



Forensics Review

Review of the provision of forensic science to the criminal justice system in England and Wales

July 2018



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Executive summary

Public confidence in the criminal justice system is vital. Maintaining the quality and sustainability of forensic science provision is important to the detection, investigation and prosecution of criminal offences and the fair administration of justice.

The Minister for Policing & the Fire Service asked the chair of the NPCC, chair of the APCC and the Home Office to take forward a collaborative review of the provision of forensic services to address the concerns of policing, the regulator and criminal justice system (CJS) partners arising from recent events.

The Review has involved desk research, Force visits and interviews and discussions with over 80 stakeholders. While many of those interviewed were from the policing or commercial sector, the Review also sought views from the wider CJS, including defence solicitors, judiciary and academia.

The review considered provision as a whole, with particular attention paid to the operation of the market and the management of risk. It did not examine the end-to-end investigative process or court procedures in detail, but it is recognised that these issues have an impact on overall confidence.

Review findings

Many stakeholders pointed to the benefits of the model of provision in England and Wales, which includes a mix of 'in-house' Police Force and commercial provision. Commercial provision is credited with bringing about faster turnaround times and reduced costs. However, recent developments, including the entry into administration of a major commercial provider, together with quality concerns expressed in recent Forensic Science Regulator's annual reports, have raised questions about whether the current model can sustainably deliver high quality forensic services.

Risk can never be eliminated, and it should be noted that no model of provision could be immune from the need to manage within financial constraints. However, the existing model of provision in England and Wales needs to be strengthened by addressing regulatory, governance and capability issues.

Concerns relating to the issues at Radox Testing Services, the administration of Key Forensic Services and policing's perceived failure to prioritise accreditation of its own services were the rationale for a view amongst CJS stakeholders that the dispute of forensic evidence in court could become commonplace without change. Stakeholders also expressed their frustration regarding the lack of progress with regards to legislation to give the Forensic Science Regulator statutory powers of enforcement, which was first promised in 2013 and recommended in Sir Brian Leveson's 2015 review of the CJS.

Commercial providers of long-established 'traditional' (non-digital) forensic services, which have invested in accreditation and have a strong quality ethos, are also very concerned

about the lack of enforcement of quality standards and a 'level playing field'. In addition to rapid and significant downward-pressure on cost, they believe that the use of unaccredited laboratories has contributed to the destabilisation of the market.

Review conclusions

Confidence in the model of provision in England and Wales is contingent on Police Forces having the means and the capacity to accredit their in-house services; act in a co-ordinated way to engender a strong and stable market; and share capabilities to engender quality, efficiency and robust long-term plans. Strengthening regulation of quality with statutory powers is critical, but accreditation is not a panacea.

Private investment is contingent on a clear signal of Government's commitment to stronger regulation; a comprehensive forecast of long-term demand; and for procurement policy to place greater emphasis on quality, 'value-add' and sustainability.

Many of the actions recommended by this Review were included as commitments in the 2016 Forensic Science Strategy and have since grown in urgency. The Transforming Forensics Programme remains the logical vehicle for change, but delivery needs to accelerate.

Government also needs to help to shift attitudes towards forensic science so that it, and especially quality, is regarded as an enabler of just outcomes and efficiency. The role of digital forensics in complementing long-established techniques also needs to be addressed with CJS partners to address broader strategic issues.

This document is accompanied by a detailed implementation plan.

Background

Forensic science, in the context of policing and the broader CJS, is the application of science to a criminal investigation and court proceedings. Forensic science's span of influence is wide and plays a significant role from the initial report of a crime and scene investigation, through to the analysis and interpretation of the evidence collected and its role in guiding a criminal investigation, to its eventual presentation in a court of law. The term 'forensic science' covers a broad range of disciplines and, for the purposes of this report, includes:

- Crime Scene Investigation
- DNA (including DNA recovery, body fluid examination and interpretation and DNA profiling services)
- Drugs
- Toxicology
- Firearms and ballistics
- Fire Investigation
- Footwear comparison
- Fingerprint comparison
- Tool marks
- Trace evidence (for example, glass, hair, paint, gunshot residue, fibres)
- Questioned documents (for example, handwriting analysis, or examination of documents to assess if counterfeit)
- Digital forensics (for example, recovery, analysis and interpretation of data from mobile devices, CCTV and satellite data).
- Forensic Medical Examinations

Forensic science also encompasses forensic medicine and forensic pathology, a service provided to coroners and policing by Home Office-registered forensic pathologists. The Defence Science and Technology Laboratory (DSTL), an executive agency of the Ministry of Defence, also provides specialist forensic science services such as explosives forensics and advice on chemical, biological and radiological materials. These specialist services were not in scope of the review.

Through a range of analytical techniques and disciplines, forensic science plays a significant role in the CJS, adding value to the investigation of crime in a variety of ways:

- Establishing whether or not a crime has been committed
- Identification of persons of interest (includes linking suspects to crime scenes)
- Elimination of persons of interest
- Validating the account of witnesses or victims
- Providing information that will link crimes or incidents
- Establishing the sequence of events
- Establishing cause of death
- Establishing whether a firearm or drug is illegal.

Crime scene investigators (CSIs) undertake examination and interpretation of crime scenes¹ to identify relevant forensic evidence to recover, which can prove or disprove if a crime has occurred. CSIs will search for DNA-rich material, fingerprints, footprints, and any other evidence (including on digital media), which will be submitted to a laboratory for examination and analysis, in accordance with a case-specific forensic strategy. Submissions include exhibits recovered by police investigators, for example, from suspects. Various examinations and tests may be carried out, and the results analysed and interpreted. The investigating officer will use the forensic evidence, together with other evidence (such as witness statements) to decide whether to charge the suspect. Once a case is passed to the Crown Prosecution Service (CPS), the CPS will assess whether there is enough evidence to provide a "realistic prospect of conviction". Further forensic evidence may be requested by prosecution or defence pre-trial to build a case to present before the court. A forensic scientist may be called to present evidence in person or in written statements under the Criminal Procedure Rules.

To provide some sense of scale, in 2015/16, there were a total of 480,819 crime scene examinations and 415,300 fingerprints taken from scenes across the 43 police forces in England and Wales². However, data on the use of forensic science in cases that come to court is not collected. It is therefore unknown how many of the roughly 35,000 crown court trials or the 137,000 trials listed for the magistrates' courts³ in England and Wales in 2017 involved or ultimately relied upon forensic evidence.

¹ Crime scene can refer to a location, premises, person or vehicle

² Source: Transforming Forensics Programme

³ Trials listed in crown court and magistrates' court in England and Wales, 2017 MoJ, [Criminal Court statistics bulletin: Jan to March 2018](#) (tabs M2 and C2)

The evidence base on the use and impact of forensic science is not extensive, but it does indicate that it has an important role to play in a number of areas, including the detection of 'hard to solve' cases, and in the apprehension of prolific offenders. While assessing the impact of forensic evidence is challenging, some measures to indicate its value to criminal justice outcomes would be strongly preferable to reliance on anecdotal feedback.

A mixed and varied delivery model

Forensic science services are provided through a mixture of commercial providers and some in-house provision by the 43 police forces in England and Wales.

There is currently a variety of forensic delivery models. For example, scale of demand varies between forces, the availability of in-house services varies and Chief Constables have discretion regarding expenditure control. Most of the models use a mixture of internal and commercial forensic science provision, with a range of different contracting approaches, as follows:

West and South Coast Consortium: comprises 19 forces, with a centralised commercial team who oversee procurement and contracting arrangements. Procurement is by lot, and the team pursue a multi-supplier approach to provide a spread of work among suppliers.

East Midlands region: is a collaboration of five forces. They are contracted with a single supplier in a strategic partnering arrangement, which includes co-location of some services. The intended effect of this approach is a focus on outcomes rather than transactions.

Yorkshire and North East region: is a collaboration of seven forces who have also contracted with a single supplier, with co-location. The region also has an in-house digital forensics function.

The Metropolitan Police: has its own laboratory and team of casework scientists to set forensic strategy, undertake examinations both in the laboratory and at crime scenes and provide interpretation of results. They have a partnering arrangement with a single supplier to outsource some testing and a managed service contract for digital forensics to in-house teams.

West Midlands Region: have commissioned traditional forensic services as a region since 2008. A mix of in house services exists including DNA recovery capabilities in all forces for preservation of DNA, and biology scene investigation and reporting capability in West Midlands. Digital forensics is undertaken by in-house digital forensic units, with an ability to utilise other forces' contracts.

Eastern Region: comprises seven forces and the contract is product-based but with some flexibility to negotiate service delivery levels where necessary. Procurement is by 'lot' with multiple suppliers for most lots to allow flexibility and resilience. The vast majority of digital

services are provided through in-house digital forensic units, with commercial providers used for peaks in demand.

City of London Police: operates under a partially privately funded budgetary model and uses two frameworks to outsource forensic service provision. The forensic framework for services such as DNA and toxicology focuses on quality, communication with scientists and the option to make examinations bespoke. The digital framework is lot based and uses a number of providers to support the in-house digital function.

