Cellmark Forensic Services – Written evidence (FRS0071)

Cellmark is one of the largest Forensic Science Providers (FSPs) in the UK and employs almost 500 staff the majority of whom are involved in the delivery of forensic services. Cellmark is contracted to over 75% of the police forces in England and Wales (E&W) and provides a wide range of forensic analytical services accredited to ISO17025 and the FSR Codes of Practice, some of which are delivered in partnership with other providers. Our scientists are involved in the Criminal Justice System from crime scene to court. Every month we work on over 4,500 new criminal cases ranging from murder investigations to road traffic offences, and analyse and submit c10,000 arrestee DNA profiles to the National DNA Database.

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

1.1 Forensic science, as delivered by practitioners within the police and the Forensic Science Providers (FSPs) acting for the prosecution and for the defence, plays a significant role in supporting the Criminal Justice System (CJS) within the UK. From the meticulous collection and documentation of evidence at a crime scene; the determination of a driver's blood alcohol or drug concentrations; or the development and implementation of forensic analysis strategies to investigate rape or homicide allegations; a broad range of Forensic Science procedures can provide vital intelligence and evidential information to support criminal investigations and the delivery of justice.

1.2 The delivery of Forensic Science in the UK is supported by a quality accreditation framework overseen by the Forensic Science Regulator. The UK CJS benefits from a comprehensive analytical forensic capability, delivered by a forensic science community with extensive experience and expertise providing service levels that are as good as, or better, than anywhere else in the world.

1.3 Rapid, responsive, quality accredited forensic analysis and interpretation can assist all those involved in a criminal investigation including the police, CPS and the courts by providing evidence of association or exclusion. It has the proven potential to deliver significant cost savings in both police and court time, as well as contributing to the rapid resolution of criminal cases for the victims of crime.

1.4 Furthermore, where we have provided forensic awareness training/education to the police, CPS and other legal practitioners we believe that it has helped their understanding of Forensic Science so that it can be better used to contribute to the delivery of justice.

2 What are the current strengths and weaknesses of Forensic Science in the UK?

Strengths:

2.1 Forensic analytical capability has developed significantly over the last 20 years. FSP laboratories use extremely sensitive, validated technology for the detection of DNA, drugs and trace evidence, supported by robust interpretation tools. Analytical developments have been driven by a
historically healthy market place with technology providers, often in partnership with FSPs, working to develop the level of detection sensitivity. Investment in laboratory automation and software for assisted interpretation, reporting and case management has increased procedural robustness and capacity, and has helped reduce costs.

2.2 Speed of delivery: the Turn Round Times (TRTs) for Forensic Science delivery in England and Wales is world leading, both for standard service and urgent delivery. Recently TRTs have been extended slightly, in part to improve market stability, however they remain amongst the best in the world.

2.3 Forensic science provision is delivered by dedicated scientists across organisations who work tirelessly to ensure the quality, integrity and service delivery that is presently offered. Many of the forensic scientists working in private sector forensic companies worked previously in the government owned FSS and have demonstrated a long term commitment to the CJS.

2.4 The UK still has a significant number of experienced forensic scientists who have the knowledge and experience to review historic cases and train new generations of scientists.

2.5 Access to a collaborative network of UK and international forensic scientists provides resilience and shared best practice. The Association of Forensic Science Providers (AFSP) holds quarterly meetings attended by directors of public and private sector Forensic Science laboratories throughout the UK and Ireland and it supports several collaborative groups working to improve standards in Quality, Health and Safety and discipline-led scientific groups for Body Fluid search, recovery, analysis and interpretation, DNA and Drugs & Toxicology. In addition, scientists participate in the Forensic Science Regulator’s Working Groups and European Network of Forensic Science Institutes (ENFSI).

2.6 FSPs individually (and collectively as the AFSP) sponsor some forensic science R&D activity.

2.7 The Forensic Science Regulator’s (FSR) role in promoting the quality, rigor and integrity of forensic science provision across the CJS.

