments and a call for papers across the Forensic Science International Family, *Forensic Science International*, Volume 324, (2021) 110831.

once 'world- leading' reputation of forensic science in England and Wales has declined, with our scientific research, now languishing.[185] The FSS had been formative in securing our reputation for research and development, with around 60 researchers and an annual R & D expenditure between £3 and £5 million per annum. However, their casework and financial pressures meant that this reputation floundered by the time of closure. The FSS investment in R & D was apparently not re-invested in alternative forensic research by the government and 52 of the FSS researchers left the field of forensic science when the FSS closed closure, with 70% of the country's toxicology expertise lost at the same time.[186]

4.19 Commercialisation, at least initially, did not hasten this decline in research, with private providers conducting research (e.g. LGC Forensics reportedly had 70 active research projects in 2012) but by 2013, the Home Office Science and Technology Committee concluded that "*the UK risks falling behind on the exploitation of new research and technologies*".[187] Private providers had brought new thinking, and new methods and techniques to forensic science in the early days of commercialisation. However, the commoditisation of forensic science, forced upon providers by the contracting processes and a relentless focus upon cost (detailed in Chapter two), and the fragility of the market, has increased the challenges faced by researchers and downgraded their expertise as a resource.

4.20 When a private enterprise is only able to compete in the market on price, the focus of any R & D will likely be on efficiency gains, and improvements in process or bureaucracy. The focus is firmly upon 'Return on Investment' and the delivery of forensic services which can then be marketed. Mark Pearse, Eurofins Forensic Services Director explains:

> "*we fall over ourselves to wholly define the unmet needs that policing would have and properly articulate that to the commercial and academic sectors, to work to elevate the market. We don't do that very well. In recent initiatives …. there is no clear route to return on investment to really kick-start innovation*".

4.21 Eurofins Forensic Services reported that they have "a small team of R&D people but more importantly, the partnership with industry partners is leading to better developments", the focus being processes, method development, instruments to improve efficiency and better service levels. Making scientific advances and discoveries is deprioritised, with little motivation to conduct research to develop and then validate techniques and produce such things as 'ground truth' databases to assist quality management and so strengthen the foundations of the discipline. Interpretation of results and the use of techniques such as CAI (Case Assessment and Interpretation) will not progress, with results simply reported as basic fact, leaving courts to interpret what the science means in the context of the specific case in which it is being presented. A wealth of knowledge and experience will be missing, and the jury is ill prepared to take on such an onerous task.

4.22 In the pharmaceutical industry, it is understood that novel drug development is expensive, and new drugs must be priced well above the bare cost of production, to reflect the significant up-front investment required to support R & D. Indeed, returns on this investment can never be assured, and will often be many years in the making. This is mirrored in any industry where innovation and product development are expensive, with long lead times and high risks of no returns. R & D must then be underwritten by a guaranteed, and steady income, and/or capacity to realise a number of successful projects to sustain the company through failures, which can then be absorbed. Private forensic science providers must similarly be viable businesses, with the financial risks of managing investment in R & D.

4.23 In England and Wales, large private providers did invest significant sums in for example, advances in forensic DNA, such as automated reference sample profiling for building databases; rapid portable DNA technology, and 'Next Generation Sequencing' providing extra information about DNA donors. Police initially expressed great interest in each of these developments, incentivising investment. Providers were then left with significant losses when the police enthusiasm waned and did not translate

---

[185] Thompson Reuters data from 2001 – 2011, placed the FSS as number 5 in the top forensic research organisations worldwide, the only UK organisation to feature in the top 25, with a further 2 UK institutes (Universities of Oxford and Leicester) in this list when journal impact factors were also considered. Written evidence submitted by Principal Forensic Services Ltd (PFS) (FSS004) to the House of Commons Science and Technology Select Committee 2013.

[186] Written evidence submitted by Principal Forensic Services Ltd (PFS) (FSS004) to the House of Commons Science and Technology Select Committee 2013.

[187] House of Commons Science and Technology Committee, Forensic Science, Second Report of Session 2012-13, HC 610, July 2013, para 83.

into purchases or adoption of the technologies.[188] These losses could only be absorbed by the company if they were making sufficient profit in other departments to offset the loss. As we have seen in Chapter two, the challenges of contracting, compounded by government austerity measures meant they were unable to increase prices or make sufficient profit from casework. As the finance of private providers became increasingly precarious, with constant pressure on profit margins, hesitance to invest in further R & D understandably grew.

4.24 We were told that profit margins remain simply too small to sustain any noticeable research capacity. With only one remaining large private provider, small providers have either cut their R & D capacity entirely or have scaled it back to only specific and small, case-based challenges. The focus of such research, restricted to only answering a specific question in a case, can still lead to serendipitous findings, some of which in the past, have assisted the resolution of a case but also greater understanding of the potential of some techniques. A forensic scientist must always question everything, and it is sometimes only by reconstructing a crime scene that observations and results can be explained. For example, in one case a measure of a shoeprint left at a scene 'produced' a shoe size that was provided to investigators. Later reconstruction of leaving prints in the wet and muddy conditions, led to the realisation that prints in wet mud can 'shrink,' so shoe sizes cannot always be assumed from the recordings based on dry imprints.

4.25 The opportunity for even case-based research has now narrowed significantly and will likely continue to do so with police budget holders prioritising rapid/cheap results over more detailed, longer investigations. This has the longer-term consequence of scientists (including crime scene investigators) not accumulating the knowledge about where and how to 'push the envelope' in their investigations. This is especially vital to cold case reviews, where it is critical that the 'given' sequence of events at a crime scene is not accepted at face value. Even a good scientist may not have found all the evidence that is available and a knowledgeable scientist, with years of experimentation in other cases, will know if it might be worth looking for traces from an offender at a scene even when, for example, it has been painted over afterwards (amply demonstrated in the re-investigation into the murder of Lynette White and the 'Cardiff 3' miscarriage of justice).

4.26 The lack of opportunity to experiment has significant, negative implications for the integrity of forensic science. Key principles of science include empiricism, replicability and falsification. Without research a discipline risks not only stagnation but persisting with outdated or flawed theories and unreliable methods that cannot advance. Many techniques in forensic science have necessarily undergone significant adjustment and refinement or been abandoned. Either their failings were revealed or advanced techniques led to their obsolescence, including for example: serological analysis; comparative bullet lead analysis; bitemark comparison; microscopic hair comparison, and fire debris analysis. Research is then critical to integrity and should support the vitality and sustainability of forensic science. This illustrates why research has a significant role to play in avoiding miscarriages of justice.

4.27 In addition to shoring up scientific underpinnings, ensuring that flawed methods are revealed and techniques improved, there must also be horizon scanning for new opportunities and technologies. This is all the more critical when criminality does not stand still. The emergence of technologically advanced methods of offending, including, but not limited to, cyber capabilities such as ransomware, deepfakes and AI-assisted offending, demands the police to keep pace. A report on 'online' crime in March 2025 warns that "there is widespread evidence emerging of a substantial acceleration in AI-enabled crime", and that national security and law enforcement need "tools to plan and better position themselves to respond to novel threats over the next five years."[189]

4.28 It is critical that research is facilitated and funded to develop tools and ensure their effectiveness, repeatability and veracity. If such research is not undertaken, then important opportunities are missed to advance our capacity and capabilities. A good example from physical trace evidence is provided by textile fibres. Previously, undertaking comparisons 'by hand' was very time consuming and expensive,

---

[188] See: David Hartshorne *et al*, 'The Challenges of Introducing Massively Parallel Sequencing into the UK Forensic Market, in, Francese and King (eds) *Driving Forensic Innovation in the 21st Century: Crossing the Valley of Death* (Springer, 2024).
[189] Joe Burton, Ardi Janjeva, Simon Moseley and Alice, *AI and Serious Online Crime*, CeTAS and the Alan Turing Institute, (2025) at: https://cetas.turing.ac.uk/sites/default/files/2025-03/cetas_research_report_-_ai_and_serious_online_crime_0.pdf

but new technologies have been developed in other fields (e.g. in medical imaging) which had the potential to automate the process, which would make fibre comparisons much quicker and cheaper. However, no provider has been able to underwrite the cost of adapting the technology when police have significantly cut back on fibres analysis, even though it was the important work on fibres that led to breakthroughs in high- profile cases such as Stephen Lawrence and the Coastal Path murders.

4.29 There is an urgent need therefore, for funding both for the 'academic' research required to advance forensic science, as well as product/service developments. Importantly, this ought to work hand in glove, capitalising on the fact that bringing together forensic practitioners and police investigators with academic researchers often means there is greater momentum and more worthwhile outcomes. Professor Lorna Dawson, Head of the Centre of Basic Science at the James Hutton Institute in Edinburgh, described how six institutes in Scotland – including her own, work together to conduct fundamental research, build databases, maintain soil and biobank archives, and provide a range of forensic science experts in niche areas of ecology and animal sciences for the criminal justice system - all publicly funded. While not providing the whole answer as there are other areas of research which are critically important, it makes the most of what is available in these niche areas. It cannot be assumed that universities and research institutes can be simply left to do this research however, particularly given the funding crisis in higher education and the current precarity of universities.

4.30 The government must centrally fund forensic science through our research institutes and universities and must also support and encourage the private providers to both invest in R & D, and to collaborate with academic researchers. It must be recognised that the forensic sector requires buffering to support the financial risks faced by these commercial actors. This will then require central funding, as well as encouragement and facilitation of collaboration with academic and other industry partners with mechanisms to deliver progress and developments that are not then kept confidentially within the organisation that conducted the research. In particular, there must be the avoidance of 'black box' research and intellectual property concerns that ultimately may hamper the justice system, particularly if techniques produce evidence that will be excluded from courts.

A NATIONAL RESEARCH STRATEGY

4.31 One of the difficulties encountered in ensuring that research in forensic science is undertaken is that the 'customers' of forensic science have never been sufficiently motivated to pay for it. Those at the investigative coalface are interested in direct answers to their pressing questions. Perhaps understandably if footing the bill, the customer will want any research to be clearly directed towards their problem resolution. Rarely will this include whether the underlying databases are robust, or a technique could be refined, or if a new forensic technology could be adapted from a development in an adjacent domain. In the case of the police, they will only be interested in satisfying an investigative need, with the demands of casework being the key driver for any research priorities.

4.32 Funding research since the closure of the FSS has been devolved to academics, universities, research councils, charities and foundations, (or commercial providers). It is often then left out of discussions on forensic science national policy entirely, as most often, those around the table do not much care to become involved in a whole other sector outside their area of expertise. Devising a national strategy, with appropriate funding mechanisms, to satisfy both the need for basic research, and for casework driven research, is a circle that has yet to be squared and is a major reason for our fall from grace as a global leader in this field.

