Mr Garry England – Written evidence (FRS0076)

Whilst I am submitting this as an individual, I am doing so as a result of my role within the Metropolitan Police. The views expressed are my own and should not be taken as those of the Metropolitan Police.

The answers to the questions detailed below are written solely from the perspective of the discipline (digital forensics), in which I am practicing.

Questions

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

1. Forensic science is essential to delivery of justice in the UK. In many cases the evidence supplied after intervention by forensic providers is crucial in both securing convictions, and establishing innocence.

2. However, it is unhelpful to consider all branches and methods of forensic disciplines under the same broad definition of “Forensic Science”. Whilst all disciplines provide evidence 'forensically', not all could always be considered to do so using a strict scientific methodology in every case.

3. Initially this seems little more than semantics, until one considers the underlying approaches inherent in producing different types of evidence for the justice system.

4. Typically, expert, opinion-based, evidence will have been subject to a typical 'scientific' methodology. That is to say, an experiment (or test) would have been conducted to 'prove' or 'disprove' a hypothesis. The results of such a test can then be used to inform the opinion(s) of the practitioner as to the most likely scenario.

5. Factual evidence (i.e. that which is apparent to anyone) will have been subjected to a process-driven methodology in order to recover or present the factual material. A good example of this would be the presentation of an SMS message recovered from a mobile telephone. In this example, the SMS message is present on the mobile telephone itself, and can be seen by anyone with access to the device itself. Such data is commonly recovered through use of (relatively) standardised methods.

6. The approach for each is very different and, therefore, should be a significant matter for consideration when attempting to determine policy for the forensic disciplines in question.

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

7. As previously mentioned, evidence produced by forensic providers is often crucial in the UK justice system. The forensic disciplines are served by professional and passionate staff, who care deeply about the provision of justice. They work exceptionally hard to ensure that the best possible evidence is delivered.

8. There is a significant gap in the actual and perceived values of forensic disciplines. Often, forensic providers (both public and private) are underfunded and overworked. The vast majority of the staff are ‘civilian’ employees and, in the ‘battle’ for budgets and funding, are often (most likely unintentionally) overlooked in comparison to their Police colleagues.
9. In this respect, forensic disciplines and providers may often ‘lose out’ due to politically motivated decisions and pressures.

**Understanding and use of Forensic Science in the Criminal Justice System**

**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?**

10. The use of forensic techniques in criminal investigations would appear to be fairly well understood. Investigators are, typically, aware of the value of certain types of digital evidence. That is not to say that improvements could not be made. There is sometimes a poor understanding of some elements of law in relation to digital forensics.

**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?**

11. A quality management system is essential in ensure that the evidence provided to the Criminal Justice System (CJS) is accurate and of a sufficient standard. However, it is crucial that such standards be appropriate to the discipline.

12. Current communication between CJS professionals and digital forensic practitioners is poor. Any evidential issues will commonly only be highlighted at extremely short notice (often a matter of days) prior to the commencement of a trial. Such short notice periods do not allow an appropriate period of time for further work to be carried out to mitigate the issue in question.

13. Many of the issues highlighted could be significantly reduced through early communication between practitioners and CJS professionals. Currently, early contact (at Pre-Trial Plea Hearing) is encouraged within my current department. However, this is often not taken up by the CJS. Given that many of the evidential issues encountered are relatively simple, early contact would assist in improving the efficiency of hearings, and the transparency and understanding of digital evidence.

14. Establishing communications channels would appear to be something that would need to be agreed by both parties (that is to say practitioners and CJS professionals). There are a number of methods that this could be achieved. Staff exchanges, secondments, mutual training days or embedding staff within the relevant departments, are a few of the methods that could be used to improve communications.

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

15. The current level of understanding displayed within the Criminal Justice System is extremely variable, dependent on the forensic discipline in question.

16. With respect to digital forensics, understanding has often been found to be poor. It would, however, be extremely unfair to posit that this is solely a
problem for the CJS. Often, law enforcement investigators also display a similarly poor level of understanding.