**Weaknesses:**

2.8 Reduced market size – the recent events of Key Forensic Services entering administration speak to the impact of reduced funding for forensic science in E&W and the fragility of the market.

2.9 The reduced market expenditure poses a significant staff/experience retention risk for the delivery of Forensic Science in E&W.

2.10 Significant reductions in police budgets mean that forensic analysis is sometimes not used in cases where it would previously have been, to the detriment of the CJS.
2.11 While Forensic Science is largely procured by the police, the results are then used by the CPS with the ultimate customer being the Court. However, communication mechanisms, both strategic and operational, to allow forensic practitioners to interact with other stakeholders in the CJS either do not exist or are inefficient (historically, regular tripartite discussions were held between FSPs, police and CPS). This can result in the CPS or Defence frequently requiring further forensic work to be done at short notice; those presenting the case in court are sometimes not privy to all of the forensic evidence; and scientists are regularly called to court but not required.

2.12 Speed of delivery: the focus on speed of delivery of forensic results is sometimes out of step with the investigative requirements (we welcome the recent extensions to product code TRTs), but instead is driven by rigid product code requirements. Forensic analysis and interpretation, particularly in complex cases, can benefit when scientists are given greater latitude for reflection and consideration. In particular a product code for case assessment would be beneficial.

2.13 In our experience some defence scientists have limited operational experience.

2.14 There is a shortage of funding available to support forensic R&D.

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

3.1 The evidence base for many areas of Forensic Science is significant, from Toxicology, to Drugs and DNA analysis, hundreds of peer reviewed scientific papers underpin the basic principles upon which the current practices are built. However there remain gaps in the interpretation of evidence. The current Case Assessment and Interpretation (CAI) process uses a hypothesis framework to assess expectations ahead of the case being started and sets out the interpretative framework of any findings. The data available to support interpretation in some areas is limited and scientists therefore sometimes rely on their experience alone to interpret findings. This experience will always be required, however data to support assertions would further enhance the robustness of their interpretations. Cellmark, like other FSPs, has trained its scientists in the use of the CAI framework and is committed to assisting in the provision of data to aid such interpretations.

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

4.1 FSPs work within quality accredited management systems to deliver forensic science to the CJS which is robust, accurate and transparent although the level of available funding for forensic analysis can impact on the extent of the analysis that is undertaken and the nature of the forensic science opinion provided. Investigative opinions, preliminary evaluative opinions or fully evaluative opinions may be offered by the expert witness and it is essential that the Police and CPS understand the potential limitations of the types of
opinions provided. The delivery of forensic analysis to the CJS can be enhanced by better communication between those involved in the investigation, preparation and presentation of cases in court by more frequent inclusion of the forensic scientist. This would similarly be improved by the continued development of techniques to enhance sensitivity and the collation of data to support the CAI approach.

4.2 As mentioned in response to question 2, regular formal joint channels of communication with the Police, CPS (and Judiciary) would help to improve communication to ensure the best value is obtained from forensic evidence. This is in part a technical training issue, but it is also procedural. In the last couple of years the roll out of the Streamlined Forensic Reporting (SFR) process has identified differences in procedural understanding, with scientists sometimes being called to court having only been requested to produce an SFR1, when an SFR2 or Full Statement should have been requested.

4.3 Communication prior to court arrangements can be limited. We routinely have scientists attend court only to be de-warned and sent back to the laboratory. In addition forensic scientists often do not get an opportunity to speak to either prosecution or defence barristers prior to giving evidence, such pre-court meetings would assist greatly in the effectiveness and delivery of evidence to the court and importantly to the jury.

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

5.1 It is our staff’s experience that forensic understanding amongst lawyers, judges and juries is mixed and often dependant on the experience of the individual and the frequency with which they have encountered the evidence types previously. This is particularly the case if forensic evidence is heard in the magistrate’s court rather than crown court, where exposure to such evidence may be more limited or where awareness training has not been received.

5.2 Cellmark, along with our defence organisation (Keith Borer Consultants, KBC), has provided awareness sessions to legal practitioners which have always been well received. Further ongoing education would enhance understanding and therefore benefit the delivery of forensic evidence in the court and perhaps could be included as a standard CPD requirement.