The National Crime agency has its own contractual arrangements for forensic science services with a number of commercial providers, as well as in-house specialist digital capabilities.

Most of these arrangements involve regional collaborations between forces, as illustrated in figure [1].

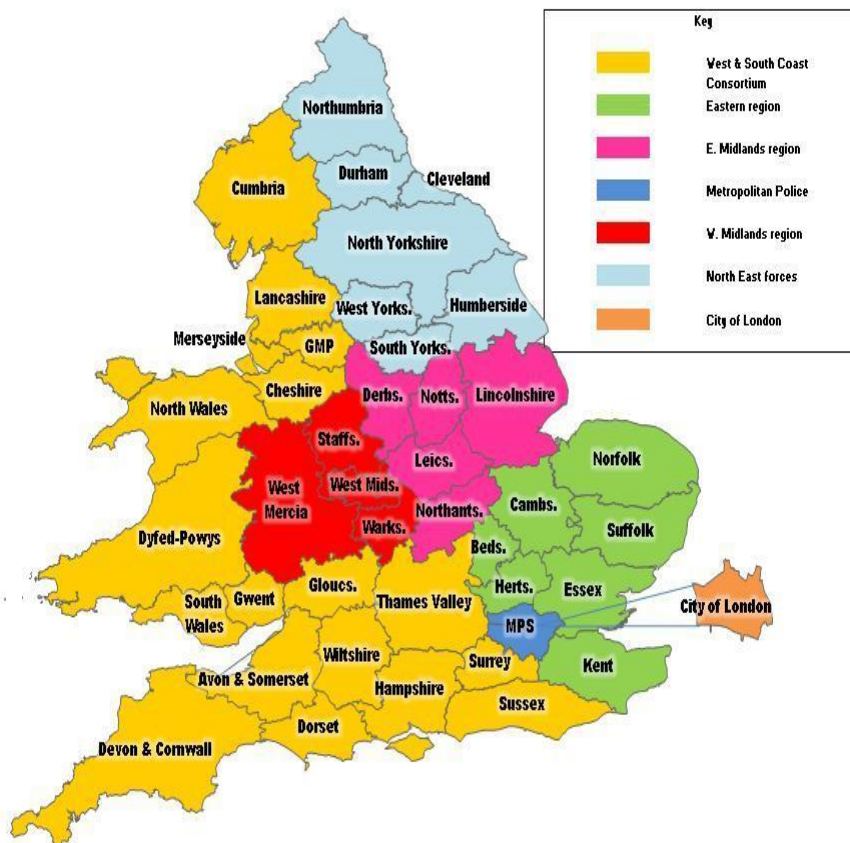


Fig [1] - landscape of contractual arrangements for forensic science services

Historically, Forces have had in-house capabilities for crime scene examination and fingerprints. More recently, in-house digital forensic capabilities have grown out from forces' digital investigative teams. An overview of how forensic services capability is delivered across policing is captured in table [1] below. Data on the volumes of

submissions carried out in-house versus those carried out by commercial providers is not captured centrally.

Forensic Provision	Within Policing ('in-house')	Outsourced to external providers	Explanation (where provision is split between in-house and external providers)
Crime Scene Examination	X		Predominantly provided in-house by Crime Scene Investigators (CSI). Specialist or niche crime scene examination services outside the skill set of CSI undertaken by commercial service providers with some in house capability (MPS) – see below.
Specialist / Niche Crime Scene Examination	X	X	Specialist scene interpretation capabilities such as blood spatter analysis undertaken by commercial providers with the exception of the MPS and West Midlands. Niche forensic services such as anthropology, entomology etc, undertaken by commercial providers and academia.
Fingerprint comparison	X		
Fingerprint development/enhancement (laboratory)	X		Predominantly within policing but some commercial providers have this capability.
DNA recovery / Body fluid examination and interpretation	X	X	DNA recovery and some 'screening' activity undertaken in house. The majority of biology casework (i.e. examinations for the presence, identification and interpretation of body fluids) is completed by commercial providers with the exception of the MPS.

Forensic Provision	Within Policing ('in-house')	Outsourced to external providers	Explanation (where provision is split between in-house and external providers)
DNA analysis (profiling, analysis and interpretation)		X	
Footwear comparison	X	X	
Trace Evidence		X	
Drugs Analysis	X	X	Evidential Drug Identification Testing (EDIT) undertaken in custody for some substances / offences. Some 'simple' drugs analysis completed in house. All complex drugs analysis undertaken by commercial providers.
Toxicology	X	X	In-house function is limited to evidential breath testing instruments for use in RTA offences.
Firearms and Ballistics	X	X	Classification of firearms completed in-house by Force armourers/MPS Forensic Firearms Unit or the National Ballistic Intelligence Service (NABIS) and commercial providers. Intelligence gathering undertaken by NABIS and MPS Forensic Firearms Unit. Interpretation of shooting incidents (scenes) including post mortems completed by FSP with the exception of the MPS.
Tool mark comparison		X	
Question documents	X	X	Some visualisation capability (Electrostatic Detection Apparatus - ESDA) in house.

Forensic Provision	Within Policing ('in-house')	Outsourced to external providers	Explanation (where provision is split between in-house and external providers)
Fire Investigation	X	X	Some capability in-house and in partnership with Fire and Rescue Services. Complex scene interpretation undertaken by Fire and Rescue Services and commercial providers.
Forensic Pathology		X	Provided by Home Office registered forensic pathologists
Digital	x	x	Many forces have High Tech Crime or Digital Forensic Units. Commercial providers are often used where demand exceeds in-house capacity or specialist skills are required)
Forensic Medical Services	X	X	Custody nurse function completed in-house or through commercial arrangements. Forensic Medical Examiners (FME) commissioned through commercial arrangements.

Table [1] - how forensic service capabilities are delivered

Review

Rationale and methodology

The 2016 Forensic Science Strategy set out the case for a national approach to forensic science delivery in the CJS. As a result, the Transforming Forensics Programme (TFP) was set up to deliver that vision. TFP is a police-led programme which seeks to deliver high quality, specialist forensic capabilities in support of the 2025 policing vision, which is sustainable to meet future threats and demand.

On 26 January 2018 a significant provider of forensic services to the police, Key Forensic Services Limited, entered into administration, a situation which illustrated market risks. This came amidst the ongoing police investigation into the alleged manipulation of results at Radox Testing Services.

In this context, and noting the criticisms in the Forensic Science Regulator's recent annual report, the Minister for Policing & the Fire Service asked the chair of the NPCC, chair of the APCC and the Director General of the Crime, Policing and Fire Group (Home Office) to take forward a collaborative review of the functioning of the forensics market to address the concerns of policing, the regulator and criminal justice system partners.

The Review aimed to make recommendations to Ministers on steps required to maintain confidence in the effective future provision of high-quality forensic science to the criminal justice system. The terms of reference are provided in Annex A.

The Review was conducted collaboratively between the NPCC, the APCC and the Home Office. Evidence to inform the Review was obtained from the following sources:

- interviews and discussions with 85 key stakeholders from across the CJS, including the FSR, and with large and small commercial providers (listed at Annex B);
- visits to four police forces to represent a range of approaches;
- the review of a number of documentary reports and material.

It was not possible to carry out extensive quantitative analysis due to the lack of suitable data. Such data limitations have previously been noted by the National Audit Office⁴ among others and inform one of the recommendations.

The Forensic Policy Steering Group acted as a steering group for the Review. The Science and Justice System Forum acted as a challenge panel, bringing expert views from the judiciary and academia. Commercial challenge was sought from the Cabinet Office Complex Transactions Team. Additional contributions were sought from Sir Brian Leveson, President of the Queen's Bench Division and Head of Criminal Justice.

⁴ National Audit Office, Jan 2015, [The Home Office's Oversight of Forensic Services](#)

Findings

Accountabilities

The diagram below [figure 4] describes at a high-level the role of organisations in ensuring the sustainable provision of high quality forensic science into the CJS.