4.33 There have been attempts over recent years to create a body that can facilitate a national approach to forensic R & D. These have struggled to make a tangible impact. United Kingdom Research and Innovation (UKRI), the non-departmental public body that directs research and innovation funding,[190] informed the House of Lords in 2019 that despite all the many previous recommendations that forensic science should be a research priority, UKRI had only spent £56 million in the last 10 years on 150 studies

[190] Funded through the science budget of the Department for Science, Innovation and Technology.

relating to forensic science, less than 0.1% of their expenditure in that time.[191] UKRI conducted a review of its forensic science portfolio in 2019 and undertook a consultation exercise to "identify priority research areas for forensic science and help develop mechanisms for supporting activities in these areas." This consultation suggested:

> "*a dangerous disconnection is growing between cutting edge research, the development and testing of new technologies, and their application in judicial practice. As a result, the justice system is not keeping pace with advances in science and technology and possible tools and techniques at its disposal. More, higher quality, robust and validated forensic science focused on the justice system and embedding the judiciary as a valid and important impact domain is required*."[192]

4.34 In response to this UKRI consultation and the House of Lords conclusion that: "forensic science needs more sustained and coordinated funding for research and development in both technological developments and foundational research"[193] in June 2023, a sandpit on 'forensic science for the justice system,' led to the funding of three 12-month research projects. These are focussed upon trust in forensic evidence, single-cell DNA analysis, and triaging digital devices.[194] While this £2 million investment was welcomed there are questions over the ongoing potential for this funding and given the recently announced cuts to the UKRI budget for 2025/26, it remains to be seen whether any funding will again be earmarked for forensic science research.

4.35 Meanwhile, the police were spending far more significant sums of money on "*the delivery of high quality, specialist forensic capabilities in support of the Policing Vision 2025*".[195] Between 2018-2022, the Police Transformation Fund invested £30.35 million in the 'Transforming Forensics Programme,' intended to help deliver the 2016 Forensic Science Strategy.[196] 'Transforming Forensics' (TF) was meant to deliver inter alia a governance framework provided by a 'Forensic Capability Network' that would optimise quality management and accreditation processes, helping police services to meet all their ISO17025 and ISO17020 standards by 2020 (this was not achieved). They were also to ensure access for police to digital technology and all forensic capabilities by developing a viable forensic science marketplace and supply chain, while inspiring public confidence by "enhancing the credibility and legitimacy of all forensic services, based on robust science," and ensuring that forensic science was 'affordable and provides demonstrable value for money through improved efficiencies".[197]

4.36 A police 'strategic review' in 2021 set: "a new direction of travel for forensics in policing",[198] with the dissolution of the widely criticised TF Programme in March 2023, and a restructure of the Forensic Capability Network (FCN). A further £10.4 million was provided to 'complete' the TF Programme and transition its work to the Police Digital Service (PDS) and the FCN. A further £15.2 million was committed by the Home Office that year to cover the work of the FCN and a new digital forensics programme.[199]

4.37 Before TF's dissolution, the Programme Director had told the House of Lords that one factor inhibiting investment in R & D was fragmentation among police forces and competing police priorities in an age of austerity. It was claimed that by creating the FCN and securing 'economies of scale,' there would then be headroom for investment in R & D. The FCN would provide direction and leadership in forensics research and innovation, shaped by the priorities in policing and the wider criminal justice

---

[191] The House of Lords went on to explain that of those 150 studies, many: "did not address forensic science research questions, had little forensic science content or which referred to forensic science as one of many possible applications of the research." House of Lords 'Blueprint' para. 169.
[192] UKRI, at: https://www.ukri.org/opportunity/forensic-science-for-the-justice-system-sandpit/
[193] House of Lords 'Blueprint', para.173.
[194] The three projects are: 'Trust in Forensic Science Evidence in the Criminal Justice System: The Experience of Marginalised Groups' UKRI Ref No. ES/Y01639/1; 'Single Cell and Single Molecule Analysis for DNA Identification, UKRI Ref No. ES/Y010655/1 (albeit this project now states this research will realistically take five years so will need more funding), and 'Towards a Smart Digital Forensic Advisor to Support First Responders With At-Scene Tri-Age of Digital Devices Across Crime Types' UKSI Ref No ES/Y010647/1.
[195] National Police Chiefs' Council (NPCC) Transforming Forensics Programme – Written evidence (FRS0070) to the House of Lords 2018.
[196] ibid.
[197] ibid.
[198] 9th March 2022, FCN News https://www.fcn.police.uk/news/2022-03/transforming-forensics-secures- ps104m-completion-funding-fy-202223
[199] 'ibid'

system.[200] The FCN were tasked with providing a coordinated approach to partnerships with academia and industry to improve blue sky research and development, helping to "attract research and technology companies to forensic science and specifically digital forensic science".[201]

4.38 In August 2023, the FCN launched their 'Research and Innovation Strategy', with the aim of establishing: "*a system where policing drive innovation through increasing the status, profile, and legitimacy of Forensic Science across the research community*."[202] The strategy emphasises the need for "long-term commitment, coordination, and funding to ensure the delivery of high-quality forensic science."[203] The NPCC Forensic Lead committed to the police 'leading' forensic science research and innovation, coordinated by the FCN. The strategy also recognises that regaining our international reputation for forensic science could both improve international relations and lead to economic growth but that "current levels of investment in forensic science research have and continue to be challenging and do not accurately reflect the value it brings to the criminal justice system."[204]

4.39 The FCN are now financed by the NPCC for around £3 million p.a., the majority of which pays for running costs. In 2023/24 they reported expenditure of £634k on three projects from FCN funds.[205] Presumably the FCN have yet to obtain research funding to finance any other substantial projects like all other researchers. One avenue for funding for local police forces who can 'pair' with researchers is to apply for 'STAR' funding via the Office for the Police Chief Scientific Adviser. Launched in 2020, this STAR fund aims to: "*stimulate local innovation and encourage collaboration to solve S&T problems within policing*." To date, it has funded over 90 projects totalling £13 million, including 18 national projects with other policing organisations.[206] These projects fall within the far broader 'science and technology in policing' scope, and while a few could be considered 'forensic science' (i.e. projects on fingermarks, forensic medicine, and footwear identification), the purpose of this fund is not to undertake forensic science research.

4.40 From the evidence we have received we are not persuaded that the recommendation of the House of Lords in 2019 has been actioned:

> "*Current levels of investment in forensic science research are inadequate and do not appear to reflect value to the criminal justice system. We believe that the Home Office has abdicated its responsibility for research in forensic science. We recommend that UK Research and Innovation urgently and substantially increase the amount of dedicated funding allocated to forensic science for both technological advances and foundational research, with a particular focus on digital forensic science evidence and the opportunities to develop further capabilities in artificial intelligence and machine learning*."[207]

4.41 The funding of research nationally remains inadequate and uncoordinated, and the significant sums being spent by the police should not be considered an alternative. Their focus, understandably, is on operational needs, and directed, if not conducted, by police staff. Police operational priorities should inform research priorities, not dictate them. It is then not appropriate to have the national research strategy for forensic science set and managed by the police. We again echo the recommendation of the House of Lords, that there should be a National Institute for Forensic Science created, "to set strategic priorities for forensic science research and development, and to coordinate and direct research and funding."[208]

---

[200] National Police Chiefs' Council (NPCC) Transforming Forensics Programme – Written evidence (FRS0070) to the House of Lords 2018.
[201] ibid.
[202] FCN Research and Innovation Strategy 2023, available at https://www.fcn.police.uk/sites/default/files/2023-08/FCN%20Research%20and%20Innovation%20Strategy_0.pdf
[203] FCN Research and Innovation Strategy 2023, p.3.
[204] ibid., p.7.
[205] The three projects were: FCN-SARC Accreditation project (£222,000); FCN-Fire Investigation project (£167,000) and NPCC FMSP project (£245,000).
[206] OPCSA 'Funding' at https://science.police.uk/opportunities/police-star-fund/
[207] House of Lords 'Blueprint,' para 187.
[208] House of Lords 'Blueprint,' para 188.

The National Forensic Science Institute: Setting a national research strategy

4.42 We set out in Chapter two the parameters of a National Forensic Science Institute (NFSI). The first task of the NFSI should be to set out 'Areas of Research Interest' (ARIs) for forensic science, setting research priorities, along the same lines as other government bodies who publish their 'Areas of Research Interest' (ARIs) on the 'portal' for government research priorities.[209] For example, the Office of the Police Chief Scientific Adviser's policing ARIs have set out their priorities for 'science, technology, analysis and research challenges that, if addressed, will in our view significantly improve policing performance' coordinated with the NPCC, the FCN and the Metropolitan Police 'ARIs'.[210]

4.43 These forensic science 'ARIs' will then be coupled with a strategy for ensuring that these research priorities are addressed. Inspiration could be drawn from the recent funding of nine Policing Academic Centres of Excellence (P-ACEs) by the NPCC and UKRI. These centres have been funded for three years: "to improve connections between academic researchers and research users in policing and make it easier for users of research to identify the best research evidence, science, technologies and postgraduate training that the UK has to offer."[211] The NFSI could collaborate with the recently created P-ACEs, and mirror these with their own 'Forensic Academic Centres of Excellence' (F-ACEs).

4.44 These Centres, like their policing counterparts, could reside in networked research institutions (universities) partnering with industry and other important partners including the Defence Science and Technology Laboratory (DSTL), the Laboratory of the Government Chemist (LGC) and the National Physical Laboratory (NPL). Scientists could also be seconded from a university to the NFSI for a period as they develop research projects, forming more partnerships with universities (sharing potential IPR). This could be mutually beneficial, with costs and risks shared, and both the NFSI and universities benefitting (lending crucial support to universities who are currently in their own crisis). This should also be supported by the Research Excellence Framework (REF) finally establishing a Unit of Assessment for forensic science, therefore making forensic science research a greater priority for universities and meaning that further funding could be secured from government QR funding (another recommendation of the House of Lords not actioned).

4.45 The NFSI and any subsidiaries undertaking research must ensure that the outcomes of research be made widely available in a central repository. This would avoid the current duplication, particularly in respect of validation studies. With a central repository for research, priorities could be (re)assessed and recalibrated, as well as enabling sharing of 'best practice' nationally. There is very little funding available for identifying and testing best practice and what research has been undertaken may remain in the police force that undertook a local study (the FCN was meant to be addressing this although the College of Policing was also tasked with this previously, again to little apparent effect). The notion that an individual force, (or an FSP) 'owns' the outcomes of research, which we were told currently stymies potentially useful research projects and keeps useful data hidden, needs to end.