5.3 Explaining scientific concepts in layman’s terms for members of the jury is part of our court going scientists’ training. However a pre-trial case conference or brief meeting can assist the barrister and scientist convey the concepts and limitations to the jury. Presentations and imagery can be prepared to contextualise evidence where required. This all requires time as well as timely pre-trial communication between the Police, CPS and the scientist.

6 Is the current training available for practitioners, lawyers and the judiciary appropriate?
6.1 There is concern that the closure of the College of Policing CSI training course may impact on the nature and standardisation of some CSI forensic training.

6.2 We are unsighted on exactly what training is routinely provided or required for lawyers and the judiciary. We have however provided occasional forensic awareness training sessions to legal practitioners which are always well received. Such education can enhance the understanding and delivery of forensic evidence in the court, but in our experience it is rarely requested by CPS.

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

7.1 The current forensic market in England and Wales (E&W) delivers rapid, efficient, high quality, accredited forensic services to the Criminal Justice System (CJS). The service levels match or exceed those provided anywhere else in the world. However, the sustainability of current provision is at significant risk, primarily because expenditure by the police on outsourced forensic services has reduced to approximately one third of the level in 2012 when the Forensic Science Service (FSS) was closed (expenditure has reduced from approximately £180m in 2012 to approximately £60m in 2018).

7.2 Some of the reduction of outsourced forensic expenditure is due to a shift in evidence type (e.g. the growth of digital evidence which is largely delivered by police staff), as well as several years of reported reductions in crime rates. However the reduced expenditure during this period is also a function of significant Forensic Science Provider (FSP) price reductions (some pricing is now 60-70% lower than the FSS prices in 2006). In addition, less forensic work is being commissioned by many police forces due to budget cuts; forces either restrict the amount of forensic work carried out in individual cases, and/or target their restricted resource on particular types of investigation or evidence types.

7.3 The level of outsourced forensic expenditure has now fallen to a level which will not support the long term sustainability of the current FSPs. And yet the services provided by FSPs, sometimes classified as ‘traditional’ or ‘core’ forensic services, continue to play a vital role in the CJS particularly for the investigation and prosecution of violent and sexual offences which are reported by the Office of National Statistics to be rising2, as well as across a wide range of other offences. The current market could continue to deliver world leading forensic science but, without additional funding, we are at risk of losing capability and expertise which will have a long term impact on criminal investigation capability in E&W.

7.4 The outsourced forensic science budget has in recent years been a target for reduction, but it is worth considering (a) the benefit that forensic science delivers, whilst being a tiny fraction of police and CJS budgets, and (b) the costs that have been recently incurred when the financial failure of a provider occurs.
7.5 The provision of forensic services by private providers has delivered many benefits to the criminal justice system such as scientific innovation, efficiency improvements, speed of service delivery, investment and consistent quality standards. However, the application of a price-led market approach to procurement has not recognised the particular challenges of maintaining long term sustainability and expertise in this niche sector.

7.6 Forensic provision in E&W is an unusual and challenging market. There are only three full-service FSPs and a limited number of police customers (who have increasingly tendered their work together). Providing high quality forensic services involves significant fixed costs, particularly associated with staffing, forensic clean-room facilities and quality accreditation, and long lead-times are required to recruit, train, and build scientific skills, competencies and experience (it takes several years to train a reporting forensic scientist and many years of experience to report complex cases). Police forensic procurement generally requires FSPs to provide a wide range of discipline skills, but the police requirement for some disciplines is quite limited and not guaranteed. As a result of these factors, accommodating significant amendments to the volume of complex casework carried out by an FSP following a tender/contract change is extremely difficult and costly. At the same time, the cost efficiency of delivering high-volume analytical forensic services such as DNA or drugs analysis is dependent on maintaining consistent throughput volume.