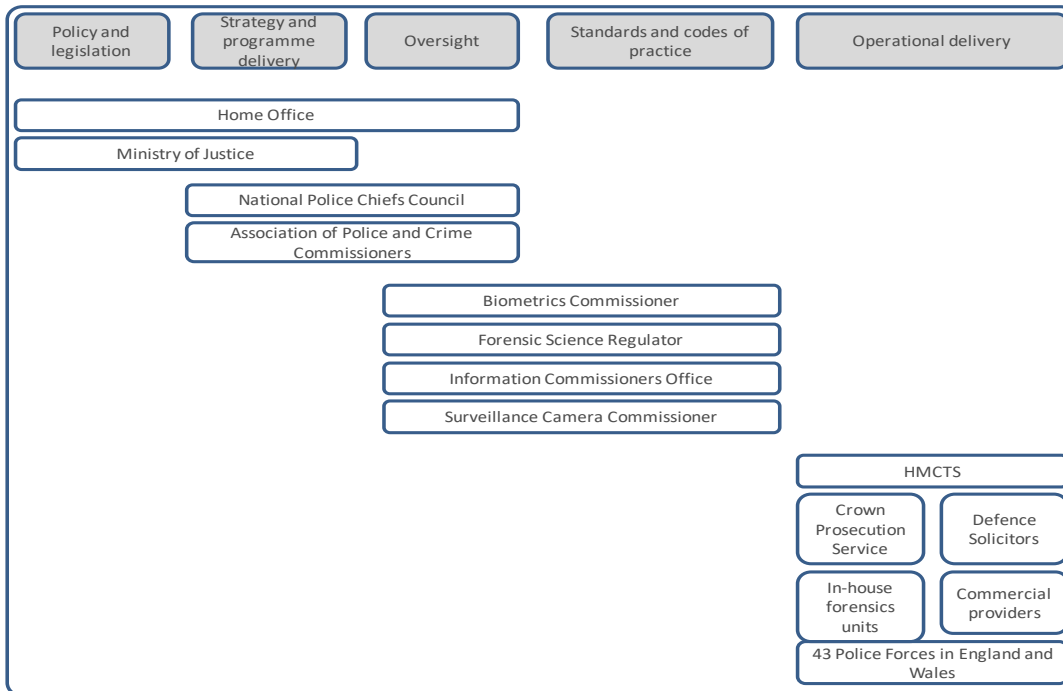


Figure [4] - Overview of current forensic science governance landscape

Review stakeholders perceived a significant lack of clarity around the accountability for forensic science provision. Policing stakeholders felt that risks were accurately recorded and monitored at the five NPCC forensic portfolio boards, although portfolio leads did not feel they had access to specialist resources they require. The short-term response to the entry into administration of Key Forensic Services saw high levels of cooperation and engagement across policing and CJS partners but the NPCC lessons learned report noted the need to adapt governance structures so that they avoid a fragmented approach to decision making in future. Stakeholders across the CJS agreed that risks needed to be shared across the system to ensure appropriate ownership and effective mitigation.

Many police stakeholders thought that the role of the Home Office had become less clear since the publication of the 2016 strategy. The role of the Ministry of Justice (MoJ) and its agencies appeared similarly unclear, with concerns expressed that risks could not be managed effectively or responded to without their involvement.

At the operational level, policing stakeholders admitted that feedback loops to drive continuous improvement are limited. Conversations are often restricted to the investigator and the CPS, meaning that the forensic scientist who has commissioned or undertaken work rarely receives feedback. Some forums exist between policing forensic

teams and criminal justice partners, but policing stakeholders said these were often limited to a response to specific issues.

Stakeholders described how tensions can arise in the current system, for example, if the Crown Prosecution Service (CPS) feels more evidence is needed to progress a case and the police disagree. They felt that CJS stakeholders should be able to influence the decisions policing make concerning forensic science provision to ensure the best criminal justice outcomes.

Quality

The Forensic Science Regulator (the Regulator) sets the standards required by forensic science practitioners in her Codes of Practice and Conduct. While the Regulator has set a timetable for accreditation, she does not yet have statutory powers to investigate quality issues or take enforcement action. According to the explanatory notes to a Private Members' Bill to effect this change, the current lack of powers "poses a risk to both public confidence in, and the overall quality of, forensic evidence used in court proceedings."

There was a general assumption within policing that forensic evidence is of good quality but perception of risk is growing in the CJS. The judges interviewed generally assumed that scientists in court were of the appropriate professional standard to appear as expert witnesses. Some were not specifically aware of accreditation requirements or the FSR's codes of practice. However, some defence lawyers stated their opinion that the cumulative effect of the alleged issues at Randox Testing Services and perceived compromises regarding quality standards meant that challenges to the integrity of forensic evidence presented in court could soon become routine.

Some policing stakeholders acknowledged that the Regulator's lack of statutory powers meant they de-prioritised investment and meeting deadlines for accreditation. Policing stakeholders described difficulties in achieving accreditation for in-house services digital functions. In some cases, accreditation was seen as an additional cost pressure amid a number of competing priorities.

In contrast, commercial providers of traditional forensics were very conscious of the rules and codes of practice that apply to their work and experts' duty to the courts. They described being driven by a strong professional ethos to deliver a service to the CJS and gave the example of the five years required to become an experienced toxicology reporting scientist as evidence of the commitment required to quality through strategic investment. However, they expressed concerns about the lack of a "level playing field" given their perception of a lack of commitment to quality standards in policing.

Smaller accredited digital providers reported that there is little reward for this investment in quality as policing continues to award contracts to unaccredited digital providers. This view echoes concerns raised by the Regulator in her annual

report⁵. Some smaller providers of traditional forensic services also expressed concerns at the cost to achieve and retain the required quality standards, and the risk that these costs could drive smaller businesses with niche capabilities out of the forensic market, given the prices policing are willing to pay.

Digital providers reported concerns about their ability to attract and retain a skilled workforce. Academic qualifications did not necessarily equip graduates with the relevant skills required for the role and staff members were routinely attracted into higher paid roles in cyber security. Policing also reported a need to ensure a sufficient level of knowledge of forensic science (including digital) exists within investigator roles to understand the limitations of forensics but also to ensure relevant forensic opportunities are exploited.

Expenditure on forensics

Police Forces typically allocate a budget for forensic science out of their overall annual Force budget. Police and Crime Commissioners (PCC) sets the annual Force budget allocations and holds the Chief Constable to account for the effective and efficient running of the force. In recent years forensic budgets have been set in a context of increasing demands on policing resources and pressure to achieve greater value for money, with forces encouraged to improve procurement practices, aggregate Force buying power and identify savings. Ministers have encouraged Chief Constables to invest in quality and ensure their compliance with the Regulator's codes, but there is no enforcement mechanism to ensure minimum standards are met.

Whilst figures should be used with caution, estimates indicate the total expenditure on forensics reduced from £349m in 2012/13 to £294m in 2014/15, a fall of 16%, levelling off thereafter⁶. Over the same period, estimates suggest the total spend on external commercial forensic provision reduced from £112m (2012/13) to £80m (2014/15), a fall of 29% before levelling off⁷. However, the value of the forensic market fell to ~£55m after the most recent round of procurements in 2016/17. As a percentage of the total government funding to policing, the estimated forensic spend is less than 3%⁸. This has remained broadly stable since 2013/14.

⁵ Forensic Science Regulator's Annual Report 2017

⁶ CIPFA data collected from forces on expected spend

⁷ Ibid

⁸ Ibid

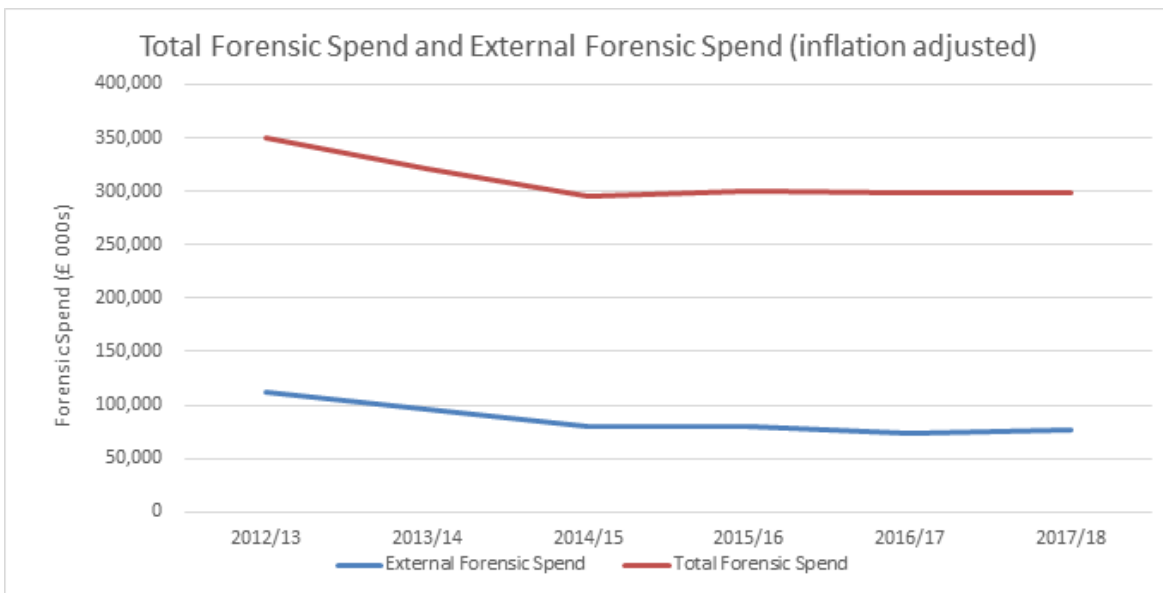


Figure [2] - Total forensic expenditure and external forensic expenditure (Source: CIPFA data)

Estimates by category indicate that spend has also fallen on some internal forensic activities including Scenes of Crime Officers and fingerprints. Spend has risen slightly on photographic image recovery and on ‘Other’ forensic spend, which is likely to include some digital forensics. While there is some data on spend by category, this cannot be easily mapped to trends in crime, to understand how they impact on forensic demand.