4.46 A national approach and research strategy should also include the creation of an enhanced information capability with 'joined up' feedback on casework to be disseminated. Forensic scientists explained that there was a lack of communication across the criminal process, and that they would rarely have access to any information about how any criminal investigation would proceed or what were the outcomes (did the forensic evidence help detect or prosecute the case?). They explained that this makes it almost impossible to understand where forensic science had made a difference, and therefore, inform decisions about where to invest resources or undertake more R & D. Police and providers must be encouraged to share intelligence nationally and prevent researchers from reinventing the same rickety wheel. Witnesses spoke to us of the need for a more holistic approach to forensic science, with a shared knowledge and understanding of how forensic science is working across, and influencing, the entire criminal justice process.

---

[209] https://ari.org.uk/ - albeit the Metropolitan Police ARIs do not appear to have been updated since 2019.
[210] OPCSA, see: https://science.police.uk/delivery/research-and-academic-engagement/areas-of-research- interest/
[211] https://www.ukri.org/opportunity/apply-to-be-recognised-as-a-policing-academic-centre-of-excellence/

Research facilities and equipment

4.47 Another benefit of a NFSI and a series of academic centres across universities and research institutes, would be the potential for access to laboratory space. Modern laboratory space and cutting-edge scientific equipment are expensive to acquire and maintain. If providers are to deliver both high quality reliable forensic services and undertake R & D, it is critical that the true costs of facilities and equipment are reflected in the price that can be charged for forensic testing and casework. For a private provider to dedicate laboratory space and equipment to R & D means making it unavailable for operational work – cutting income. Without pricing that bears a closer relation to true costs, investment in new technology and equipment will continue to be inhibited and research untenable.

4.48 As previously detailed, private providers have been unable to justify investment in equipment that could automate fibres comparison because of a lack of operational demand and confidence that the police would necessarily use the outcome – however useful and cost effective that turned out to be. This accelerates the graveyard spiral for 'niche' services (see later). If investment could be made that would significantly speed up (cheapening) fibres analysis, then it could make a real impact operationally. But because the police are not commissioning fibres analysis there is no appetite for investment in fibres research, so the potential will never be realised, and the narrowing of forensic capacity and capability will continue.

4.49 Facilitating collaboration via the NFSI and regional centres of excellence, partnering with providers and police (including DSTL, NPL and LGC), would ensure access to expensive and state-of-the-art equipment on a national basis. This could also protect against poor returns from investing in equipment that then has no operational benefit or is of questionable efficacy. We were shown, for example, a piece of equipment in the laboratory that was a very expensive 'space filler' because after some experimentation and casework, it transpired that the police (and others), could not get the results from the equipment that had been promised by the commercial vendor. This particular instrument is known to have been purchased by numerous organisations trying to achieve the same end goal, whereas if one project could pilot the equipment, then share results nationally, it would prevent the attempted development, and procurement of deficient equipment. It would also encourage the sharing of intelligence on equipment (and its use) that could realise benefits if adding to national capacity and capabilities (pulling niche services out of the graveyard spiral). Commercial vendors could collaborate on projects with researchers at the NFSI and centres of excellence, because the 'market' for their equipment could potentially be more significant.

SCIENTIFIC STAFFING, TRAINING AND DEVELOPMENT

4.50 Delivering forensic science that has integrity and is trusted, depends upon employing good scientists and having sufficient scientists in the right roles. We have found widespread variation in education and training requirements, and numbers of staff in scientific support and similar roles across police forces and forensic science providers. Detectives in particular spoke of a lack of support from scientifically qualified staff with the scaling back of scientific support roles, as well as a downgrading of the qualifications and experience required by those entering such roles. Many scientists spoke of being 'supervised' by police officers with no particular interest nor skills in science but were there because police 'officer' numbers need to be maintained. As detailed in Chapter two, HMICFRS have recently reported on accounts provided to them of shortages of CSIs and lack of investigative support for detectives.[212] We also discussed the difficulties that arise when police lack support and where there is a general lack of collaboration between scientists and investigators.

4.51 Presently there is still too little knowledge around critical areas of forensic science capabilities among police staff. This becomes of increasing importance given the scientific challenges facing policing. All individuals that undertake forensic activities or work in positions that support scientific decision-making, including police staff such as scene examiners and scientific support staff, need to

[212] HMICFRS, 'Crime Investigation' (March 2025) available at: https://hmicfrs.justiceinspectorates.gov.uk/publications/how-effectively-police-investigate-crime/

have a good quality scientific educational background supplemented with focused training in Case Assessment and Interpretation (CAI). This is essential for choosing and refining testing strategies and the interpretation of results – making the most of the science. Continuing professional development should then be required to enhance practice and add specialised knowledge. Education and specialised training for all response police in forensic capabilities should also be essential.

4.52 There are significant challenges in recruiting, training, and retaining qualified forensic science staff. When the UK led the world in forensic science, we not only exported our expertise but could attract the best and brightest to work here. This is no longer true. This situation is exacerbated by competition from other industries for new graduates and changing workforce expectations. Recruitment is extremely challenging given that STEM graduates and scientists can earn significantly more in other sectors or countries where they can also expect better working conditions and more training and advancement prospects. This staffing challenge is accelerating the decline in forensic science: where a lack of forensic expertise in the country makes it unattractive as a destination for forensic scientists to visit/study/research. Our reputation in forensic science then worsens and fewer people will be attracted into the sector, with talk of a 'brain drain'. For too long we have relied upon the general attraction of working in 'forensics' to maintain the entry enthusiasm of undergraduates and young scientists. This attraction cannot be assumed to be immutable.

4.53 Forensic providers must keep staff costs as low as possible, which usually means preferential recruitment of junior and inexperienced staff. Many providers, including the police, explained there was simply insufficient funds to pay competitive salaries, or the salaries of highly experienced forensic scientists.[213] Although slightly improved pay and conditions in some police laboratories (and the Scottish Forensic Service) entices scientists away from independent laboratories, this does not resolve the issue and makes the recruitment of staff more challenging south of the border or in private providers. The Metropolitan Police in particular reported issues with attracting and keeping forensic staff in the capital given the cost of living.

4.54 While there continues (for now) to be more forensic science university graduates than job openings, we were told that taking on forensic apprentices was preferred to keep personnel costs low. These apprentices will primarily work within the 'rapid/cheap' testing track and gain no exposure to the practice and rigour that is required for the future of the field. Without perhaps further significant science education or a great deal of training, it might be expected that this is where their career prospects will remain. Private providers explained that regulatory demands and the requirements to perform according to standard operating procedures restricts opportunities for junior staff to do the most interesting and 'hands-on' work (such as visiting scenes, which will be rare for a junior scientist). We were told that what often remains is "*a treadmill of 'dull technical' work*".

4.55 These realities mean that forensic science is failing to attract ambitious scientists and there is certainly little to inspire perseverance in a career in this sector. This is a wasted opportunity in particular given there are many incredible PhD students doing projects on forensic topics but will never go on to work in the field. Comparatively poor working conditions, pay and prospects are highly significant in digital forensics where the need is primarily for computer science graduates. Such graduates can earn far higher salaries in other sectors and consequently have little motivation to undertake a poorly paid, stressful and often distressing job. Scientific support staff also reported to us that they lack support and that many staff 'burnout' from high caseloads and the pressures of the work.

4.56 The demands and stress also mean there are more likely to be mistakes so becoming a forensic scientist can be a high-risk career choice – far more so than in many other sectors. The significant personal responsibilities that forensic scientists must often shoulder, including testifying in court as to their expert opinion which can be (often vigorously) challenged, are not reflected in their status and renumeration. These personnel difficulties are clearly compounding resource pressures and backlogs which in turn places additional workload pressures on forensic scientists, further eroding the attraction of

[213] The FCN 2023 National Forensic Strategic Threat and Risk Assessment, (p.19) states: "Forensic practitioners are already raising issues in relation to their inability to pay bills and provide for their families and attendance at food banks. This is a challenge that needs to be recognised and acknowledged nationally with the appropriate levels of support embedded to safeguard the wellbeing of our workforce.

forensic science as a long-term career. It also serves to encourage those nearing the end of their careers, to move into other fields rather than keep working to retirement in high stress/workload environments.

4.57 The few providers who specialise in the more complex investigative elements of forensic provision, are normally small providers who employ experienced scientists. They will often specialise in defence (review) work because they are not equipped to conduct primary forensic investigations. One might expect that when students are considering a career in forensic science this is the type of work they imagine they will be undertaking, spending their days visiting, or recreating crime scenes and devising scientific methods to solve crimes. These small providers, however, are not able to take on younger/new talent because they have insufficient turnover or guaranteed income from casework to justify investing sums in recruitment and training. The best background for review work is to have previously done a substantial amount of primary work (for police) yourself.

4.58 Retention of junior staff is then extremely difficult. Morale is often low, and we were told that the young scientists are quickly disillusioned by repetitive 'testing' at a lab bench, particularly when poorly compensated. Employers remarked to us that their young recruits were not prepared to wait years before they become a reporting scientist as part of a general trend away from 'jobs for life'. Some providers are working hard to combat this (because of high staff turnover and its associated costs) by trying to get young scientists promoted more rapidly, but there are risks associated with 'rushing' professional maturation. For example, we heard of a case where inexperienced scientists presented a statistical evaluation of DNA evidence to a court that, whilst based upon sound calculations, used a process that has not been fully validated. They had not recognised this limitation and only when a scientist for the defence raised the issue with more experienced scientists from their laboratory, was the report withdrawn. This is a problem which can only be compounded as we continue to lose experienced forensic scientists from the community.

4.59 There are similar problems within crime scene investigation, with Karl Harrison explaining that the policy of staff attending fewer crimes scenes: "denudes junior examiners of their normative judgement development.."[214] This then restricts skill development and lengthens apprenticeship times: "lowering the professional retention times of junior practitioners, increasing staff turnover and pressure on training." Harrison makes it clear that experience cannot be short-circuited by following SOPs: "formalised process cannot replace actual experience" and "Judgement and experience are the key drivers of professional development... There is a direct link between the fundamental skills and judgement developed at low levels of response, and the most complex and major investigations."[215] We then witness, as we do in forensic science more widely, a shortage of highly experienced forensic decision makers (including crime scene managers) as they become an "ageing and dwindling resource."[216]

4.60 Large providers have continued to make redundancies, normally targeted at more 'expensive' senior staff, and some scientists have been made redundant from their role several times over as smaller providers have left the market. As Professor Gill Tully explained to the House of Lords, the fragility of the market: "*represents a serious risk to quality, particularly in relation to the potential for loss of skilled scientists, some of whom have already been made redundant more than once*."[217] Respondents explained that we lack scientists with a comprehension of the "*breadth of forensic capability*". Holistic knowledge of casework entails knowing how to get the most out of the available samples effectively and efficiently. Yet forensic science providers are reliant upon inexperienced staff with few senior staff to supervise, meaning that the next generation of experts are not developing because there are insufficiently experienced trainers and mentors. The impact on the future development of the field is obvious.

