1. I am an independent forensic video consultant and image analyst, carrying out work for both the Police and defence solicitors. The crime work is split approximately 50:50 between the Crown and defence, with approximately 5% of my work in support of civil cases. My most recent court appearances have been at Bristol, Belfast, Liverpool and Chelmsford Crown Courts. These were all murder cases; three appearances were for the Crown, one for the defence. My answers are based on experience at court regarding CCTV, image processing & enhancement and image analysis.

2. **Q1 & Q2;** I believe that juries expect forensic science to be a contributor to the evidence in the case that they are trying. Perhaps this is due to Film, TV and other fiction (the so called “CSI Effect”). The positive side of this is that juries may feel more engaged when listening to an expert witness, rather than sitting passively through hours if not days of other witnesses’ evidence. The strengths brought to the justice system by experienced forensic image processing experts and image analysts include frame-by-frame examination and analysis, with detailed still images or prints production. This is a facility and capability not usually available to the investigating officer or a defence solicitor. A significant **weakness** is the time forensic science can take to complete. In two of my recent cases the Police required the comparison of items of clothing recovered (from suspects) with the images of clothing worn by persons recorded by CCTV systems. However, for the first of these cases the clothing was sent to a private forensic service provider for DNA testing. The items were not returned to the police for six months, which caused a huge delay in further analysis work. The forensic reports were disclosed to the defence very close to the trial date, which, quite rightly they objected to and the trial was delayed.

3. **Understanding & use of Forensic Science Q3;** does a **scientific evidence base** exist? The Defence may use a tactic of trying to exclude imaging evidence because it has “been edited or photo-shopped” in a nefarious manner. Or it may be proposed that the imaging is totally unreliable so it should be excluded. This obfuscation may be addressed by the forensic imaging expert who, without favour, is there to help the court. This is only achievable by having a depth of knowledge, training, experience and skill. Issues of artificial lighting, anomalies, limitations of image analysis may be explained. I attended a trial where a professor of Human Sciences was called as a gait analysis expert witness. He is a member of the Chartered Society of Forensic Science (CSoF) Forensic Gait Analysis Working Group that was developing standards of practice for forensic gait analysis in collaboration with the Forensic Science Regulator (FSR) and the Home Office. In spite of his credentials and the widespread use of gait analysis, the Judge excluded his evidence from being given to the Court because he personally gave gait analysis no credence. Unprepared, the prosecution barrister was unable to argue for support of this type of evidence, probably due to a lack of understanding of the technique and its widespread use. The Crown then dropped the case immediately. Would the judge have been equally willing to throw out fingerprint evidence that has been around for over 100 years? **Q4; channels of communication** the admissibility of this type of evidence should have been addressed in the Judges’ chambers before the
witnesses were called to attend, the jury sworn in and the trial started. **Q5** – see Q10 below.

4. **Standards and regulation**

**Q7; is the current market for forensic services in England and Wales sustainable?** Until 2008 I was employed by Control Risks in London. The forensics department was well respected, highly successful, had a healthy turnover and was profitable, especially in the mid-decade. A number of practitioners held the necessary level of security clearance for Counter Terrorism work for both the Metropolitan Police Service and Security Services. Although contracted to the MPS and the Serious Organised Crime Agency, by 2010 the Audio, Video and Evidential Presentation teams were closed down and those experts were made redundant. In the same year the Forensic Science Service (a Government Company) was closed down due to reported losses of £2m per month. In early 2018 the major provider Key Forensic Services (KFS) was placed into administration. Whilst this company was rescued in the spring of this year, some fear it may be a “sticking plaster” applied to serious underlying financial problems for forensic companies. The police are often unwilling to spend money, even when the budgets for tasks are in place. The Legal Aid Agency has reduced the rates payable to experts and often tries to reduce the hours quoted for. Solicitors have advised me that although a quote may be authorised by the LAA, there is no guarantee that they will pay. Add to this history of failure the huge and disproportionate costs of accreditation to ISO17025 (and on-going re-accreditation), I believe that forensic services cannot be considered as a sustainable business. **Q8; the system of accreditation** is about management, controls and processes. It does not prove whether the forensic task is being carried out correctly or if the expert is any good at the job. **Q9; the role of the FSR.** In announcing the post of FSR in July 2007, the Written Ministerial Statement consisted of 8 lines of text. This is repeated in the 168 page document Legal obligations: issue 6 dated 6 August 2018. The FSR’s documentation & guidance has grown to such a degree that forensic practitioners operating as Micro Companies or Sole Traders are overwhelmed by the administrative burden when trying to manage these requirements. The larger FS providers such as LGC or KFS may have Quality Assurance/Control departments whose sole purpose is to interpret and help with the implementation of these requirements. But this is an added management cost overhead that will affect the sustainability of the businesses (see Q7 above.) When misconduct occurs, the FSR should be the first authority contacted by whistle-blowers, rather than any other body where management may have conflicting commercial interests. The FSR should have statutory powers to advise the Legal Aid Agency to not authorise a company or practitioner if under investigation for irregularities. The FSR should liaise with the Police and CPS if it is considered that a forensic service provider has broken the Rules and is possibly part of a conspiracy to pervert the course of justice. **Q10; what lessons can be used from the use of forensic science in Scotland?** I understand that Corroboration is not required for forensic science work. However, the validation/verification stage required by the FSR is an excellent check provided it does not become a requirement for the work to be repeated or carried out twice. Several months after writing a report for a Scottish Police Force, a member of the Crown Office & Procurator Fiscal's Service interviewed me at the precognition stage. At first this seems an onerous task, but it is a step-by-step explanation of the evidence, including what the expert has done,
the methods and equipment used. This should preclude the need for legal argument at Court (see Q5 above.)