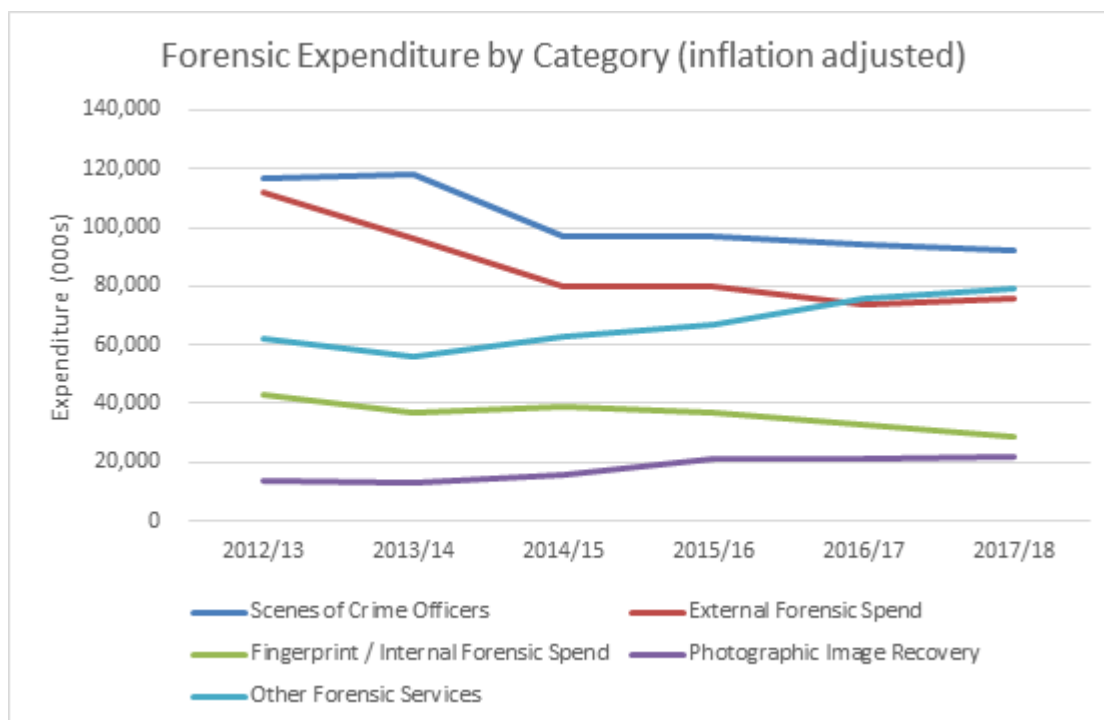


Figure [3] - Forensic expenditure by category (Source: CIPFA POA data)

Impact of expenditure

The value to the CJS of policing’s annual spend on forensic science services is difficult to quantify. However, its impact both in facilitating just outcomes and efficiency across the CJS, for example in eliminating suspects or securing early guilty pleas, is likely to be significant when compared with other investments.

There has been an overall fall in crime, excluding fraud and computer misuse offences but an increase in the police caseload, particularly of sexual and serious violent crimes, may create pressures for more forensic intervention. Further, whilst Police Recorded Crime (PRC) fell initially in the years after 2010 through to 2013/14, there have been marked increases since. This was partly due to recording improvements following criticism of the failure of forces to record all crimes reported to them by victims⁹. It was also partly due to more victims coming forward to report offences, especially sexual offences, in the wake of high profile cases such as Savile. Those increases have been sustained in recent years, with PRC up 15% in the latest year (to December 2017) and sexual offences up 25% in the same period. At the same time, there appear to be genuine increases in some serious violence offences (knife crime, gun crime, homicides and robbery), which also started to increase in 2013/14. Some volume crime offences, such as vehicle theft and burglary, have also increased in the last two years with rises of 19% and 9% in the latest year.

The existing evidence base, while not extensive, does highlight a number of ways that the use of forensic science adds value to the investigative and criminal justice processes (see figure [6]). For example, 6% of all ‘positive outcomes’ in forensic dependent cases, such as those requiring the forensic classification of a drug, firearm or indecent image, rely wholly on forensic evidence.

Charges and other positive outcomes	2017
Positive police outcomes for forensic dependent offences	37,253
All other positive outcomes	617,035
Total positive outcomes	654,288
Forensic positive outcomes as a % of total positive outcomes	5.69%

Table [3] - Charges and other positive outcomes for forensic dependent recorded crimes, 2017

(Source: Police recorded crime and outcomes open data tables)

⁹House of Commons Public Administration Select Committee (PASC) Caught red-handed: Why we can’t count on Police Recorded Crime statistics Thirteenth Report of Session 2013–14

Some CJS stakeholders felt that it would be intrinsically wrong to put ‘value for money measures’ on achieving just outcomes for victims and the public. Others agreed that measuring the impact of forensic science to the CJS is very difficult and acknowledged that there are no formal mechanisms. When asked to consider its impact, criminal justice stakeholders often cited the “cost of failure”, such as miscarriages of justice.

Policing stakeholders gave examples of outcomes to which forensic science can contribute and reported the use of a risk assessment framework¹⁰ to prioritise requirements and control spend. They also pointed to a lack of incentive for policing to consider impact from the perspective of the wider CJS.

Defence lawyers had broader concerns about access to forensic science due to Legal Aid Agency rates, which commercial providers said did not always reflect the expertise needed¹¹ (the current London rate for a forensic scientist is £72 per hour¹²). Defence lawyers described struggling to access casework scientists to provide interpretation. They also find their time to consider the forensic evidence is often squeezed by delays. The judges interviewed were aware of digital backlogs and described instances of evidence being presented ‘perilously close’ to trial, risking fair process.

There were concerns expressed that the police could restrict the amount of forensic work on a case for financial reasons. Some of the judges interviewed considered it appropriate for police and prosecution to make proportionate decisions about the forensic evidence to be presented, based on professional judgement. However, they felt that this judgement could sometimes be better explained to the jury in court. More generally, they noted the challenge of ensuring that juries do not give undue weight to forensic evidence.

Market management and procurement

Approximately 90%¹³ of procured ‘traditional’ forensic science is delivered by three accredited forensic providers¹⁴. Although commercial companies have been providing services to policing since the 1990s, their market share expanded significantly after the closure of the Home Office’s Forensic Science Service in 2012. While it is generally acknowledged that market competition for traditional forensics has succeeded in driving down the cost of services, reducing case turnaround times and maintaining quality, there

¹⁰ The risks assessment framework is called THRIVE (Threat, Harm, Risk, Investigation, Vulnerability, Engagement)

¹¹ Expert witness funding in legal aid matters is governed by remuneration rates set out in the Criminal Legal Aid (Remuneration) Regulations 2013 (as amended). Those regulations include an escape mechanism which allows the rates to be exceeded under certain circumstances. The LAA makes funding decisions based on the specific circumstances of each case and against processing target times (Source: MoJ)

¹² Legal Aid Agency, [Guidance on the Remuneration of Expert Witnesses](#)

¹³ Internal Home Office estimate

¹⁴ The three providers are Eurofins, Cellmark and Key Forensic Services

have also been concerns expressed about the fragility of the market, including by the Forensic Science Regulator and the House of Commons Science & Technology Committee¹⁵.

Providers felt that an increased focus on price over quality and sustainability in contract award criteria has resulted in providers having to compete on price. As a consequence, they said that pricing had fallen to “unsustainable” levels. Providers reported that pricing in key areas in 2017 was between 26% and 45% cheaper to forces when compared to 2013, and between 60 to 70% cheaper than the prices charged by the Forensic Science Service 10 years earlier. Digital providers also stated that a commoditised pricing-based competition has driven down cost, with one provider citing a 40% reduction in unit costs over a two-year period. Some policing stakeholders acknowledged the risks associated with excessive focus on price.

Policing stakeholders described a number of different contractual arrangements, including those with both ‘commoditised’ and partnership elements. Many policing stakeholders argued that some automated analytical services for example, PACE DNA profiling, can be successfully delivered through a commoditised approach. However, some pointed to a risk of applying this principle to areas of forensic science where greater individual expertise is required to assess, analyse, evaluate and interpret findings in the context of the case.

Commercial providers pointed out that the practice of breaking down activities into a number of competitive ‘pricing points’ hides the cost of additional activities, such as case assessment, development and maintenance of the quality management system, validation of new techniques and staff development. In many cases commercial providers said they are effectively funding these crucial activities. They described how this made it increasingly difficult to maintain capacity for low volume services, for example fibre analysis and comparison, and for the provision of experienced casework scientists, as well as out of hours services, for example specialist examination of serious crime scenes. Defence lawyers also expressed concern that breaking up work across different providers made the evidence more difficult to follow, especially under time pressure.

Commercial providers for specialist services reported difficulty in providing a service directly to policing. This is due to the grouping of services into ‘lots’ which may include disciplines outside their area of expertise. For example, grouping fire investigation with questioned documents resulted in specialist providers only being able to provide services on a subcontracting basis. This reduces their ability to compete and can add complexity to the process overall.