4.61 Nationally, we were also told that there are real challenges in filling leadership roles. The lack of experienced scientists remaining in the sector means it is difficult to find scientists who could, and would wish to, take management positions. While a business leader may understand 'business', respondents were concerned that they may not necessarily also understand forensic science. They also characterised discussions about the sector as dominated by local and short-term concerns with

---

[214] *Karl Harrison, Maintaining the Ecosystems of Niche Forensics*
[215] ibid.
[216] ibid.
[217] House of Lords, 'Blueprint' para.47.

leaders focussed more heavily on commercial viability, rather than the integrity of forensic science and the long-term health of the sector.

Impacts upon forensic capacity and capabilities

4.62 We are already witnessing the impacts of the difficulties experienced in recruiting and retaining scientists. We were often told that there are areas of forensic science where demand simply cannot be met. We heard of significant concerns about both national capacities and a rapid decline in capabilities. Staffing shortages, more conspicuous in some disciplines, are leading to longer turn-around times. Charging decisions cannot be taken and prosecutions are delayed while waiting for test results and expert reports. A lack of experience and specialised knowledge among forensic practitioners also means that deserts of expertise are appearing. Some forensic expertise is simply too difficult to obtain in England and Wales, and police (and lawyers) are forced to go overseas to locate experts. There is very limited opportunity for defence lawyers to get a different expert to review work or undertake re-examination or re-testing (see Chapter three).

4.63 A lack of funding available for forensic science was repeatedly raised by witnesses and respondents with funding cuts blamed for exacerbating both capacity and capability issues. Respondents believed that funds had been diverted to 'auxiliary' items, with the financing of bodies such as Blue Light Commercial and the Forensic Capability Network (and previously 'Transforming Forensics'). We were told that despite significant investment the value of what these bodies deliver remains obscure to both us and, it would seem, most of our respondents. There are also large sums being spent across the sector on accreditation from UKAS and adherence to the Forensic Science Regulator's Codes. Whilst accreditation is important, this large commitment of funds has serious financial implications that are not specifically underwritten or appreciated within the financial model for the market. Providers must pay for accreditation but have difficulties in recovering these costs. Meanwhile, the money that the police spend on accreditation is money that cannot be spent on forensic services. (The costs of accreditation are discussed in more detail below).

4.64 Staffing is expensive, particularly if requiring significant training, and so expansion is limited as much as possible and must be clearly justified by contractual demands. Equipment and facilities may be sub-optimal, and we saw great variability in the quality of facilities we visited. High-specification equipment (though not always necessary), and the upkeep of forensic laboratories is expensive. Lack of staff and lack of equipment or appropriate laboratory space both worsen turnaround times, as well as potentially impacting upon the quality of services thereby increasing the risk of mistakes.

4.65 As detailed in Chapter two, police budget cuts have led to both reductions in the amount of testing undertaken and the capability to address the complexity of some forensic investigations. Providers also had incentives to avoid complex casework or testing (involving less frequently used techniques or technologies), when the feasibility of working within tight delivery deadlines was considered. Police expressed their concerns about ordering testing that may not arrive or arrive too late for case management timelines (see Chapter three). Toxicology was repeatedly mentioned as a particular problem with a lack of capacity (see Chapter two), amply demonstrated in a recent TV documentary detailing a double-homicide investigation, where the key evidence – a toxicology test – took four months to be delivered, thus enabling the arrest of the murderer. Witnesses also suggested that pressured staff working to unrealistic deadlines could be completing work with undue haste. Or ridiculous scenarios were created, for example, examining an item for three hours then abruptly stopping because that was all the allotted time that had been paid for.

DETERMINING VALUE AND EFFECTIVENESS

4.66 The decline in investment in forensic science is cast as being an inevitable outcome of persistent pressures on police funding more generally. But it was often remarked that forensic science has been an easy target for cuts. While powerful arguments were made for forensic science by the House of Lords in 2019, advocacy for forensic science has perhaps been too muted. The Home Office have spoken of the sector being 'fragmented' with no lobbying power in Whitehall, albeit the sector has had a Regulator for some years regularly giving very public warnings, and the Association of Forensic Science Providers

similarly speak on behalf of the sector. The fact that the Home Office have had to intervene with major failures six times since 2017, and there have been seven major inquiries since 2005, might have given a clear enough indication that there were issues that needed attention without direct lobbying. It has been stated however, that forensic science is often 'too far' down the management chain and never seems quite able to reach the top of policy makers' or even policing agendas.

4.67 With the police working within ever tightening budgets and demands on them growing and diversifying away from crime, it is often suggested that forensic science has never sufficiently demonstrated its value to obtain more from the ever-shrinking funding pot. With the market strains, dramatic contraction of the sector, a passive professional body, and apparent lack of a seat at the top decision-making tables, forensic science has been particularly vulnerable to cuts as well as being open to blame and unfair criticism when there are miscarriages of justice. Advocating for forensic science is seriously hampered by an inability to articulate the effectiveness of forensic science and the efficiencies that may accrue from its use.

4.68 Forensic science has a big role to play if the government are to address their mission of raising confidence in the police and criminal justice system. With an ambition to halve the incidences of both knife crime and Violence Against Women and Girls (VAWG), creating 'safer streets' within a decade, they must take the challenges facing forensic science seriously. It is well established that there are significant negative economic impacts of high crime rates and societies struggling with law and order do not thrive. 'Improving opportunities' for all citizens will also be an immense challenge if increasing numbers are caught up in the criminal justice system. Forensic science is currently under-utilised and underappreciated but has a great deal to contribute to three of the government's five missions: to grow the economy; create safer streets and provide opportunities for all. Indeed, it will be difficult to achieve them without reliable, effective and trusted forensic science.

4.69 There are already tangible impacts of a lack of investment in investigative capacity and capabilities in respect of criminal detection. Volume crime, that most often experienced by citizens, has a significant impact on individuals, families, communities, and the economy. Recent detection rates should give rise to serious concerns in respect of regaining public confidence in criminal justice. More than 2.1 million crimes went unsolved between 2022 and 2023 and just under 43% of police investigations were recorded as having been closed with 'no suspect identified' in year ending June 2024.[218] On average, just 5.5% of victim-based offences are assigned a charge/summons outcome while residential burglary cases take 18 days to be closed, with over 73% not having identified a suspect.[219] Meanwhile the percentage of homicides where no suspect has been charged is increasing. In 2023-24, of the 570 homicides recorded by police, 130 still had no suspect charged by the end of the year.[220] Presumably this includes a significant proportion of murders committed by strangers, as these are usually more difficult to detect than 'domestic' murders.

4.70 Answering the question of 'what works' in police investigations is seriously hampered by a lack of data. This is a significant obstacle to improving investigative standards which is particularly important when bearing in mind that no improvements have been made since the HMICFRS in 2023 reported that an: "unacceptably low number of crimes are solved following investigations."[221] The HMICFRS 2025 thematic report on Crime Investigation, detailed in Chapter two, and data on investigative outcomes, details a yet more worrying picture of the quality of police investigations.

4.71 The difficulty remains of determining all the many variables in each investigation and assessing which are causing detection rates to fall. There are obvious complications when looking at detection rates because forensic science will ordinarily only be one element of a wider police investigation. While there are plentiful examples of cases 'solved' with the use of forensic science, gauging the aggregate benefit or effectiveness of forensic science, particularly across crime types, has always been considered impossible. It will often not be immediately apparent that forensic science has been beneficial, or even what benefits might later transpire. Often forensic science will unlock one piece of intelligence, that

[218] Home Office, Police recorded crime and outcomes open data tables. 2024.
[219] Home Office, Official Statistics: *Crime outcomes in England and Wales 2023 to 2024*, Published 24 July 2024
[220] ONS, Appendix tables: homicide in England and Wales, Feb 2025.
[221] HMICFRS, *Police Performance: Getting a grip*, July 2023.

then later goes on to be important, but it is that first step that was key. Sometimes an impact will not be understood until subsequent stages of the criminal process, or even many years after an investigation when considering appeals or cold cases. Its value might have simply been in discrediting a defence version of events.

4.72 For some years there were calls for annual reporting on the National DNA Database to include indicators of its impact, with the 'effectiveness' of the database the subject of academic scrutiny and debate.[222] Such calls were responded to with explanations that it would be impossible to attribute a detection or prosecution to a DNA database match. In his 2016 Annual Report, the Biometrics Commissioner reported a metric: 'linked to outcome', giving an indication of how much the DNA database had contributed to outcomes in different crime types. This was facilitated by the introduction in April 2014 of the 'Recorded Crimes Outcomes Framework' which allows every crime recorded by the police to be given an outcome. This metric, however, was not to re-appear, and the FINDS Strategy Board Annual Report each year limits itself to reporting on match rates and case vignettes, with a variation each year of the following disclaimer:

> "DNA profile records, provid[e] the police with invaluable information that helps them to identify possible suspects and solve crimes (albeit that a DNA profile match in itself is not usually sufficient to secure a conviction, so not every DNA profile match will lead to a crime being solved or a successful conviction). ... The number of offenders convicted with the help of DNA evidence is not recorded [Prosecutions are very rarely based on DNA evidence alone]; however, DNA evidence has been found to be significant in the conviction of the perpetrators of many serious crimes. There is well-established domestic positive impact of NDNAD matches yielding viable intelligence to police forces."[223]

4.73 Isolating the impact of a DNA database match on an investigation, is perhaps the more straightforward of possible calculations. Assessing how much other forensic tests or investigations may have assisted a police inquiry is an order of magnitude more complicated. This knowledge gap is consequential because it leads to forensic science being easy to undervalue and hence a target for budget cuts (see the Metropolitan Police announcement this April of 10% cuts to forensic science). An inability to point to the benefits, or value of a service, creates an obvious obstacle when arguing for an increase in resources and funding, or at least no further cuts.

4.74 In Queensland, Australia, the 2023 Commission of Inquiry into their DNA laboratory scandal revealed that in trying to save costs and minimise workload, DNA testing in the State had been restricted.[224] However, the savings amounted to approximately AU$1 million a year and the State was now forced to spend many millions of dollars in reopening tens of thousands of criminal investigations. This was in addition to responding to the (very costly) Commission of Inquiry into re-building their forensic capacity and trying to regain public trust. There have been subsequent inquiries and another AU$6 million has just been requested this year alone for yet more re-testing of old cases. These calculations cannot of course, include the cost of the crimes committed by repeat offenders who were not caught during the years the State chose to save money by restricting DNA testing.