17. Despite this, it would seem to be nearly inexcusable that both law enforcement investigators and CJS professionals have a poor understanding of technologies that are in common, everyday use. The issue is further exacerbated where technical explanations are required in relation to proposed defences. An excellent example is in relation to so-called ‘hacking’ or ‘virus’ defences. There is an increasing trend for such defences being proposed, but there appears to be no requirement for the defendant to provide any evidence that such a thing has occurred. Nor it is considered appropriate for digital forensic practitioners to dismiss such defences based on technical matter (i.e. the defendant has not provided any evidence that it has occurred, nor demonstrated an understanding of what the defence actually means). The further work required to mitigate such defences is lengthy and can be extremely complex, thus delaying trials unnecessarily.

18. Whilst Digital Forensic practitioners attempt to provide the best possible explanations, this is somewhat constrained by the limited access that professional civilian staff have to CJS professionals. Often, the first contact is mere weeks or days prior to the commencement of the trial. Every effort should be made to encourage the earliest possible contact between CJS professionals and civilian Digital Forensic practitioners. Furthermore, efforts to assist in fostering a closer working relationship between CJS professionals and Digital Forensic practitioners should be considered laudable, and encouraged. This may include the provision of mutual training exchanges or embedded liaison staff.

19. Relationships such as those detailed above are enormously constructive for both digital forensics, and CJS professionals. One such relationship within the Metropolitan Police led to huge strides being made within Child Abuse investigations, thus allowing a significant increase in the number of offenders being identified and prosecuted.

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

20. Having not experienced such training, it is not possible to comment with any authority on this subject.

21. However, having delivered a limited training programme to CPS professionals, I can only say that it was an extremely positive and informative process.

Standards and regulation

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

22. The provision of Quality Standards is currently the single most significant challenge facing forensic providers in the UK.

23. Many disciplines have been ‘squeezed’ into the regulatory framework under the auspices of ISO 17025, despite this being ill suited to some disciplines
(e.g. Digital forensics). As a result, many forensic providers are struggling with an expensive, unwieldy and laborious quality management system.

24. There is a significant risk that the ISO17025 framework will negatively influence the ability to provide defendants with independent examinations and analyses. The cost of design and implementation of an ISO17025 compliant quality management system means that a significant number of talented, but small-scale, forensic providers are at risk of closure or discontinuation. The absence of these providers could lead to an inappropriately low level of probity being applied to evidence produced by law enforcement. The lack of probative challenge to this evidence has the potential to result in erroneous convictions.

25. In addition, the smaller-scale providers have been used to assist law enforcement with extremely complex casework where specialist skills or knowledge are required. Were these providers to become absent, an often crucial resource has been taken away from law enforcement.

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

26. The current system of accreditation is neither ‘working’, nor is it ensuring quality of output.

27. Thus far, no single body or person has better encapsulated the guiding principles of digital forensic evidence than the ACPO guidelines and the four principles of in relation to digital evidence. I have seen nothing within the Forensic Science Regulator (FSR) guidelines to suspect that the FSR has any better grasp of the pertinent matters.

28. The fact that ISO17025 is being persisted with for digital forensics, further reinforces the impression that the quality framework has been specifically designed with ‘traditional’ forensics in mind. It would appear that digital forensics has been included as somewhat of an afterthought. This framework has been stubbornly applied, despite more suitable ISO standards being available (ISO27037, 27041, 27042, 27044 & 27050). Indeed, ISO27037 is entitled “Guidelines for identification, collection, acquisition, and preservation of digital evidence”. Such standards are uniquely suited to digital forensics. Whilst it is appreciated that these currently only hold the status of ‘guidelines’ it would seem a relatively simple matter for the FSR to mandate compliance in order to achieve accreditation.