Providers also expressed concern about the administration involved in the management and operation of a very detailed schedule of prices. The Review heard

¹⁵House of Commons Science & Technology Committee: Forensic Science Strategy: 4th report of session 2016/17

concerns that reporting officers had to spend valuable time working out which product codes to charge their work under, with one provider claiming there were over 10,000 codes to use.

Digital commercial providers who deliver casework services reported a ‘commoditisation’ of services, for example, being paid a ‘unit cost’ to unlock or download content from a phone. Providers pointed out that dealing with devices on an item by item basis can be less effective than, for example, the analysis of data across a number of devices related to the same case.

In some cases, providers said that contracts simply did not include aspects of the service required by the CJS. Providers gave examples of scientists not being invited to case conferences, or not being asked to provide an evidential report when summoned to court, because of costs. (These concerns have previously been raised by the Regulator, including in her 2017 report¹⁶.) In addition, many forces do not appear to have arrangements in place to effectively respond to the increasing volume and nature of digital forensic requirements.

Managing submissions and turnaround times

Policing stakeholders acknowledged that good practice should involve a conversation with the scientist to explain the context of the case and discuss an intelligent submission strategy. However, providers described this as rarely happening in practice. In their experience, submissions management is too often treated as an administrative role, with a focus on speed and saving money, for example, by reducing the scope of analysis requested, to the exclusion of other considerations. This was a particular concern for sub-contractors who described commonly being asked to deliver a test result to a tight timeframe with no contextual information about the case. **Some ‘screening’ or ‘gate-keeping’ was generally considered appropriate by policing stakeholders in order to pursue a focused and efficient ‘submissions’ strategy.** However, providers felt that the specification of tests to be carried out, rather than posing questions to be answered with no dialogue with the scientist, meant that the opportunity to exploit their professional expertise was often missed

Police stakeholders agreed that, in response to their demands, turnaround times had shortened markedly over the last 10 years (see table [2]). Commercial stakeholders described the way that turnaround times are written into contracts and typically used as a key performance indicator (KPI). Contractual penalties, in the form of service credits, may apply if monthly KPI targets are missed.

¹⁶ [Forensic Science Regulator Annual Report 2017](#)

<i>Type of submission</i>	<i>England and Wales (E&W) commercial provider Average Turnaround (in days) to complete a submission</i>	<i>Time taken for E&W commercial provider to complete 95% of all submissions (in days)</i>	<i>Time taken for respected ENFSI¹⁷ laboratory to complete 60% of all submissions (in days)</i>
<i>Biology casework</i>	20	42	70
<i>Marks & Traces casework</i>	18	34	60
<i>DNA Reference</i>	1.5	3	19
<i>DNA Crime Stains</i>	2.8	5	14
<i>Drugs Analysis</i>	14	40	11

Table [2] - turnaround times (Source: AFSP)

Judges stressed the importance of meeting trial hearing or court dates to ensure that all CJS partners have proper time to consider forensic evidence, but some policing stakeholders admitted that results are not always required so quickly.

Some submissions turned around in three days sit “for weeks” on the desk of an investigating officer. Policing stakeholders recognised the needs of CJS partners, but felt that this should be achieved through planning and better case management. An alternative approach focused on meeting criminal justice dates and specific case requirements, without the use of turnaround targets, was described by one region as achieving a better overall service.

Providers reported that the focus on turnaround times, sometimes to the exclusion of other service measures, has a direct impact on cost and sustainability. They pointed to the fact that a single case can trigger a missed target and result in a heavy financial penalty. There were also perceptions that service credits were sometimes misused as a “way to claw back budgets” rather than to manage performance. Providers also described the way in which forces’ processes could exacerbate the problem, for example, by holding samples back during the week before submitting them in a batch on Friday, giving the provider the same short window to turn around a large volume of work.

Some policing stakeholders expressed concern that relaxing turnaround times would be seen as a ‘backward step’ and open them up to criticism. Several felt that a more sophisticated approach to KPI management could mitigate against problems for

¹⁷ European Network of Forensic Science Institutes

example, by setting tolerances around KPIs and giving providers the opportunity to explain why targets had been missed. Others disagreed, with one saying: “At the end of the day we want a good quality service, we don’t want service credits.”

Tender process

Forensic science unit managers admitted relying on historic data to assess future requirements may result in inaccurate assessments, particularly for digital forensics. Unit managers described working with commercial colleagues to draw up requirements at the tender stage of procurement but there was less evidence of engaging scientists to understand the needs of the CJS.

At tender evaluation stage, policing stakeholders emphasised the role of accreditation in ensuring quality. Many claimed that if all tendering companies were accredited then there was nothing to distinguish between them in terms of quality. One commercial stakeholder described trying and failing at their last tender process to come up with better quality measures whilst others expressed frustration at the reliance on accreditation and in particular that the experience of their team or their company’s track record “did not seem to count for much”.

National coordination of strategy and risk management

There were mixed views on the quality of relationships between policing and suppliers. Some policing stakeholders described relationships characterised by high levels of cooperation, dialogue and openness. Others expressed concerns about their ability to act commercially and worried that commercial companies, especially in the emerging digital market, would exploit this. Commercial providers indicated equally mixed relationships. Those with single supplier managed service contracts had more recognition of the need for ‘active’ and ‘agile’ contract management and the skill and resource required. Policing stakeholders acknowledged there was a particular scarcity of resource combining commercial skills with specialist knowledge of forensic science. Commercial providers stated the importance of commercially skilled people able to interpret market intelligence, understand the implications and respond on behalf of policing.

Two national frameworks that provided some clarity and certainty to commercial providers were discontinued in 2016. The first agreement (2008 to 2012) was managed by policing through the National Policing Improvement Agency (NPIA). The framework offered a standardised approach, provided an efficient process for certain aspects of tendering and Forces reported making significant savings through collaborations. However, the frameworks also faced criticism for promoting a ‘commoditised’ approach to science. The second framework (2012 to 2016), was managed by Home Office Commercial. A team provided market intelligence, monitoring and management. When the framework expired, the Home Office team was scaled back on the assumption that forces would take direct control of their contracts.

Oversight of the market is currently provided through the Marketplace Strategy Group, which is part of the NPCC Forensics Portfolio. The forum meets quarterly, bringing together policing forensic science representatives, Home Office, CPS and the Regulator to oversee a coordinated response to supply issues when they arise and to identify market-related risks. It is supported in the delivery of activity by two marketplace operations groups, one for traditional and one for digital forensics.

Stakeholders involved in the Marketplace Strategy Group and its Operations group, which monitors commercial issues, felt that they were not set up or resourced to fulfil their remit. Policing stakeholders also described varying levels of access to commercial and procurement expertise.

Policing stakeholders consistently acknowledged that managing relationships with national suppliers through various contracts, at regional and Force level, had created risks born out of a lack of co-ordination. For example, policing stakeholders and providers both spoke of the difficulties of large tender exercises happening at the same time. Concerns were also raised about the lack of systematic market monitoring and intelligence gathering to assess the health of the market, scan for potential new entrants and encourage diversity of supply. The same applied to changes in crime trends, demand, and operational, technological and regulatory changes and co-ordination of research and development at national level.

Policing stakeholders described the heavy workload created by the Randox Testing Services re-testing programme and the need to ensure continuity of supply following the temporary withdrawal of Key Forensics. In particular, it had proved time consuming to piece together the national picture of demand and capacity.

Many policing stakeholders felt it would be beneficial to reinstate a national team for specialist work. Functions included financial due diligence, security, quality, contingency planning and identification of health and safety obligations. They also thought such a team could play a role as “honest broker” between forces and suppliers, helping to get around the commercial sensitivities of individual contracts. For such a team to be effective, it was felt that their ability to make and/or influence decisions would be essential. This view was supported by providers who expressed concern about the lack of engagement with the national forums and boards and with senior policing. The perceived lack of clarity over the national picture of demand and the possible impact of the Transforming Forensics Programme.

Digital forensics

The proliferation of digital devices, the expansion of digital storage and the pace of change of digital technologies have made digital forensics the fastest growing and changing area of forensic science. It has evolved through the expansion of in-house digital forensic or high-tech crime units as this demand has increased. The commercial landscape for digital forensics differs markedly from traditional, with around 100

commercial providers currently delivering a variety of digital services to policing. This ranges from the provision of hardware and software products to enable in-house extraction of data and analysis to the provision of end-to-end digital casework services.

The approach to procuring digital forensics is varied with some forces accessing digital forensics through existing contracts with providers, some contracting with a supplier locally and others ‘spot buying’ off contract. The variety of arrangements reflects the lack of a national approach to forensics in general and the fact that digital forensics is at a much earlier stage of evolution than ‘traditional’ forensics.

There is low visibility of the total spend on digital forensics despite this being acknowledged as the fastest growing area of forensic science. What is available does not appear to mirror the reported increase in demand. The data¹⁸ available on estimated forensic spend has no separate category to indicate spend on digital forensic services, nor is it possible to be confident that all forensic spend in relation to digital forensics is captured within these figures as in-house capability often falls outside the governance of Forensic Units in many police forces. Estimated spend in relation to ‘other forensic services’, which is likely to include digital, has increased from £61m (2012/13) to £78m (2017/18) (see figure [3]).