4.75 In the US, research on the 'untapped' value of forensic science has evidenced efficiencies such as time savings, as well as quality improvements, with forensic science contributing "towards public health, safety, and protection of the innocent in addition to societal gains from conviction of the guilty."[225] This is said to justify public funding of crime laboratories, with the costs of forensic testing compared to savings accrued, for example, every $1 spent on testing backlogged sexual assault kits resulted in US$81 of savings, rising to $646 for testing of de novo case submissions.[226]

---

[222] See Amankwaa, A. & C. McCartney 'The effectiveness of the current use of forensic DNA in criminal investigations in England & Wales,' (2021) *WIREs Forensic Sci*. e1414; Amankwaa, A. & C. McCartney 'Evaluating Forensic DNA Databases' in Toom, Wienroth & M'Charek (eds). *Law, Practice and Politics of Forensic DNA Profiling* (Routledge 2023).

[223] Forensic Information Databases annual report 2023 to 2024 available at: https://www.gov.uk/government/publications/forensic-information-databases-annual-report-2023-to-2024/forensic-information-databases-annual-report-2023-to-2024-accessible#the-national-dna-database-ndnad

[224] https://www.dnainquiry.qld.gov.au/

[225] Speaker PJ. Intelligence and the Value of Forensic Science. *Forensic Sciences*. 2024; 4(1):184-200. p.184. https://doi.org/10.3390/forensicsci4010011

[226] ibid., p.184.

4.76 The Home Office 'IMPACT' project did attempt to "better understand the value that forensic science delivers to the CJS."[227] This project created data points that could demonstrate impact and included measures such as timeliness and cost savings. While a great deal of effort went into this project, the authors conceded there were almost insurmountable challenges (not least the COVID pandemic), and the project was abbreviated and then discontinued before reaching conclusive answers. The cessation of this project, the most ambitious to date, means the 'value' of forensics remains unclear and the data required to assess value remains mostly unobtainable as it is simply not collected.

4.77 Forensic science needs to be evaluated urgently so that its true effectiveness and contribution can be understood and demonstrated. This valuation needs to extend beyond just the costs/benefits of certain 'tests', to include all investigative decisions about when to use/not use forensic science, which test and when, and the interpretation and evaluation of results. Value should also be demonstrated at all stages of the justice process including benefits to the CPS, Legal Aid, and HMCTS (HM Courts and Tribunals Services) with the efficient and effective running of the courts. This should then support a national strategy to ensure the survival and growth of forensic science into the future. This would seem to fall squarely within the FCNs stated aim of establishing: "a system where policing drive innovation through increasing the status, profile, and legitimacy of Forensic Science across the research community"[228] and should be at the top of the new Director of Forensic Science's inbox.

SPECIALIST EXPERTISE AND 'NICHE' FORENSIC SCIENCE

4.78 Our respondents and witnesses alike spoke a great deal about 'niche' forensic disciplines, or 'specialisms'. These interchangeable labels have become pervasive, and the list of so-called specialisms has been growing to the point where it now refers to almost any discipline that is not in frequent use. DNA profiling and other biometrics (i.e. fingerprinting and facial recognition) and digital forensics have come to dominate and are, for now, considered 'core' forensic science. This means that the term 'niche' risks becoming applicable to any technique that does not fall into one of these supposed core categories. Of course, in this way what is currently considered 'core' could become 'niche' in the not-too-distant future. For example, fibre analysis just a decade ago was second only to DNA testing in terms of frequency of use (excluding police forensic techniques such as fingerprinting). Yet in 2025 it is now considered specialised and only used in serious crimes (not acquisitive crimes).[229] This has significant implications for the forensic science ecosystem, as well as the integrity and effectiveness of the discipline.

4.79 The integration of different disciplines is key to high quality forensic science in the most complex (and sometimes smaller cases) and so a loss of expertise in these specialist areas will seriously hamper forensic capability nationally and in specialised areas such as counter terrorism for example. We found recurring concerns over the dominance of certain types of forensic evidence. When focussing on DNA profiling, the police rely on finding biological samples (which means detailed examination of crime scenes and possibly, a lot of sampling). This then requires submission for analysis, which can be costly if requiring a quick result, or anything more than basic analysis is required. The DNA results (assuming there are some) then need interpretation, which can be particularly difficult if the result is a mixed profile (over 40% of DNA profiles are mixed profiles).

4.80 While DNA profiling remains the 'go-to' technique, we were told that it is increasingly problematic, with each of these steps becoming rarer (collection, submission, analysis, etc.), more costly, taking longer, and frequently failing to produce useful results. One police Scientific Support Manager told us that it is only in major incidents that they can afford to commission computer-based interpretation of the complex DNA results they are seeing increasingly commonly, which leaves them feeling concerned that they have not got 'the full tool kit'. The DNA evidence also needs to have probative value (it provides the factfinder with information upon which they can make decisions regarding the likely guilt of the person charged), which often requires specialist expertise to make inferences regarding issues such as transfer, persistence and activity level propositions.[230]

---

[227] Home Office, *Impact of Forensic Science Project*, Phase 1 Report (2022) available at: https://www.gov.uk/government/publications/impact-of-forensic-science-project

[228] FCN Research and Innovation Strategy 2023.

[229] Steve Robson, Police use of forensics slashed by 99% as 'awful' crisis unfolds, the i paper. 28th April 2024.

4.81 Expectations that DNA evidence will result in an 'easy' detection may now be too high (particularly since the introduction of DNA17). Similarly, there are increasingly unrealistic expectations that all cases will be solved using digital forensics, leading to demands on digital forensic provision that cannot be met. Such dependencies, frustrations and potential disappointments, can also create high-risk environments, when investigators are under increasing pressure for boundaries to be pushed or limitations disregarded, which can lead to miscarriages of justice. Meanwhile other valuable types of evidence are neglected even though in many instances the collection of items beyond the sampling of blood/biological material, is required so that DNA can be located (i.e. from clothes). These are seized and searched for DNA but are then also available for other analytical techniques, most obviously fibres analysis. But decisions must be taken at the outset during collaborative discussions with scientists and police around strategy because tapings to collect fibres must be taken as soon as an item is removed from its evidence bag, before body fluid sampling begins. It is not something you can go back to later for fears that traces will have been compromised, highlighting again the vital strategic decisions that must be taken by scientists.

4.82 There are significant risks both in narrowly focusing on too few evidence types and limiting investigative capabilities. Again, we find ourselves in the, all too familiar, graveyard spiral. In respect of niche disciplines, we were told by a highly experienced police scientific support manager that: "*You use it or lose it. We didn't use it, so we've lost it.*" The national shortage of experienced staff is acute in specialisms. We require junior staff to develop an interest and gain experience in an area and then eventually, given enough exposure, education and training, they may become specialists. This cannot be short-cut by simply following standard operating procedures. Yet because of the pressures outlined staff are not able to gain experience in specialist techniques and there is no-one to train or mentor them. Thus, we see the rapid loss of available expertise leading to the 'deserts' of expertise we have noted. Once these specialisms become harder to source, they become yet more costly, and require yet more patience from police, limiting their use to investigations that have already reached an impasse. In several disciplines, we were told that experts are on the critically endangered list and some niche subjects are probably extinct (in this country).

4.83 This again was predicted by the House of Lords in 2019 when they explained that commodity-based procurement had the effect of limiting the ability of private providers to offer niche services because there is a minimum demand for each specialism below which it is not sustainable. When falling below this, providers will be forced to discontinue a specialism, and to re-kindle this would take many years because of significant training and equipment requirements etc. The Lords warned that "*some specialisms are at risk of dying out because they are no longer sustainable for business purposes*."[231] Niche services are expensive to provide, are reliant upon highly experienced staff, and in most instances, impossible to automate. Far easier, and financially more sensible then, is focusing upon delivering bulk/high-throughput testing (the rapid/cheap track). This requires police to live in hope that in the future there will not be a criminal investigation that requires a niche service, critical to resolving the case. But this is unrealistic and bound to lead to disappointment.

4.84 With just one provider offering 'full service' forensic provision, they are dependent on their police customer. Staff may choose to simply fulfil requests rather than challenging police decisions or try to persuade them to wait longer and spend more money on other techniques (this will be particularly difficult if the investigator is not already aware of the technique). The decision whether, when and how to engage niche disciplines requires careful thought and considered discussion between investigators and scientists. These detailed conversations and sharing of all case details, as detailed in Chapter two, are rare. It also requires police and scientists who are fully aware of all capabilities and how to undertake a complex forensic strategy, a skill that is disappearing. Again, an understanding of the value of different forensic techniques would be of immeasurable help here, with investigators able to be informed about the utility of employing different forensic strategies. We heard from both scientists who claimed that police were making decisions with too little experience, and officers claiming they were not in receipt of helpful advice from scientists who had too little experience.

---

[230] This activity-level reporting remains highly contentious and fraught with dangers of misinterpretation and misrepresentation.
[231] House of Lords 'Blueprint', para. 64.

4.85 There are other serious considerations before offering specialist services (if not doing so on an ad hoc basis while having another, more dependable, income source). If producing evidence for use by prosecutors, these services will often require accreditation and adherence to the Forensic Science Regulator's Codes. This is resource-intensive and extremely costly. Additionally, if a provider cannot justify the cost of accreditation, then there will be further arguments for avoiding these services, as they will carry greater risk in respect of admission at trial under the provisions of the Forensic Science Regulator Act. We were told that many niche disciplines are simply not being accredited, because they are not used regularly enough to warrant the resources required to gain and maintain accreditation.

4.86 There is an urgent need to preserve specialisms before they are lost. However, this needs to be addressed carefully and with caution to avoid the cure being deadlier than the disease. If efforts are made to 'super-charge' training in 'at risk' techniques we may cut back too far on the broad-based scientific knowledge that will still be required to be a good forensic scientist. It would be an oxymoron to have a 'scientific specialist' that only had superficial scientific education or awareness of the requirements of the criminal justice system, and this would weaken the integrity of forensic science. It remains vital that incoming staff have a general scientific background upon which their specialist expertise can be built.

4.87 Specialists are desperately needed but forensic science still requires scientists with a broad knowledge of scientific capabilities to generate imaginative strategies for casework to understand how to combine techniques in the most effective and balanced ways. We are already witnessing diminishing diversity in approaches to scientific investigation. The continued loss of experience in holistic approaches and forensic strategies will lead to the further, steeper decline of specialisms, as those deciding upon investigation strategies will have insufficient understanding of when and how they could be best utilised. Without this knowledge they will not be recommending the use of the specialists that may have been fast-tracked, and we end up right back where we began.

4.88 The National Forensic Science Institute and regional Forensic Centres of Excellence will have an important role in protecting niche disciplines. Centres of Excellence can encourage scientists to specialise and maintain these disciplines nationally. Police may then be able to tap into national availability, not necessarily from private providers (avoiding the trap of "we cannot do this" being misunderstood as "this cannot be done"). There have already been examples of university departments (i.e. forensic anthropology in Dundee University), which police knew they could call upon if required. The result was that a service could be provided, when necessary (at a reasonable price), and the university could keep training in the niche subject. We would envisage a network of such specialist offerings across the centres of excellence – perhaps also involving specialist National Institutes, the DSTL, NPL and LGC, and learning from the Scottish experience described earlier.