7.7 These issues have influenced the bidding decisions made by all providers during tendering exercises. The viability of an FSP depends on maintaining appropriate levels of work for their workforce, or they face changes which are destabilising both for the finances of the organisation as well as for the nation’s relatively small pool of experienced forensic scientists.

7.8 Some of the procurement strategies used to tender forensic contracts have resulted in FSPs reducing pricing to unsustainable levels, in some cases below cost. In particular the strategy of procuring larger volumes of work in the same tendering exercise while increasing the importance of price in tender evaluations, have been used to encourage price reductions. In successive tenders the emphasis on price has risen from 40% of bid evaluations in 2008, to 60% in 2016 (and as high as 75% for one analytical service). This has left price as the primary critical element in the tender decision and it is difficult to differentiate most (but not all) tender submissions in any other way.

7.9 At the same time larger amounts of work have been tendered together in order to reduce procurement costs and seek price reductions though perceived ‘economies of scale’ (although some volume estimates provided at the tender stage have not been achieved after award). Before 2006 police forces often tendered as individual forces; regional tendering then became more common (with 5-6 forces bidding together); and then in 2016, 19 (out of 43) police forces tendered their work in a combined tender. While the use of a multi-supplier strategy in the 19 force tender was sensible, it still represented a very significant amount of work for FSPs to potentially lose or win, and the bid overlapped with two other very major forensic tenders. Collectively this meant that approximately 75% of all the outsourced core
forensic services in England and Wales was tendered at the same time in 2016, which represented a significant risk (or opportunity) for FSPs.

7.10 While driving down prices has benefitted the public purse in the short term, unless addressed, the longer term financial and social implications are likely to outweigh the short term gains. In early 2017 one of the three FSPs went into administration and had to be assisted with a significant cash injection by the police while a new buyer was found. The other two FSPs have also changed ownership in the last 2 years influenced significantly by the finances of this sector.

7.11 In addition, the uncertainty of the current procurement cycles, combined with the pressures associated with the undertaking and reporting of forensic analysis in a high pressure and financially starved CJS has also had a significant impact on the wellbeing of individual forensic scientists. Low pricing means that forensic science is not a well-paid sector compared to other areas of science, and yet the CJS relies on the scientific interpretation and testimony of experts who have established their expertise and experience over many years. The potential loss of this expertise to other sectors is another important factor affecting the sustainability of the current market.

7.12 There is great concern that we could lose forensic capability which, as well as being critical for supporting the delivery of Justice, could actually be a significant contribution to help reduce overall CJS cost. It is highly plausible that spending more, rather than less money on scientific forensic analysis, will actually deliver greater overall savings to the combined CJS budgets. Rapid forensic science (both at the crime scene and in the laboratory) has the potential to reduce costly police investigative time through early identification of offenders or the exoneration of innocent suspects; earlier arrests can leading to a lower financial impact of prolific offenders who are otherwise free to re-offend; and of course compelling, high quality forensic science can lead to earlier guilty pleas, quicker trials and a resultant reduction in expensive court time.

7.13 However while there continues to be no linkage of budgets for the commissioning of forensic analysis by the police, to the CPS and judicial budgets where the forensic analysis also has the potential to reduce costs, the cost benefit of forensic work will be difficult to understand and justify. Regrettably there is a general lack of data to evidence the ‘value’ or ‘impact’ of forensic analysis on the Criminal Justice System, data which could help to identify the full benefits and influence the use of forensic analysis to help deliver efficient, fair justice and overall cost savings.

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

8.1 The main providers of forensic analysis have a long history of delivering forensic services within quality systems accredited to ISO17025 and more recently in line with the Forensic Science Regulator’s Codes of Practice and Conduct. Accreditation by the UK Accreditation Service (UKAS) according to standards determined by the Forensic Science Regulator ensures a general
consistency of approach to the delivery of quality accredited forensic science. However, UKAS is reasonably agnostic about the different scientific approaches that can be taken and accredited, which allows for differences in service provision. At a case level, the ‘quality’ of the forensic investigation can be influenced by the extent or type of forensic work that is undertaken and since this can be affected by financial considerations, this is also an area where the reductions in police budgets can have an impact.