Policing stakeholders said they are struggling to meet the demand for digital forensics. They described attempting to manage these workloads in-house through their Digital Forensic Units or High-Tech Crime Units in the first instance. Commercial digital providers report only receiving work when police feel driven to clear a ‘backlog’. They also say they are pushed to meet short turnaround times at this point, even though the work has been accumulating in the Force for an extended period of time. The struggle to meet demand has also been exacerbated by the recent issues relating to disclosure, where forces are facing increasing demands from CPS and courts for “complete downloads.” They expressed concerns about the limited shared understanding outside of digital units as to what this means in practice and how achievable or appropriate this is. In the context of rapid technological change, HMICFRS have commented that “forces are all too often overwhelmed, leading to backlogs of digital devices waiting to be examined and evidence waiting to be assessed.”¹⁹

Policing reported a limited understanding of the trajectory of digital demand and, given the fast-moving pace of technology, policing was of the view it was always ‘behind the curve’. Digital providers similarly reported a lack of any clear demand data. There was recognition of the need to develop relationships with industry and academia to have a better understanding of existing capabilities as well as new and emerging technologies.

Policing also recognised the need to clarify the role of digital forensics alongside broader digital investigative capabilities and the drive towards a digital CJS. Forces

¹⁸ Chartered Institute of Public Finance and Accountancy (CIPFA) data

¹⁹ [State of Policing: The Annual Assessment of Policing in England and Wales 2016](#)

were conscious of the need to answer questions such as which digital services will be required as ‘mainstream’ (that is, deployed to frontline investigating officers) and which services will be specialist. Some stakeholders indicated that they would welcome a standardised or national approach.

Long-term planning

Stability and confidence is important to the long-range investment cycle both for organisations and those pursuing careers in forensics. A wide range of stakeholders expressed their concern about a lack of stability in forensics generally and concern over the impact of short-term decision making. Forensic science providers within policing and the commercial sector both reported a need for a better understanding of long-term trends to focus development to ensure capacity can meet demand. Interviewees acknowledged the necessity for better demand modelling, with most recognising it was nevertheless challenging, particularly in the digital arena.

The 2016 Forensic Science Strategy states that “policing will design and deliver a national approach to forensic science delivery” by 2021²⁰. As the most recent Science & Technology Committee report²¹ into forensic science points out, the Transforming Forensics Programme set up to take this forward is still conducting initial development work. The Transforming Forensics Programme’s business case promises to set out a long-term vision and roadmap for the use of digital forensics.

Some providers reported an inability or unwillingness to invest. Reasons stated included:

- Policing’s focus on the immediate operational requirements and competitive pricing rather than investing in research and technology to address longer term challenges.
- A lack of clarity from policing regarding their intended forensic operating models, specifically in relation to in-sourcing decisions, with some inclined to view the Transforming Forensics Programme as a vehicle for further in-sourcing.
- Forces’ decisions to in-source some of the simpler aspects of analytical work, leaving only the more complex, resource intensive, and therefore costly aspects of forensic science to be outsourced. They explained how fragmentation of activity can reduce their scientists’ exposure to routine examinations and analysis, which is critical to retaining their competence and expertise, and developing trainee scientists for the future.

²⁰ The Strategy stated that this would be implemented by the end of the last Parliament, which would have run to 2021 had a General Election not been called in 2017.

²¹ House of Commons Science and Technology Committee, [Biometrics strategy and forensic services, Fifth report of session 2017-19](#)

Providers described the lack of experienced casework scientists for low volume service such as fibre analysis and comparison as a symptom of this problem²².

Policing reported a significant shortfall in meeting demand for toxicology case work, and there were also concerns raised about this contributing to delays in the time to complete forensic post-mortems.

Commercial providers of specialist services, such as fire investigation, also conveyed significant concerns regarding the pipeline of new experts due to limits to their exposure to rudimentary scenes.

Small commercial providers of fire investigation services expressed concerns about their future as they are competing to deliver services that are currently provided to policing 'free of charge' by local fire and rescue services²³.

Fire and Rescue services stakeholders also expressed concern at the potential cost implications of accreditation given this activity falls outside the remit of their statutory duties. They reported an increased reliance by policing on fire and rescue services expertise in scene interpretation following the closure of the FSS.

Research and development

Innovations in forensic science have had a dramatic impact on justice and the effectiveness of the criminal justice system. Most notably the developments of new DNA techniques have transformed crime investigations. In order to respond to future demands and improve productivity, further investments will be required including in process, technology, people and capabilities.

Forensic science research can encompass many scientific disciplines, making it difficult to identify which scientific research and innovation will have potential for application in the CJS. Government can reduce risks for investors by identifying priority areas for research, innovation and development. The requirements for research vary widely from innovations in operational policing, validation of new and emerging techniques to 'blue sky' research that could have applications in the CJS. A challenge is to ensure that there is the right balance of funding across research, development and innovation.

Potential routes for funding in forensic science come from a diverse range of sources, including research councils, UK and European governments, forensic science providers, charities and trusts. There are also small-scale research collaborations between academia and the police.

A number of policing stakeholders called for more co-ordination of research and development to share best practice and help set direction for research. There is also a need for greater understanding of Home Office-led programmes such as the Home Office Biometrics Programme to understand the direction for future developments. There

²² The FSR has raised concerns in her 2017 annual report regarding the limited number of qualified forensic scientists capable of reporting toxicology case work (12 in England and Wales).

²³ Fire scene investigation forms part of Crime Scene Examination, for which the FSR has set a deadline for accreditation of October 2020

was also recognition that, especially for smaller forces, it is too expensive to do meaningful research on their own. By contrast, there were some concerns expressed that too much central control could stifle innovation. The Science and Justice Forum, which brings CJS stakeholders, the Regulator and commercial providers together with policing and government is intended to facilitate a more coherent approach, but it is yet to make a significant impact.

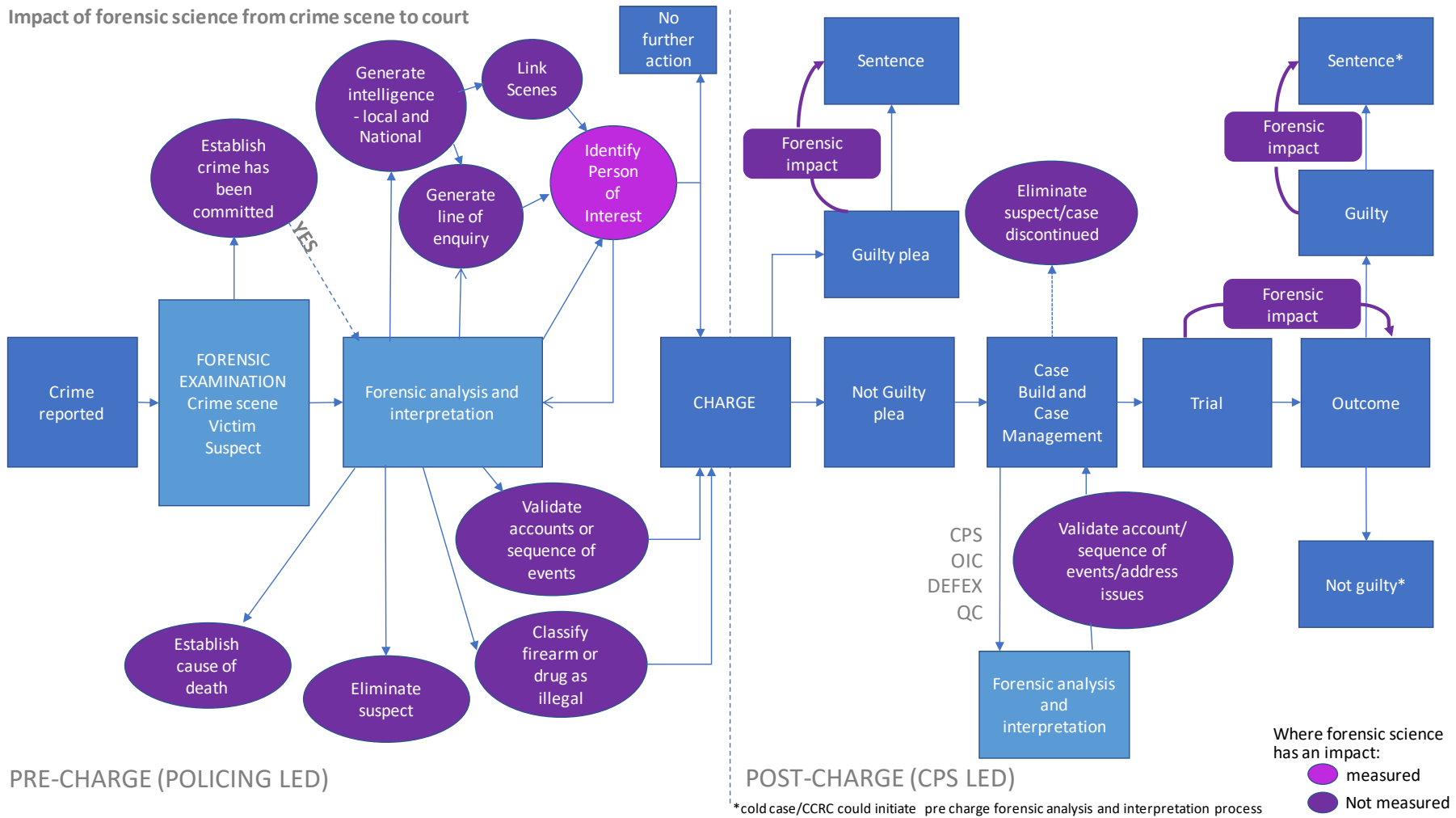
Policing stakeholders felt that they could only afford to ensure their contracts focused on the immediate needs to service operational requirements, with limited, if any budget available for research and development. Some policing stakeholders assumed that providers are doing research and development, while admitting that it did not feature in their conversations, or their contracts, with providers. Providers described a mixed picture – from customers keen to pursue research, with governance around research-related decisions, to those who never raise it.