4.89 Ultimately, forensic science must remain a miscellany of disciplines. If forensic science loses this diversity or becomes simply a technical capacity based in and directed by police forces, it loses both its strength and integrity. Reliance upon too few techniques, favoured for their 'efficiency', limits choices and diminishes the effectiveness of forensic science. This heightens the risk of stalled or inconclusive investigations and curtails our capacity to identify perpetrators or serial offending swiftly, or at all, as well as those who may be wrongly suspected or accused, greatly increasing the risk of miscarriages of justice.

FORENSIC REGULATION

4.90 High profile miscarriages of justice in the 1970s, and again in the 1980s, led to two Royal Commissions which examined the criminal justice process in detail and led to significant reforms. With forensic science implicated in these and other miscarriages of justice, forensic evidence has been looked at closely by these Commissions and a series of other inquiries. The Runciman Royal Commission considered the flaws in both forensic science and expert evidence more generally, finding that: "there were no real checks and balances in place to prevent reliance upon flawed forensic science or charlatans."[232] The Commission made 13 recommendations relating to forensic science. Of these, the

[232] Carole McCartney and Stephanie Roberts, Building Institutions to Address Miscarriages of Justice in England and Wales: "Mission Accomplished?", 80 U. Cin. L. Rev. (2013) Available at: https://scholarship.law.uc.edu/uclr/vol80/iss4/13

establishment of an oversight body was deemed a priority, to ensure scientific standards, integrity, and continuity of provision of forensic science. A report into serious contamination at a military forensic explosives laboratory by Professor Caddy in 1996 also recommended the creation of an 'Inspectorate of Forensic Sciences' and advocated the registration of individuals as forensic practitioners.[233]

4.91 The Council for the Registration of Forensic Practitioners (CRFP) was duly created in 1999, but was to prove short-lived, closing in 2009 after only partially achieving its aims and failing to become self-sustaining.[234] Forensic science failings continued to be publicised throughout the short lifespan of the CRFP, including mistakes made during the investigation into the death of Damilola Taylor, which led to an independent Home Office inquiry.[235] The House of Commons Science and Technology Select Committee 2005 report, Forensic Science on Trial, made 60 recommendations, including repeating the Runciman Commission call for a 'Forensic Science Advisory Council' to oversee and regulate the forensic science market and provide independent and impartial advice. The government decided instead to emulate other regulatory structures and appoint a named individual to act as a "Forensic Science Regulator," with the responsibility of overseeing the quality of forensic science in England and Wales.

4.92 The first Forensic Science Regulator (FSR) appointed in 2007 was tasked with establishing and monitoring quality standards, including those applying to national forensic science intelligence databases, and ensuring the accreditation of suppliers of forensic services. However, there followed many years of demands to strengthen this role and provide statutory powers. The Science and Technology Committee set out the need for statutory powers following the closure of the FSS in 2012 and the risks posed by police in-house provision:

> "*It is an issue of great concern that many police laboratories are not accredited to the same quality standards as the FSS and private sector providers… We are of the view that the transfer of work from the FSS to a non-accredited police or private laboratory would be highly undesirable, as it would pose significant and unacceptable risks to criminal justice. The role of the Forensic Science Regulator is vital, and we urge the Government to bring forward proposals to provide him with statutory powers to enforce compliance with quality standards.*"[236]

After many more reports, and with the calls growing louder each year, Parliament finally passed the Forensic Science Regulator Act 2021. The Regulator must tread a fine line. If invoking their powers to suspend the accreditation of service providers, the risk of backlogs quickly mounting could lead to growing calls for quick resolution and 'forgiveness'. Removing entirely the capacity for a service provider to continue to operate, will further diminish capacity and destabilise what remains of the market. Such issues were witnessed with toxicology scandals requiring mass re-testing, forcing emergency measures and out-sourcing of work to other countries. Backlogs in toxicology remain. There are clear pressures then to not use these powers.

Accreditation and the FSR Codes of Practice

4.93 The FSR produced a 'Code of Practice and Conduct for Forensic Science Providers and Practitioners in the Criminal Justice System' (known as 'the Codes'), which set out the required scientific quality standards for forensic science disciplines, with a timetable for achieving compliance. These Codes apply equally whether the services are delivered by small or large organisations, private companies, public laboratories, police forces or individuals. The Codes, now backed by statutory powers of enforcement, have been a significant development but are not without issues. The second iteration of the Codes are due to come into force in October 2025.

---

[233] Brian Caddy, Assessment and Implications of Centrifuge Contamination in the Trace Explosives Section of the Forensic Explosive Laboratory at Fort Halstead (1996).

[234] There were a number of positive elements of the CRFP, including the requirement for peer review instead of reliance upon a 'customer' view of an expert's performance. The CRFP was starting to have an impact in the courts, with experts being asked if they were registered, but it was closed on financial grounds.

[235] Alan Rawley and Brian Caddy, *Damilola Taylor: An Independent Review of Forensic Examination of Evidence by the Forensic Science Service* (2007).

[236] Science and Technology Committee, *The Forensic Science Service: Volume I* (Seventh Report, Session 2010–12, HC 855) p.3.

4.94 Primarily, the role of the FSR is to ensure that forensic providers are 'accredited' and adhere to the Codes. The international forensic community adopted the ISO/IEC 17025 and ISO 17020 standards, to ensure comparable quality standards within and across countries. The ISO/IEC 17025 is an international generic standard produced for laboratory testing, enabling laboratories to demonstrate that they operate competently and generate valid results. This standard is designed for traditional laboratory testing (simple commodity testing in effect) and the application of this standard to forensic laboratories has always been problematic. It does not cater for the nuances of applying science in criminal justice contexts where many of the techniques in use are not 'standard laboratory analytical' methods. This means that some forensic techniques must be 'shoehorned' into alignment with this standard, causing much consternation among the forensic science community.

4.95 Partly in recognition of these issues, the 'Codes' took the principles of the ISO17025 standard but built upon them to try and account for the realities of forensic science laboratory work and to cater for the greater degree of subjectivity in forensic evaluation. Forensic science was then split into 51 'forensic activities', (of which 36 are currently covered by the version 2 of the Codes, in effect October 2025) with standards for each.[237] These are split into the categories: incident examination; biology; drugs, toxicology and noxious materials; marks, traces and pattern; digital, and case and data management. The aim was to produce Codes that, when fully established and embedded within practice, would serve as the accreditation standard in the UK. This would still allow for international recognition because of its strong roots in the ISO17025 standard, and the alignment between the Codes and the standard.

4.96 There has also been international recognition of the limitations of ISO 17025/17020 in respect of forensic science. This has prompted the development of a new forensic science specific standard: ISO21043. This standard has been in development for the last seven years and has now started the process of being published, and potentially, adopted by those providing forensic services around the world. The ISO21043 standard comes in five parts, the first two of which have been published.[238] These parts cover: 1 - Terms and definitions (incl. vocabulary); 2 - Recognition, recording, collecting, transport and storage of items (incl. management of items); 3 – Analysis; 4 – Interpretation and 5 – Recording. This dedicated forensic science standard should represent an international consensus, offering guidance and requirements, while allowing for flexibility.

4.97 At the time of our inquiry, it is not clear if these standards will be adopted by England and Wales (or how soon), and what will be the impact on the Forensic Regulator Codes. It may well be that the limitations of the previous standards, that then gave rise to the need for the Codes, have now been addressed in the new standard, making the Codes moot? At this point, until the new standards are fully published, and adoption (or not) is clearer, we continue to focus upon the Codes and the difficulties with their implementation, which may, or not, be overcome by moving to the new standard (which at any rate will be a lengthy process).

4.98 One of the ongoing challenges with the Codes, is that they still do not fully succeed in addressing the use of CAI and result evaluation, as well as review work. These are incredibly complex areas and there was insufficient time to include these in the Codes, so these issues have been deferred. Currently the Codes do not address multiple areas of forensic activity, and importantly do not regulate interpretation, and do not apply to the case review work of defence scientists (see Chapter three). There is a Specialist Working Group focusing on writing a framework to govern interpretation and case review in the Codes, which will also need to ensure that the work of defence scientists be incorporated.

4.99 The absence of these aspects of forensic science activity in the Codes may explain, in part, a lack of understanding of the full complexity of forensic science. It reinforces the (police) view of forensic science as a commodity service. The packaging of forensic science into neat 'forensic science activities' within the Codes, perhaps necessary in order to write standards, has had the unintended consequence of consolidating the commoditisation of forensic science. To 'regulate' forensic science quality, it has been parcelled up into 'activities' that, if adhering to the standards set, will produce reliable 'outputs'. This also results in a dominant focus upon such 'outputs', rather than more holistic 'outcomes', which

---

[237] Available at: https://www.gov.uk/government/publications/forensic-science-regulator-code-of-practice
[238] Available at: https://www.iso.org/standards.html

works against any efforts to determine the effectiveness and value again, of forensic science. What is the 'value' of a DNA result? It is clearly an output, but if of no investigative use or skews an investigation – potentially leading to failures, then while the 'output' was reliable - what was the outcome? This focus on outputs needs to be curtailed if we are to properly regulate (and evaluate) forensic science.

4.100 There is also an inescapable inference from these 'Codes' that you do not need a scientific education or experience to 'do' forensic science if you can simply follow the standard(s). This gives confidence to police forces that – providing they follow these 'rules', they can carry out these activities. Such a belief encourages the retrenchment of forensic scientists from the criminal justice system and encourages the preference for the 'rapid/cheap' track of forensic activities. The 'slow/complex' track is inherently riskier as it cannot be neatly packaged and many of the activities are yet to be regulated, providing a justification for avoidance. This leaves the 'slow/complex' track of forensic science vulnerable, as providers are unable to sustain these services or charge sufficiently for the 'rapid/cheap' services, to subsidise the more expensive complex forensic examinations, interpretation and evaluation. It also gives rise to the difficulties, explained by our witnesses, of those cases where the rapid/cheap and slow/complex evidence interacts and must be interpreted together, but the scientist is not involved in all testing and may not know of the other results or context (as detailed in Chapter two).

Accreditation compliance and enforcement

4.101 Accreditation is gained via an inspection regime conducted by the UK Accreditation Service (UKAS). They are the only body in the UK authorised to award accreditation, although their inspection and accreditation process has sometimes proved incapable of exposing deficient practices in laboratories involved (Randox, LGC Forensics and Cellmark all experienced serious laboratory quality failures even while fully accredited by UKAS). UKAS is a not-for-profit organisation that accredits organisations on a four-year cycle once initial accreditation is gained. Initial accreditation is a lengthy process that can take weeks, even months, of assessments, depending on the scope of accreditation. The first of the four years they review the whole Quality Management System (QMS) of an organisation and send technical experts to check each discipline in a laboratory. Then every following three years they 'dip check' various aspects of the QMS to ensure it remains compliant (typically a shorter process but still around three days for even a modestly sized organisation). This is an expensive and time-consuming process.