8.2 There are also concerns about UKAS costs which have continued to increase year on year, while police budgets and expenditure on forensic analysis have fallen and FSP prices have been significantly reduced. With only a single authorised accreditation agency in the UK there are no alternatives available to suppliers, and it is likely that this lack of competition has influenced pricing decisions.

8.3 It should be noted that members of the UK’s AFSP have been influential in introducing a Case Assessment and Interpretation (CAI) methodology to standardise the interpretation of scientific findings.

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

9.1 We support the introduction of the Forensic Science Regulator Bill 2017-19 currently progressing through the House of Commons. The FSR plays a key role in ensuring that good quality forensic science continues to support the CJS.

10 What lessons can be learned from the use of forensic science in Scotland and Northern Ireland? What can be learned from the use of forensic science overseas?

10.1 Both Scotland and Northern Ireland have benefitted from very significant government capital expenditure in the recent years resulting in major new forensic facilities for SPA (opened 2015) and FSNI (opened in 2016). A similar level of investment and additional expenditure on forensic science provision in England and Wales would be extremely beneficial for the long term sustainability of the forensic market. We understand that after several years of cuts to forensic operational budgets in Scotland, the SPA has been successful in securing additional forensic funding and are recruiting to respond to backlogs in forensic casework.

10.2 It would appear that the Scottish model generally provides for greater communication and direct contact between the forensic scientist and the investigator(s). In many forces in E&W the force submissions teams can act as a gate keeper and, although there is variability of approach, in some circumstances contact is actively discouraged. There are however some benefits with both approaches; submissions teams can help to manage force financial decisions and filter any unreasonable time requests, but direct contact between the scientist and investigator can greatly assist with understanding the case circumstances and the points to prove, and help with an agreement on forensic strategy. Certainly opportunities to benefit from the
forensic expertise of the scientist may be missed if forensic analysis is too prescriptively requested by the submitting force.

10.3 Forensic service delivery in E&W would also benefit from greater and earlier involvement with prosecutors, which we understand is facilitated in Scotland by the joint location of departments at the Gartcosh Crime Campus. Historically, tripartite discussions in E&W between police, CPS and forensic providers encouraged closer strategic alignment, but currently collaboration either strategically or operationally could be improved.

10.4 It is useful to look overseas at other service delivery models, in particular to understand the level of funding provided for forensic analysis. It should however be recognised that the market approach in E&W has delivered considerable efficiency, rapid and responsive service delivery, and capacity flexibility. It is also important to understand the strengths of UK forensic provision, in particular in relation to activity level reporting (i.e. the assessment of the significance of all relevant results and examinations in the context of the case circumstances in order to consider the alternative hypotheses and draw conclusions for the court) rather than only ‘source’ reporting (ie just reporting the analytical results), which is more common in some overseas jurisdictions.

10.5 FSPs in E&W, Scotland, Northern Ireland and Ireland meet regularly through their membership of the AFSP to share best practice and discuss quality issues, and they collectively fund joint development activities to support the interpretation of forensic analysis in particular through studies on transfer and persistence. However, investment in this area of work is also threatened by the general lack of resource and funding for the sector.

11 Is the ‘Forensic Science Strategy’ produced by the Home Office in 2016 suitable?

11.1 Viewed from an FSP perspective we did not find the Forensic Science Strategy very helpful or clear about the future role of FSPs in the vision for the future provision of UK forensic services. In general the forensic scientist community who work to provide the responsive services currently depended on by the CJS were left rather unsettled, instead of being reassured by the FS Strategy, and at the time it prompted two of the three largest FSPs to independently write to the HO to seek reassurance about their view on the future of the private marketplace (which was subsequently provided). In particular there was concern that the Strategy at times appeared to be a justification for increased levels of police insourcing and in general the Strategy was not helpful for encouraging FSP investment.