Some stakeholders were concerned about the risk of obsolescence from the lack of investment and recognised that there were very few incentives for providers to invest. They were conscious that the pressures in policing to achieve short term budget reductions may outweigh long-term investment in innovation. Those adopting partnering arrangements were more likely to include research and innovation in contracts, seeking to share risk and reward. Those without such contractual arrangements worried about intellectual property rights. There were also concerns about the difficulties in accessing data held by commercial providers. Providers also reported difficulties in bringing new technologies to the market.

Stakeholders including the Regulator want investment in research to validate techniques and underpin the scientific basis of methods where research is currently limited (for example, facial comparison)²⁴. Academic stakeholders acknowledged that operational policing needs are important but expressed concern that this focus is too narrow and the wider needs of the CJS should be considered to ensure the fair administration of justice. They reported a lack of visibility or mechanism to share research, understand the research in progress and prevent duplication.

²⁴ The 2015 'Review of Efficiency in Criminal Proceedings' called for more research into the validity of disciplines where there is very little peer reviewed, published evidence.

Figure [6] - impact of forensic science



Conclusions

The model of provision in England and Wales has delivered efficiencies and can provide world class forensic science into the CJS. However, stakeholder confidence is dependent on implementation of actions to address the risks associated with fragmented administration and insufficient regulation of quality.

The adversarial nature of the legal system in England and Wales and the role of policing in providing forensic science makes the right checks and balances especially important to confidence. Without robust regulation, balanced procurement criteria, system-wide measures of impact and a more formal role for CJS in evaluating the frameworks that guide decision making, there is a risk that the needs of the CJS will not be met. Further, the market is unlikely to stabilise whilst price continues to be given too great a weighting in contract award criteria and a lack of consultation in the design of contract requirements prevents the market from operating as efficiently as it could do.

Stakeholders would be more confident in the sustainability of provision if the administration of forensic science was managed as a specialist national capability. Local accountability is essential. However, co-ordination at the national level needs to be addressed so that long-term investments, which could yield efficiencies to the CJS, are not missed. Presently, responsibility for innovation and research and development is too fragmented. Further, assessment of funding opportunities and research across the CJS and prioritisation of requirements is ineffective. Policing's engagement with providers and stakeholders also needs to be consolidated to enable effective long-term planning. People with specialist expertise and knowledge need to be brought together and given sufficient authority to enable credible long-term demand forecasting; the development of comprehensive strategy for digital forensics; decisive resolution of issues regarding niche services; and stronger and more strategic relationships between Forces and commercial providers.

Improvements need to be made to improve the ability of defence lawyers to track evidence and more can be done to demonstrate compliance or otherwise with quality standards. The implementation plan to the Disclosure Review has addressed this issue directly. However, this review has not addressed the perceived disparity in resources between defence and prosecution in cases that progress to court. Nor have issues relating to perceived inefficiencies in the courts, which result in cost for providers, been addressed in detail.

Review recommendations

It is recommended that an implementation plan be developed with stakeholders to address the following recommendations:

1. Ensure police forces and their contracted providers adhere to the quality standards set by the Regulator. This is needed to ensure scientific and

methodological rigour across provision and a level playing field between providers of forensic services. We must maintain confidence in the quality of forensic science provided to the criminal justice system from all sources.

2. Ensure funding and commercial models are sustainable and encourage investment. This is required to stabilise the market, promote innovation and ensure the needs of the CJS are met.
3. Ensure policing and the CJS benefits from advances in science and technology by developing and implementing new forensic techniques more coherently. Change is needed to bring about structured engagement across CJS partners, industry, science and academia in the testing, evaluation and development of new forensic techniques, improving the case for investment and helping forensic science providers to bring new innovation to market.
4. Ensure practitioners and policy makers have stronger evidence and data to support decision making and facilitate more effective working with partners. This is needed to maximise the opportunity for forensic science to fulfil its role as an enabler of robust outcomes and to strengthen investment cases.

Annexes

Annex A - Terms of Reference

REVIEW OF FORENSIC SCIENCE PROVISION TO THE CRIMINAL JUSTICE SYSTEM IN ENGLAND AND WALES

CONTEXT

Police forces in England and Wales are individually responsible for the procurement and delivery of the forensic services they require. In most cases, this is achieved through a combination of in-Force capabilities and the use of private sector Forensic Service Providers (FSPs). The latter provide a wide range of services, from higher volume 'routine' services, such as DNA profiling, to more specialist lower-volume services, such as ballistics examination. Spending on outsourced traditional forensics (DNA/drugs etc) has reduced in recent years while demand for and spending on digital forensics has increased significantly.

The 2016 Forensic Science Strategy set out the case for a national approach to forensic science delivery in the criminal justice system (CJS). As a result, the Transforming Forensics Programme (TFP) was set up to deliver that vision. TFP is a police-led programme that seeks to deliver high quality, specialist forensic capabilities in support of the 2025 policing vision, which is sustainable to meet future threats and demand.

On 26 January 2018 a significant provider of forensic services to the police, Key Forensic Services Limited, entered into administration, a situation which illustrated market risks. Impacts on the criminal justice system are being actively managed but are expected to continue for some period of time. The NPCC, APCC and HO are committed to ensuring the continued provision of high-quality forensics to support the detection, investigation and prosecution of criminal offences.

In this context, and noting the criticisms in the Forensic Science Regulator's recent annual report, the Minister for Policing & the Fire Service has asked the chair of the NPCC, chair of the APCC and the DG of CPFG to take forward a collaborative review of the functioning of the forensics market to address the concerns of policing, the regulator and criminal justice system partners.

OBJECTIVES

The Review will make recommendations to Ministers on steps required to maintain confidence in the effective future provision of high-quality forensic science to the criminal justice system.

SCOPE

The Review will consider the provision of forensic science to criminal investigations and criminal court proceedings in England and Wales, including both 'in-house' police provision and private provision. It will cover all forms of forensic science including digital forensics.

The Review will address the operation and management of the market. This will include consideration of:

- the quality, cost and delivery of forensic science
- impacts on and outcomes for the criminal justice system
- investment in research and development incentives
- the Transforming Forensics Programme
- structures, governance and accountabilities in the Home Office and policing.

The following elements are **out** of scope of the review: the provision of forensic science to the civil sector and family courts; private individuals' use of forensic services; the position of individual companies; disclosure²⁵. It will focus on the provision of forensic science in England and Wales only.

PROCESS

The Review will be conducted collaboratively between the NPCC, the APCC and the Home Office, drawing on resources from each. The Forensic Policy Steering Group will act as steering group to the review. Members of the Science and Justice System Forum (chaired by the Royal Society) will be invited to contribute individually and to take part in a challenge panel, to bring in expert views from the judiciary and academia. Additional expertise (for example, commercial expertise) will be invited onto the challenge panel where required. The Review will consult with relevant stakeholders across policing and the CJS, including the Forensic Science Regulator, and with large and small commercial providers.

OUTPUTS

The Review will provide a final report with recommendations to Ministers in July 2018. The report will be published.

²⁵ subject to a separate AGO led review

TIMELINE FOR THE REVIEW

The Review will take place between March 2018 and July 2018.