4.102 The performance of UKAS and the benefits of their inspections and reports were regularly raised as being of highly variable quality. The accreditation process was referred to as: "*over-engineered*" and "*disproportionate*", "*overly arduous*", "*serving to stifle disciplines*", and destabilising the market because of cost and resourcing. There was universal condemnation for the "*extortionate*" fees levied for inspection, reporting and accreditation. These charges were blamed for the departure of many independent experts and small companies from the forensic sector.

4.103 These fees also apply to police provision, with significant sums being spent by the police on UKAS charges. Any money 'saved' on in-house forensics must be balanced against the very significant costs of accreditation (and the costs of the Forensic Capability Network who were tasked with ensuring police got accreditation). Some police were delaying gaining accreditation to defer these costs or are losing their accreditation when failing to keep up to UKAS standards. Merseyside police, for example, invested in a new laboratory but have been unable to maintain accreditation, demonstrating the risk of police spending money on what can be very expensive white elephants. This then also presents a significant risk to quality and ultimately, justice processes and outcomes.

4.104 The requirements of accreditation were roundly considered to be overly burdensome and financially out of reach for many suppliers, exacerbating the problem of declining capacity, particularly of specialisms. This also creates a big disincentive to any new entrants to the forensic sector. Private providers struggle to pass the cost of accreditation onto police, so creating a tension between offering low-cost services and regulatory demands. The balance between the cost of compliance and charging rates for casework has been lost, impacting on service delivery, staff satisfaction, and profitability. This was warned against by the Minister for Crime, Policing and Fire in 2023, when stating that:

> "*...the Code should be policed reasonably and proportionately, and not in a way that introduces excessive or unreasonable burdens on policing or the forensic science community.*

*We want high quality and the maintenance of standards, but not to the extent that creates unreas*onable bureaucracy or cost."[239]

4.105 We found widespread apprehension about compliance with the statutory Codes, especially in fields such as digital forensics, which faces even greater challenges when seeking to align with ISO17025 standards. Rapidly evolving technology poses unique challenges including difficulties in maintaining up-to-date validated tools. Witnesses indicated that compliance with Codes, in digital forensics in particular, can be resource-intensive and require substantial investment which is not feasible for all digital experts. Accreditation demands have led to a reduction in provision in some areas. In toxicology provision, for example, and also services provided by smaller specialist or defence services, we were told about a reduction in the availability of 'accredited' independent forensic expertise.

4.106 We were also provided with examples where the risk of losing accreditation or falling foul of the Regulator Codes meant that crime scene investigators were not seizing traces or tests were not being undertaken. The mandatory requirements for accreditation were seen as reducing the quality of investigations in some areas, especially in digital forensics, where cases are simplified to fit standardised processes, potentially leading to missed evidence, poor work quality, and deskilling of personnel. ISO standards were also not considered to be reactive enough to validate new methods or new disciplines so practitioners spoke of their time being wasted on validating methods that were no longer considered best practice, thus embedding outdated practices.

4.107 There are clear tensions here. While we heard calls for more flexibility and dynamic regulations, and examples were provided where regulations slowed processes and introduced risks and delays, the need to ensure quality remains very clear. We were told that experts should not be able to practice without accreditation and therefore we need a system of quality assurance. The current system, however, is ill-suited for giving assurances about individuals and niche areas, as it currently remains tailored towards big organisations/large disciplines and commoditised 'tests'. It does not work for smaller fields, or those where experience and subjective interpretation are key. Many respondents spoke of a need for more frequent, widespread and challenging competency and proficiency testing of scientists and providers. This would need to be nationally administered by a central body, thus improving transparency, and including 'spot checks' with undeclared testing and dip sampling. This should include the work of scientists in large laboratories, as well as independent experts.

4.108 Compliance with the Codes has been improving (from a low base) in recent years. Efforts should continue to ensure there is maximum compliance across the sector, particularly in low-compliance areas and within policing organisations. The FSR will need significant ongoing funding to keep pace with monitoring of compliance, and enforcing adherence to the Codes, as well as ensuring they are maintained and kept up to date (or consideration is given to move to ISO21043). There should also be checks that regulation is driving standards up across the sector without adverse consequences. With the creation of the new role of Forensic Science Director and the Home Office proposals for the establishment of the National Centre for Policing, it will be challenging to keep the resourcing of the Forensic Regulator role at a level that will facilitate effective regulation. However, these changes and the ongoing upheavals in the market, make regulation more vital than ever if we are to prevent the miscarriages of justice of the past.

The role of the regulator

4.109 It remains to be seen whether placing the Regulator on a statutory footing has further limited the opportunities for forensic evidence to play a role in miscarriages of justice. However, unless the FSR has a wide remit, that works in conjunction with processes and laws that prevent flawed scientific evidence being relied upon by the police and prosecutors, then regulation will fail to have a critical impact upon miscarriages of justice. Other factors are presently working against the aim of ensuring only reliable forensic evidence is generated and used in the criminal justice system. The FSR has no powers to regulate the market, and enforcement of quality standards may prove increasingly futile with

[239] Chris Philp, House of Commons, 20th February 2023.

our dependence upon one large provider and local police provision. The House of Lords argued for role for the Regulator to expand:

> "*We recommend that the Forensic Science Regulator's remit and resources be reformed and expanded to include responsibility for regulating the market. The expanded role of the FSR should review the structure of the market for forensic science in England and Wales and, in particular, the procurement process for commissioning private sector providers alongside provision by police forces. The objective should be to determine a procurement model which balances price, quality and market sustainability; ensures a level playing field between private and public sector providers; avoids undue shocks to the market, such as the clustering of contracts in any one year; and which maintains the capabilities of small providers in niche disciplines.*"[240]

4.110 We support their recommendation. The current near-monopoly provision places police at risk of price increases, service interruptions, or the cessation of some services, should the primary provider decide to cease delivering non-profitable services. At present there is no regulator in place with the power (and knowledge and skills) to ensure both sustainability and quality of service delivery and the protection of customers from price and service fluctuations, or delivery failures.

[240] House of Lords 'Blueprint,' paras 72-73.

4.111 In finding a route to a strong and stable forensic science sector, the first step must be a renewed commitment to the scientific foundations of forensic science and the pre- eminent role of scientists. Forensic science can only be as good as the underpinning science. We must innovate in research and development so that the sector can confidently be relied upon for our criminal justice system, and once again become world leading. Research and development should also support basic research to fortify the underpinning science of forensic disciplines, with a strategy to prevent the further loss of specialisms.

Recommendation 26 - A national forensic science strategy, led by the NFSI and co- created with representation from all stakeholders, should drive reforms that will secure the survival and development of forensic science, conducted by independent scientists. Research should be undertaken to fortify the scientific underpinnings of forensic science, as well as operationally focussed research, horizon scanning and the development of methods and tools.

4.112 Forensic science should be recognised as part of our critical national infrastructure with a key role to play in the pursuit of the government's missions. The sector urgently requires robust support that reinforces the fundamental principle that forensic science is the employment of scientific knowledge and skills for the benefit of society. This entails a re-configuration of which activities can be directed and delivered by police, while reserving all other roles for independent scientists. Efforts to further embed science and technology in policing are welcome, but these objectives must supplement efforts to reinforce forensic science, not supplant them. Any re-structuring of policing and police governance must facilitate the stability, and development of forensic science, so that forensic science can adapt in harmony with the maturation of this 'science led' policing. But forensic science must absolutely sustain and steer its discipline outwith the direct control of policing. The National Forensic Science Institute (NFSI) should supervise the production of a national strategy to secure national capacity and capabilities, in collaboration with stakeholders, but not embedded within police structures.

Recommendation 27 - The NFSI should oversee a national research strategy for forensic science include setting and renewing Areas of Research Interest (ARIs), agreed in collaboration with the National Centre for Policing (NCoP), the AFSP, and other stakeholders. This strategy should work in harmony with police ambitions to expand police science and technology capacity, not be subordinate to it.

4.113 The NFSI and UKRI should support a network of regional Forensic Centres of Excellence (F-ACEs), to create a vibrant forensic science ecosystem. Greater collaboration and partnerships with academia could reinforce both sectors, but there will need to be national cooperation and direction. The NFSI should conduct a full audit of forensic capacity and capabilities, building upon reviews conducted by the NPCC and FCN, including expertise and equipment available nationally, to take the first steps in protecting niche areas. The aim should be to consolidate the forensic sector and facilitate the 'whole system' approach with shared knowledge and inter- disciplinary expertise. National capacity could then be created or extended, to use forensic science more effectively for 'intelligence' (preventing and disrupting crime) as well as for evidence presented in the courtroom.

Recommendation 28 - The NFSI should support a network of Forensic Academic Centres of Excellence (F-ACEs) which bring together forensic academics, researchers, industry and police. This network should facilitate a 'whole system' approach to forensic science, where a shared understanding of capacity and capabilities stimulates innovation and improvement, whilst motivating the next generation of scientists and retaining and embedding the expertise that remains.

4.114 There must be strong support for the recruitment and retention of scientists, husbanding experience where it remains and ensuring the education and training of the next generation of forensic scientists is appropriate to both existing and new techniques and methodologies. Advances in forensic science and technology will be futile if there are no experts to utilise them and improve upon them. Our forensic scientists of today and tomorrow need encouragement and support to remain in the sector. Forensic scientists must be enabled to conduct research and develop their skills as well as their discipline. This must include holistic investigative strategies and interpretive skills, returning professional judgement to the centre of their professional role.

Recommendation 29 - The NFSI should assess staffing requirements and training needs for the future, with education and training designed with a view to growing a cadre of specialists while maintaining a body of more generalised forensic scientists who can work across multiple disciplines, thereby providing holistic approaches to complex investigations. A national strategy to preserve and reinvigorate specialisms within the NFSI and regional Forensic Academic Centres of Excellence, should include plans for the retention of highly skilled staff across a range of specialisms.

4.115 National capacity, and capabilities are rapidly diminishing and the benefits of diversity in forensic science are being squandered. Resourcing should be undertaken intelligently, taking evidence-based decisions and understanding where investment is most urgently needed to conserve diversity. This requires a clear assessment and articulation of the value of all forensic science disciplines. Saving and maintaining the full range of forensic disciplines and technologies should be prioritised. The unique and often vital links between all forensic techniques in investigating complex crimes demands that capabilities and techniques are maintained or difficult (often high profile) cases will remain unsolved, and opportunities to prevent and overturn miscarriages of justice will be lost.

Recommendation 30 - There must be an urgent survey of capacity and capabilities, including niche services, across England and Wales, and immediate plans initiated to retain what expertise remains. The NFSI strategy must ensure that through research and additional support, scientists remain at the forefront of developments. Disciplines and forensic techniques must be supported so they do not become outdated and reliant upon superseded methods.