29. We currently find ourselves in a situation where the accreditation body (UKAS) are over-extending themselves, and are determining forensic practice within the UK. This is despite not being best placed to make that determination. By accrediting certain practices and procedures, UKAS are effectively giving a ‘seal of approval’ to said practices. The path of least resistance for digital forensics providers is to simply accept this without challenge. This does not appear to be a situation where ‘quality’ is fostered. Such a system promotes consistency of approach over quality of product.

30. The current accreditation framework, based on ISO17025, does not appear to adequately provide for subjective analytical methodologies. There does not appear to be a suitable method to accurately describe processes that are recursive and may be re-iteratively applied, dependent on initial results.

31. The FSR validation requirements are placing a further, near unmanageable, burden on Digital Forensic practitioners and providers. There has been little meaningful guidance on the matter of validation, and many providers are
left to employ validation methods with some uncertainty. Validation within
digital forensics is an incredibly thorny subject. The lack of clear, concise
guidance has not assisted in this matter.

32. Perhaps a more effective method of accreditation would be to accredit
practitioners rather than processes and organisations. In that manner, the
CJS can be sure that the practitioner themselves is both competent and
proficient in their specific discipline. Further accreditation of organisational
processes could be provided through use of existing standards (e.g.
ISO9001).

33. It would seem clear that the ‘one-size fits all’ model of accreditation that is
currently being applied is not suitable. An approach that is tailored to each
forensic discipline would be far more effective in ensuring the delivery of
high quality evidence to the CJS.

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

34. The FSR has, and will, play an important role in ensuring the delivery of
‘quality’ evidence to the CJS. It is entirely appropriate that the FSR has
oversight of all providers that are responsible for presenting evidence to the
CJS. As such, it would seem incomprehensible that the office does not
currently hold statutory powers.

35. In order to be effective, the FSR must have statutory powers. These powers
should include:

- The power to rescind accreditation in appropriate circumstances.
- Powers to order a forensic provider to cease provision of evidence where
  standards are not being sufficiently met.
- Power to inspect, at no notice, a previously accredited organisation.
- The FSR should also be able to actively mediate in disputes in relation to
  accreditation status.

36. It is also important to ensure that there is also a method of appealing
decisions made by the FSR. In this respect, I believe that the most
appropriate authority would be the Judiciary.

**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?**

37. It is of note, that some large-scale law enforcement organisations in Europe
have abandoned ISO17025 as the ‘de facto’ standard for all forensic
disciplines, and are, instead, employing standards that are suitable to the
discipline in question.

38. A recent paper published by Georgia State University
(https://readingroom.law.gsu.edu.gsulr/vol34/iss4/3/) presents an
objective appraisal of the current UK accreditation framework and highlights
some serious flaws and questions.

**Is the 'Forensic Science Strategy’ produced by the Home Office in 2016
suitable?**

39. The Forensic Science Strategy (2016) has not adequately addressed the
challenges facing Forensic Science.

40. The House of Commons Science and Technology Committee report on the
Forensic Science Strategy
41. The strategy itself places a reliance on a ‘national’ model, without truly determining who will be responsible for the delivery of such a model, and no real evidence that would appear to suggest that such a model is appropriate. In addition to this, there is no real clarity on how a ‘national’ model would be implemented, or what it would look like once in place.

42. Several mentions are made of “real-time” forensics delivery. This is deemed one of the overriding priorities. Once again, there is no real evidence to suggest that this is appropriate or required. In some cases, a “real-time” delivery model would be to the detriment of ‘quality’ evidence, thus placing it in direct contradiction to the FSR model.

**Forensic Science research landscape**

**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?*

43. The current research landscape is not well understood. Much research is conducted outside of official groups, and the results are often not well communicated within the digital forensics community. There is a reliance on practitioners having a personal interest in the discipline in order to ensure that their knowledge is current. Communication streams are disparate and fragmented with no real consistency between sources. The majority of practitioners are aware of some resources, but the choice of resource is often a personal preference. Many practitioners rely on internet blogs, conferences and knowledge of colleagues within the discipline.