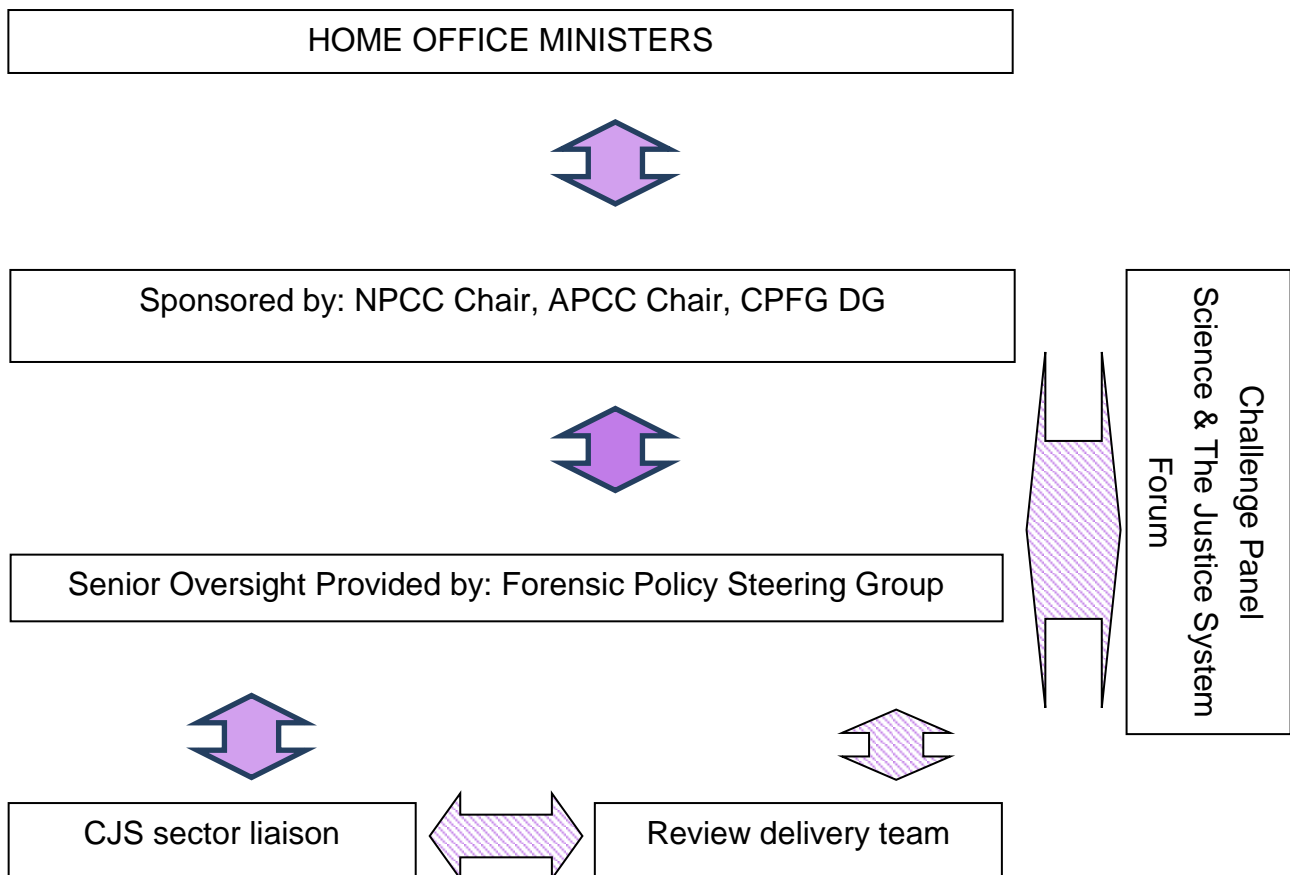
March 2018 – review set up and scoping, establish team resources, engage stakeholders, scope of questions to be asked, gather all relevant documents and sources of information.

April-May 2018 – gather and assess evidence, draft report

July 2018 – report to Ministers

September 2018 onwards – implementation of recommendations.

GOVERNANCE STRUCTURE



The Review will be overseen by the **Forensic Policy Steering Group**, which will have oversight of the analysis and documents produced as part of this project and will sign off the final review ahead of submission to the sponsors and finally Home Office Ministers.

Forensic Policy Steering Group Members

Christophe Prince (Chair)	Director, Home Office Data and Identity Directorate
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Alex MacDonald	HO Head of Identity Policy Unit
James Vaughan	NPCC Forensic Portfolio Lead
Dr Gill Tully	Forensic Science Regulator
Chris Porter	Chair FIND Strategy Board & Director of Forensic Services, Metropolitan Police Service
Richard Meffen	National Crime Agency Forensic Lead
Joanna Fiddian	Ministry of Justice (HMCTS)
Mark Bishop	Crown Prosecution Service
Kirsty Faulkner	HO, Head of DNA Database
Jo Ashworth	Transforming Forensics Programme Director
Jo Taylor	College of Policing
Lee Tribe	HO Commercial director
Mark Burns-Williamson	APCC Forensics lead

The **Science and the Justice System Forum** will be invited to join a Challenge Panel to the review. The purpose of the Forum is to provide an opportunity for a range of organisations concerned with science in the justice system to discuss matters of shared interest and highlight challenges and opportunities.

Science and the Justice System Forum Members

Name	Organisation
Dr Julie Maxton (Chair)	Royal Society
Judge Wall Judge Theis	Judiciary
Dr. Gillian Tully	Forensic Science Regulator
Adrian Foster	Crown Prosecution Service

Richard Heaton	Permanent Secretary, Ministry of Justice
James Vaughan	Chief Constable Dorset Constabulary & NPCC portfolio lead for forensics
Francis FitzGibbon QC	Defence Chair, Criminal Bar Association
Dr Anya Hunt	CEO Chartered Society for Forensic Sciences (CSFS)
Dr Rupert Lewis	Director, Government Office Science
Christophe Prince	Director Data and Identity Directorate, Crime Policing and Fire Group, Home Office
Chris Porter	Temporary Director of Forensic Services, Metropolitan Police
Dr. Jo Wallace	Home Office Science
Professor John Aston	Home Office Chief Scientific Officer
Professor Niamh Nic Daeid	Dundee University
Professor Michael Marra	Dundee University
Brian Rankin,	Chair, Special Interest Group (SIG) Forensics
Mark Newby	Defence representative

Additional challenge

Sir Brian Leveson, President of the Queen's Bench Division and Head of Criminal Justice, was also separately consulted.

Philip Lobo, deputy director of the Cabinet Office Complex Transactions Team, was also consulted to provide commercial challenge.

DEPENDENCIES AND INTERACTIONS

The Review will interact with other reviews and activities, notably:

- Transforming Forensics Programme
- Forensic Science Regulator Bill
- AGO-led disclosure review

Annex B - stakeholder interviewed

Stakeholders from the following organisations were interviewed:

- Association of Forensic Service Providers (AFSP)
- Association of Police and Crime Commissioners
- Avon & Somerset and Wiltshire Constabularies
- CCL Solutions Group
- Cheshire Constabulary/Cheshire Fire and Rescue Services
- Criminal Case Review Commission
- Criminal Law Committee
- Criminal Law Solicitors Association
- Crown Prosecution Service
- Department of Justice Northern Ireland
- Derbyshire Police
- Durham Police
- Dyfed-Powys Police
- Forensic Service Northern Ireland
- Gloucester Police
- Greater Manchester Police
- Hampshire Police
- Her Majesty's Courts & Tribunals Service
- HMRC
- Home Office Commercial Directorate
- Home Office Data and Identity Directorate
- Home Office Forensic Information Database Services
- Home Office Immigration and Enforcement

- Home Office Science
- Humber Fire and Rescue Services
- Independent Office for Police Conduct
- Intaforensics
- Metropolitan Police Service (MPS)
- Ministry of Justice
- National Crime Agency
- NHS England
- NPCC Digital Forensic Portfolio Board
- NPCC Forensic Marketplace Strategy Group (FMSG)
- NPCC National Fingerprint Board
- NPCC Performance and Standards Group
- NPCC Transforming Forensics Programme
- Office of the Forensic Science Regulator
- Prometheus Forensic Services Ltd
- Scottish Police Authority
- University of Dundee
- University of Portsmouth
- Warwickshire Police & West Mercia Police
- West Yorkshire Police

Annex C - Glossary of terms and abbreviations

Term or abbreviation	Explanation
AFSP	Association of Forensic Science Providers
APCC	Association of Police and Crime Commissioners
CCRC	Cold Case Review Commission
CCTV	Closed-circuit television
CIPFA	Chartered Institute of Public Finance and Accountancy
CJS	Criminal Justice System
CPS	Crown Prosecution Service
DEFEX	Defence expert
DNA	Deoxyribonucleic acid
Examination	A detailed physical study of an item or scene to establish the presence of evidence
FINDS	Forensic Information Databases Service
FSNI	Forensic Science Northern Ireland
FSR	Forensic Science Regulator
HMCTS	Her Majesty's Courts & Tribunals Service
HMICFRS	Her Majesty's Inspectorate of Constabulary and Fire & Rescue Services
HMRC	Her Majesty's Revenue and Customs
Interpretation	An assessment and evaluation of the evidence in the context of the case on

	which a forensic scientist can base an expert opinion
KPI	Key Performance Indicator
Lot	A category of products or services, used in procurement as a way of dividing up the products/services being tendered in order to increase competition
NPCC	National Police Chiefs' Council
NPIA	National Policing Improvement Agency
OIC	Officer in charge (of an investigation)
PACE DNA	DNA samples taken under the Police and Criminal Evidence (PACE) Act 1984
PCC	Police and Crime Commissioner
Questioned documents	Documents that are examined by various techniques to provide evidence (for example, handwriting analysis, or examination of documents to assess if counterfeit)
Submission	A request for a package of work, which may or may not include physical exhibits
TFP	Transforming Forensics Programme
THRIVE	'Threat, Harm, Risk, Investigation, Vulnerability, Engagement' - a risk assessment framework used by policing
QC	Queen's Counsel