5. **Digital Forensics Q16; gaps** with limited resources, all areas of handling digital evidence must be a huge challenge for the police. With officers having little or no training for CCTV recovery, there is a worrying habit that many police officers are finding an easy shortcut. The camera facility on a mobile phone or a body-cam is often used to “shoot a video” of a CCTV monitor showing the incident footage. If there is an urgent need to make a same day appeal on local TV news or social media, then this may be acceptable. But to retrieve an image quickly in this way rather than carry out a controlled and correct download of the data for wider forensic use is unacceptable. This is because for image analysis and comparison purposes, the highest possible image quality is required. **Q17; increasing role of digital forensics** the use of the Barco ClickShare system in court seems a good idea. Although a recent defence task carried out by me highlighted many shortcomings. My DVD video and other digital stills media were reviewed and tested in the solicitor’s office using both Windows and MacBook Pro (as used by many barristers) laptops. The media was also tested by a member of the defence team elsewhere. However, at court the click-share system would not play the disks from a MacBook Pro. I had to assist the team by telephone whilst they were at court over 300 miles away. Apparently the Barco ClickShare system must have regular software updates in order to communicate with MacBook laptops. This is a seemingly ordinary task, but at that court, no member of HMCTS knew of this requirement or how to do it.

**Other issues**

6. **The cost of accreditation by UKAS to ISO 17025.** The March 2017 meeting of the Forensic Imagery Analysis Group at KFS in Coventry was attended by the FSR. A colleague stated that he had "**set aside £14,000 for accreditation costs.**" This figure was not refuted by the FSR. The continuation costs for re-accreditation in year 2 are estimated at half of the initial cost. The Legal Aid Agency allows fees of £72 per hour for most forensic imaging tasks. Therefore the cost of accreditation requires in the region of 200 hours of expert fee earning time. The CSofFS has worked out a less expensive path, but the costs are £6,000 or 84 hours of fee earning. Compare with fees to other regulatory bodies: a Doctor’s fee to the General Medical Council is £425, an Optometrist’s fee to the GOC is £340. In the Legal Profession, fees to the SRA are based on the number of fee earners and gross turnover. The SRA web-site calculator shows that a 2-solicitor firm turning over £200k would pay £1731. A single solicitor earning fees of £60k would pay £690. These order of fees are probably acceptable to those offering professional regulated services (doctors and lawyers) and would be to small Forensic Providers operating as micro-businesses or Sole Traders. But the costs of accreditation to ISO 17025 are totally disproportionate to the business model. Many of us small Forensic Providers will continue to work until we are legislated against or instructed not to. But many are already planning to give up altogether, purely down to the exorbitant and unacceptable costs of regulation.

7. At the same meeting (para.6) a member of Bedfordshire Police Audio Video unit described the collaboration between the police forces of Bedfordshire, Hertfordshire and Cambridgeshire and the way his unit had achieved ISO 17025
accreditation. But that was only one of the 6 units within the collaboration. The funding was not available for the other units to follow the same path. Also, each area of forensic work needs to be accredited separately. It is galling that private companies are being forced to conform to an accreditation standard imposed by the Home Office FSR, while Home Office organisations such as the Police are finding it difficult to conform themselves.

8. Independent video and imaging FSPs give a service to the Police that they usually cannot produce themselves. In defence tasks, the FSPs give an overall service to the judiciary by independently testing the Crown’s case. If most small FSPs cease to exist, then safe convictions may become questionable.

13 September 2018