44. Funding streams for digital forensic research are not well advertised, disparate, poorly understood and often considered difficult to access. Many practitioners are entirely unaware of the funding resources available. Innovation funding should be well documented and advertised within the community, so that the excellent research currently being conducted may continue. A single national-level innovation funding resource may significantly mitigate many of the issues. It is anticipated that such funding would require a presentation (or business case) to the funding council, to whom the decision on whether to fund the research would fall. This seems an ideal role for UK Research & Innovation.

45. The focus of research should be led by current/near-future demand within digital forensics. This could be further supplemented by joint ventures between practitioners and academia.

**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?*

46. The gaps in research and understanding of digital forensics cannot be simply articulated due to the fast-paced nature of technology development. What is considered a crucial research area one day may be entirely irrelevant the next due to a technological advance or software update. However, some of the knowledge gaps could be significantly reduced, were CJS professionals and law enforcement investigators to develop a ‘base’
level of knowledge in relation to fundamental technologies and technological concepts.

47. Whilst necessity-driven research is, and should remain, in the hands of the practitioners, there is often too little time for practitioners to embark upon large research projects. This is particularly noticeable where research into areas of new or upcoming technology is required at a national level. Much of this, national level, research is performed by the Centre for Applied Science and Technology (CAST). This is most likely the most appropriate forum for this type of research, but it would most definitely benefit from greater inclusion of practitioners.

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

48. It cannot under the current system of accreditation. The current system of accreditation has, whether intentionally or not, promoted an extremely risk-averse environment within digital forensics.

49. Innovation, by its very nature is a high-risk proposition. Any system that does not allow these risks will, undoubtedly, stifle innovation.

50. For disciplines such as digital forensics, innovation is led by practitioners, and is often a result of necessity. The rapidly changing and inconsistent nature of technology means that research into specific areas must be conducted as they are encountered. In an industry where manufacturers deliberately ‘hide’ details of their functionality to gain an edge over competitors, reactive research is, currently, the only practical option. It is also true that practitioners are best placed to be able to identify trends in the uses of technology in the commission of offences. Closer working relationship with industry may be able to assist in this, but given previous interactions with various executive bodies, one can understand the position of many manufacturers and vendors to this approach.

51. Digital Forensic practitioners have always been at the forefront of the development of new solutions and technologies. It is important that this be maintained, and to ensure that Digital Forensic providers are not stifled under the current accreditation regime.

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

52. Due to the current budgetary restrictions within law enforcement, there are skills gaps within digital forensics, both current and anticipated.

53. Digital Forensic departments are not able to ensure the proficiency of their practitioners due to a lack of funding. Despite this, some agencies are making efforts to mitigate this by providing internal training to staff. Whilst this is a laudable initiative, the resources available to provide this training are far outstripped by the demand.

**Digital Forensics**

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

54. This question is not clear. There is no indication as to what is meant by the term ‘evidence base’.
If this term is taken to mean “Are there gaps in the justifications for providing digital forensics services?”, then the answer is “No”. Generally, the justifications for, and value of, digital forensics is well recognised within the CJS and wider law enforcement community. However, in some cases, the evidence for those justifications can be somewhat nebulous and difficult to quantify. For example, how does one ascribe a value to an examination that does not result in a conviction? Additionally, it is difficult to determine the ‘value’ of a service when information is not provided about the outcome.

If the term is taken to mean “Are there gaps in the tools and techniques available for practitioners to provide digital evidence?”, then the answer must also be “No”. In the majority of cases, the tools and techniques available to digital forensic practitioners are adequate for the task of providing digital evidence. There is a significant variation in the tools and techniques available, and these are generally well-documented.

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

The current level of preparation with respect to digital evidence is, at best, poor. The CJS has neither the resources to deal with the increased volume of evidence, nor the understanding in relation to digital evidence and technology.

Nor do Digital Forensic providers have adequate resources to assist in this, beyond that which is already part of the role of providing digital evidence.

14 September 2018