Recommendation 31 - The Research Excellence Framework (REF) must establish a Unit of Assessment for forensic science meaning that further funding could be secured from government QR funding.

Recommendation 32 – The NFSI should work with NCoP to map unmet police needs and understand the reasons for the diminishing use of niche techniques. The essential maintenance and strengthening of national capacity and capabilities must be factored into an overall delivery model.

4.116 The vital role of forensic science must be evaluated considering the challenges facing modern policing. An accurate appraisal of the value of forensic science should provoke both more government funding and encouragement to providers to invest in equipment, facilities, and most importantly, staff. The Home Office 'IMPACT' project needs to be re-started to establish an evidence base for 'best practice' and assert the value of forensic science. This will require the proper collection of data, to assist with transparency and accountability (and tracking of the impact of the new strategy). This should include the vital role that forensic science can play beyond the criminal justice system.

Recommendation 33 - Efforts to properly evaluate forensic science should be renewed with research establishing the true costs and benefits of forensic science prioritised.

4.117 Forensic regulation needs to find a balance that allows for strict compliance as well as flexibility, especially for smaller providers and niche areas, without imposing prohibitive costs that reduces expert availability and stymies progress. There needs to be more assistance for those trying to achieve and maintain accreditation, ensuring that regulation supports high quality science, while sustaining the health and diversity of the whole forensic science eco-system. Forensic regulation should not be encouraging departures from the sector or limiting innovation, and consideration should continue to be given to the new ISO 21043 standard. A review should be carried out to determine if there is a more (cost) effective model for forensic quality assurance that avoids adverse outcomes. This review should cover the validity of the methodology for accrediting forensic science activities and the costs incurred by providers for UKAS accreditation.

Recommendation 34 - The impact of the forensic regulatory regime should be independently assessed with the Codes of Practice evaluated for their appropriateness for different practice areas and providers. There must be regulatory measures ensure that specialisms can be preserved while maintaining high quality science and compliance across all providers. Consideration should be given to the future adoption of the ISO 21043 standard and an assessment made of the UKAS accreditation process, to seek more cost-effective methods.

Conclusion: Pulling out of the graveyard spiral?

Conclusion: Pulling out of the graveyard spiral?

5.1

Our scientists were once at the vanguard of forensic science, leading the world in developing the science and its application. They achieved this while working through almost unremitting change, with a series of different delivery models: a public service run by the Home Office; a part public/ part private market; a wholly private market, and currently, a largely monopolistic private/part police run model. There has also been almost unrelenting critical scrutiny and continual upgrades to regulatory requirements.

Many lessons have been learnt during all this change, and through our inquiry, that bear repeating.

5.2. Demand will outstrip supply, however much is invested in capacity, particularly if free at the point of use. To avoid backlogs, inefficiencies and staff over-work, demand must be managed. This is most obviously achieved by making the customer selective, normally through charging so that the budget-conscious customer will prioritise what forensic science is required. Forensic services can then be sold via a market. This has the added benefit of increasing diversity of provision, stimulating innovation and incentivising performance improvements and cost-effectiveness.

5.3. Forensic science provision will always be a specialised market, however, led by scientists who understand forensic science, but also have some business acumen. Too often decisions have been taken by people who neither understand forensic science nor business. While there are financial and contractual benefits to packaging 'tests' as commodities that can be bought and sold, there are real dangers in reducing forensic science to such tests. While companies may underwrite more expensive work with production-line testing, this commoditisation, coupled with unrealistic pricing and a primary customer cutting demand while wanting 'faster, cheaper, better' service, has encouraged a race to the bottom and ensured an unsustainable market.

5.4. This dysfunctional market has led to both capacity and capability gaps, a critical loss of expertise, and diminished investment, particularly in research and development. And so to the graveyard spiral: poor performance and supply issues with an inability to demonstrate value, coupled with an impecunious customer, reduces demand, leading to lack of profitability and sustainability. Businesses are forced to cut costs, including investment in staff and innovation, impacting the quality of the offering and thus customers are dissatisfied, and skepticism over value grows, reducing demand further, accelerating the decline. The impact point is in sight: forensic science becomes no longer (cost) effective and fails to assist with investigations and prosecutions. A lack of scientific bona fides and independence from policing, with piecemeal regulation fails to ensure quality. The checks and balances necessary in our adversarial system, including access to good quality defence scientists, are so diminished that they cannot prevent miscarriages of justice. The wrongly convicted will not receive justice, and 'cold cases' will remain unresolved. The risks become intolerable, and a widespread loss of public trust and confidence is justified.

5.5. In this scenario, providers must calculate whether it makes business sense to remain, risking both reputational and financial ruin. The sector must have confidence that there is a future in the market, and they can achieve some return on their investment, including the significant expenditure required to attract and retain staff, maintain facilities, and undertake research and development. While police resort to in-house provision provides some insurance against the precarity of the market, this is simultaneously actively destabilising the market and threatens the independence and quality of forensic science, which must remain firmly embedded in scientific culture and method to retain its integrity.

5.6. Further piecemeal modifications will be unlikely to resolve the crisis. The current emphasis, however, seems to remain focussed on expenditure, and reconfiguring and re-branding previous initiatives. For the survival of forensic science, both government and private sector reluctance to invest money and seek radical

solutions, will need to be swiftly reversed. With good reason, there is no appetite among private investors to (re)enter the market, or for existing investors to increase their exposure to risk. We will very soon reach a point where despite any attempt to reinvigorate the sector: the plane will inevitably impact at ground level.

5.7. We believe that the only way to avert disaster is to stabilise and re-invigorate the market, securing a long-term future for the sector with the forensic process extending seamlessly from crime scene to courtroom. Proper funding would attract new entrants to the market, and enable existing FSPs to: invest in staff and facilities; respond effectively to investigative needs; react to demand while maintaining a broad range of services including specialist provision, while maintaining the health of the discipline and ensuring collaborative research and development that has operational value but also advances the discipline. The valuable work of forensic scientists should then be demonstrated throughout the criminal process and beyond. This includes advice at crime scenes, strategy setting and logical triaging, followed by expert interpretation of results in specific case contexts.

5.8. The building blocks of a healthy forensic science sector need reconfiguration and supporting, with the addition of a National Forensic Science Institute. Existing facilities both within and outside the police can improve the interface between police and FSPs to provide regional hubs for rapid response for urgent investigative requirements. These hubs will develop and share best practice and avoid the postcode lottery of provision. A National Forensic Science Institute will be the home for forensic science. It will collaborate nationally across all stakeholder groups to co- create a national forensic science strategy, coordinating training and professional development across the industry, supporting specialist provision and national research and development while promoting understanding amongst end users and a proper valuation of forensic science in society. This national home will be the heart of a network of regional Forensic Academic Centres of Excellence. The NFSI will also ensure support for defence review so that experts can ensure equality of arms, and niche services so they remain available when needed.

5.9. During our work we were constantly reminded of past inquiries which stressed urgency, but whose recommendations were nevertheless largely ignored. These include the most recent House of Lords inquiry in 2019. If we continue to ignore our instruments and the alarms sounding, we should expect an overwhelmed and ineffectual criminal justice system producing more miscarriages of justice. If accepting the truth of the recent statement by Chi Onwurah MP: "We cannot have a society with no crime, the price would be too high. But we can aspire to have a society without injustice" then forensic science should be recognised as part of our critical national infrastructure. Forensic science remains one of the greatest protections we have against injustice and if we are serious about aspirations to a just society, the forensic science sector must be pulled out of its current graveyard spiral.

Appendix Evidence received

We are grateful to have received evidence in writing from many individuals and organisations and to the 111 respondents to our online survey. In addition, we held a series of oral evidence sessions as follows.

6/9/23

Mark Pearse – Director of Eurofins Forensic Services, Co-chair of the AFSP
Chris Porter – Director of Forensic Services in the Metropolitan Police
Alan Tribe – Director of Forensic Operations at the Metropolitan Police
Lorna Dawson – Head of Forensic Science at the James Hutton Institute

03/10/2023

Dr Rebecca Helm – Associate Professor of Law; Director of the University of Exeter Evidence-Based Justice Lab

03/10/2023

Louise Shorter – Investigative Journalist for Inside Justice

9/10/23

Karl Harrison – Chief Scientist NCA
Ruth Morgan – Professor at UCL, advised HoL Inquiry
Tana Adkins – Chair of the Criminal Bar Association

9/10/23

Niamh Nic Daeid – Professor at University of Dundee; Director of the Leverhulme Research Centre for Forensic Science
David Hartshorne – Managing Director for Cellmark Forensic Services (now retired and this would fall to Mark Pierce above)

26/10/23

Nick Dean – Chief Constable at Cambridgeshire Constabulary, NPCC Forensic Lead for Forensic Capability Network
Vickie Burgin – Director of Science at NPCC FCN
Deborah Pendry – Director of Quality at FCN

13/2/24

David James Smith – Investigative Journalist and former commissioner CCRC
Raj Chada – Solicitor and Head of Criminal Defence at Hodge Jones and Allen
Dennis Eady – Cardiff Law School and founder South Wales Liberty
David Schudel – Forensic Expert, Keith Borer
Mark Mastaglio – Forensic Firearms specialist

12/3/2024

Gary Pugh – Forensic Science Regulator for England and Wales
Sara Short – Forensic biologist specialising in DNA and body fluid
Helen Pitcher – Chairman of the Criminal Case Review Commission
Johanna Higgins – Northern Ireland Commissioner for the CCRC
James Leeson – CCRC Senior Case Review Manager

10/12/24

Ministry of Justice
Julia Anderson

13/2/25

Representatives from the Homicide Working Group including:
James Bateman – Homicide Working Group
Gareth Davies – South Wales Police
Anya Hunt – Head North Wales Police Forensics
Cheryl Hughes - Greater Manchester Police DCI – Reviews
Gary Tomlinson – College of Policing
Mark Sinski – DCI East Midlands Homicide Detective
Richard Millar – DSI Police Service Northern Ireland Homicide Investigator
Ian Simmons – Beds, Herts and Cambs Lead
Samuel Blackburn

And had meetings with the Home Office Reform Board on **28/10/24** and **27/3/25**.

We were hosted on site visits as follows:

1/7/24

Eurofins Forensic Services and the Yorkshire and Humberside Police
Wakefield

16/7/24

Netherlands Forensic Institute (NFI)
The Hague

2/9/24

Key Forensic Services
Coventry

26/9/24

Metropolitan Police Service
Lambeth

14/10/24

Eurofins Forensic Services
Tamworth

10/1/25

Scottish Police Authority Forensic Services
Gartcosh Declarations

Declarations

Angela Gallop retains a minimal residual interest in Forensic Access - a small forensic science provider