11.2 In particular the Strategy document concentrated on the future requirement for digital forensic services which, while being vitally important, left the reader with an impression that there is little ongoing requirement for the broader range of forensic services that are involved in the investigation and prosecution of crime. It was also rather unrealistic about the timescales for and the capabilities of future technology; it made little recognition of the value of forensic interpretation (rather than solely source reporting); the section on innovation focussed on CSI/custody suite/roadside equipment development to
deliver an analytical result, at the exclusion of any discussion about the potential for the innovative application of techniques within an accredited laboratory environment; and did not appear to acknowledge the levels of innovation and development activities that have, and do take place within FSPs, nor demonstrate any aspiration to work with FSPs in the area of R&D.

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

12.1 We understand that the Research Excellence Framework (REF) considers the broader impact of research on the economy, society, culture, public policy and services and health, the environment and quality of life within the UK and internationally. Arguably forensic science relates to many if not all of these topics but the REF presently does not have a forensic science unit of assessment (although a refined tagging procedure has been proposed). If this were present it may further encourage the investment in research within academia. Understanding the value or impact of forensic science within the CJS and society may improve the likelihood of this being included as a unit of assessment.

12.2 Historically the forensic market has generally been of insufficient size to attract significant primary research and development. Instead analytical technologies developed for other industries have often found application in forensic science and particular suppliers have delivered innovation by developing product lines adapted for this market.

12.3 However, FSPs are constantly involved in research and development (with the major focus on development) activities to validate new methods, equipment or software to support operational introduction and accreditation. They also (individually and collectively as the AFSP) carry out extensive transfer and persistence studies to support evidence interpretation. This type of development work may not be of major interest or particularly suited to academia, nonetheless this extensive development work is essential to support evidential robustness, and the speed of development is hampered by lack of resources. There is a shortage of available funds to support this type of forensic R&D (in the days of the FSS this work might have been centrally funded) which makes a significant contribution to the CJS.

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

13.1 We work with a number of academic institutions and each year support several student projects. There are numerous areas of forensic science which would benefit from further research (which are currently impacted by budget restrictions).

13.2 One example which, because of its practical casework nature, is best carried out by FSPs is the development of further knowledge regarding the transfer and persistence of biological evidence. This can greatly assist the scientists’ interpretation of findings which is of significant benefit to the CJS, and the
AFSP members are therefore already involved in this work. However, the availability of external funding would allow quicker progress to be made in this area.

13.3 Another example, which would perhaps be best carried out within academia, is work to understand the end to end costs of the CJS so that the impact that forensic science can deliver is better understood. There have been numerous calls for research into better understanding the value or impact of forensic science on the CJS (reference point 28 of the NAO report)\(^4\). We understand that an initial study (yet to be published) funded by Transforming Forensics found a lack of end-to-end data to allow evaluation. This is therefore a gap in the understanding of the impact of forensic science which would benefit from further research.

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

14.1 Amongst forensic scientists there already exists a healthy culture of innovation, and a desire to embrace technology development where it can enhance scientific analysis or the interpretation of results to better assist the investigation of crime. Those providing forensic services are driven to push the boundaries of detection sensitivity, speed of analysis and strength of evidence but the CJS is understandably, and quite rightly, conservative. The pace of technology change must always be tempered by the requirement for extensive testing and validation so that it can withstand the scrutiny of the CJS when used to support an investigation or prosecution.

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

15.1 The compartmentalisation of forensic requests and the more limited opportunities for forensic scientists to gain broader exposure with the investigative process, raises concerns about the future development of multidisciplinary-skilled senior scientists. At the same time the general lack of funding for forensics and the continual focus on the targeted delivery of operational performance provides limited opportunities for broader discipline training.

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

16.1 There are other individuals and organisations who are better placed to comment.

16.2 Please note that the lack of a consistent prosecution outsourcing strategy, which has been evidenced by the financial difficulties experienced by a number of organisations who have entered this sector, has not assisted the justification for investment in this discipline.

17 **Is enough being done to prepare for the increasing role that digital forensics will have in the future? Does the Criminal Justice System have the capacity to deal with the increased evidence?**
17.1 There are other individuals and organisations who are better placed to comment.

References

14 September 2018