



Fingerprint Quality Standards Specialist Group (FQSSG)

Note of the meeting held on 18 September 2018 at 2 Marsham Street, Westminster, London.

1.0 Welcome, Introduction and Apologies

1.1 The Chair welcomed all to the meeting. A full list of the attendee organisations and apologies is provided at Annex A.

2.0 Minutes of the last FQSSG meeting on 10 May 2018

2.1 The previous FQSSG minutes had been approved by correspondence and were published on the Forensic Science Regulator's website.¹ The need for timely feedback from members on the minutes prior to publication was emphasised.

3.0 Actions and Matters Arising

3.1 The following matters arising from the previous FQSSG meeting were discussed:

3.1.1 *Action 2: West Yorkshire Police to share paper on the term 'identification' with the group.* This paper had been produced by policing as an initial response to the Regulator's challenge about the term identification. The paper had not yet been agreed and was still in draft. A member raised that although they agreed with the need for clarification of the term identification, they felt that sufficient evidence was not provided to support all arguments in the paper. The FQSSG would assess this document in more detail as part of their workplan under interpretation.

3.1.2 *Action 5: EMSOU to share fingerprint accreditation spreadsheet containing treatment information with chair.* A spreadsheet containing information on the accreditation scope for different police forces had been circulated to the FQSSG ahead of the meeting. It would be important to ensure sufficient accreditation for coverage of different evidence types and forensic techniques across forces. In the Regulator's Codes of Practice and Conduct (the Codes) an allowance existed for rarely used forensic techniques to continue to be used provided it could be demonstrated that the laboratory was proficient in carrying out the technique. It was reported that some forces were misinterpreting 'rarely used' to carry on with more routine techniques without extension to scope. Where it was identified accreditation was lacking in different region's portfolios, this could be added to scope for accreditation and/ or capacity could be identified elsewhere.

Action 1: Andrew Price to clarify whether secondary legislation will mean that infrequently used techniques can no longer be employed

¹ Available from: <https://www.gov.uk/government/organisations/forensic-science-regulator/about/membership#fingerprint-quality-specialist-group>

3.1.3 All other actions were complete or would be covered under later agenda items.

4.0 Terms of reference – sign off

4.1 The terms of reference had been discussed in the May 2018 meeting and members had been invited to provide any further feedback via correspondence. No feedback had been received and the FSRU were now proposing that the ToR were signed off by members. Members were content for the ToR to be published.

5.0 Work Plan

5.1 The updated work plan for the FQSSG was discussed. A sub-group would be established to set out validation requirements for the HOB Matcher programme and create a validation plan. This would be discussed in further detail under item 7c. Probabilistic evaluation of fingerprints would be covered under item 7a.

5.2 The Defence Science and Technology (Dstl) representative had been assigned the task of setting out the validation requirements for powder detection and collection of fingerprints. An action plan had been compiled by a member of staff who had now left, and this was with the Dstl team for completion. The Home Office Commissioning Hub, who were now the point of contact for new projects, would need to be informed of the proposed work. It was felt that it would be helpful for the FQSSG to contact the Commissioning Hub to escalate the issue. The plan would be shared with the FQSSG once it had been approved. Prior to this, Dstl would need to understand what a practical deadline would be for delivery of this work. Due to the timing of the accreditation for CSI, the validation requirements would need to be in place with a deadline of January 2019. It would also be important that the NPCC CSI Expert Network was informed of progress on this work. Dstl were asked to provide an update for the November meeting of the FQSSG.

Action 2: Helen Bandey to report back on validation requirements for fingerprint powdering at November FQSSG meeting and link in to the NPCC CSI expert network.

5.3 Dstl had provided a summary of the work that they could carry out to support accreditation deadlines to the Home Office Commissioning Hub. Once this proposal was approved, this would be shared with the FQSSG. A meeting would be set up to discuss the proposal between Dstl, the FSRU, and the NPCC CSI Expert Network.

Action 3: FSRU to inform the Home Office Commissioning team that validation of fingerprint powdering was a priority for Forces.

Action 4: Action 3 to be followed up with a meeting between Michelle Painter, FSRU, the Home Office Commissioning team and Gillian Knevitt to discuss Dstl proposal for work they could carry out to support accreditation deadlines, including fingerprint powders. Michelle Painter to arrange.

5.4 The FSRU had been doing work to develop a standard for evaluative interpretation across all disciplines. This would assess how scientific evidence is properly evaluated for presentation in courts. An initial workshop was held with experts from within the field,

including the Royal Statistical Society. Based on this a draft standard had been produced which would be circulated to that group and to members of the judiciary. The draft standard would then be circulated to the Regulator's fingerprint, DNA and digital specialist groups as these areas of forensics would all be impacted by it. The work plan for the FQSSG would need to be updated to take account of this work.

Action 5: FSRU to update work plan to take account of work on interpretation and the Regulator's evaluative interpretation standard.

5.5 A questionnaire to collate information on research and development for fingerprint interpretation had been produced by a working group of the FQSSG. The questionnaire had not been distributed yet as it would be necessary to evaluate whether it would effectively gather the desired information. Once this was finalised it would be handed over to policing. A member highlighted that it should be sent out to CSIs as a separate group since they were responsible for completing the the initial vetting of a fingerprint. Members felt the questionnaire should identify areas where research was required to maintain effective provision of fingerprint analysis and comparison. Transforming Forensics (TF) were separately assessing training requirements, so this questionnaire would specifically focus on research and development. The working group would review the questions based on discussions.

Action 6: FSRU to review fingerprint interpretation R&D questionnaire with the working group based on discussions.

6.0 Accreditation Updates

6.1 a. NPCC – Bureau

6.2 A joint UKAS-NPCC working group had produced accreditation heat maps which showed where accreditation had been granted and which forces had accreditation visits scheduled. The group would also assess prioritisation for UKAS visits to those forces who were ready for accreditation. It was thought that second visits should be prioritised as those forces were more likely to be ready, provided recommendations from the first visit had been embedded in processes.

6.3 c. NPCC - Crime Scene

6.4 The NPCC CSI expert network would be producing guidance for five different workstreams by the end of 2018. Terms of reference had been issued for each of the workstreams. Landscaping work was ongoing to make clear the timescales for accreditation to the CSI community. It was expected that two visits would be required covering standard crime examinations and complex scenes. Support from the TF performance and accreditation team had been received; helpfully, a CSI knowledge-base had been produced setting out the documentation required for accreditation. A policing Gold Group had also been set up to ensure the accreditation deadline for CSI was met.

6.5 UKAS were offering pre-assessment visits for CSI as they would be assessing against a new standard. UKAS had carried out two dry-runs and the findings of these had been shared with the CSI expert network. Generally, the culture within the CSI community was very positive towards the accreditation exercise and good momentum was being achieved.

7.0 Quality/Scientific/Development Updates

7.1 a. R&D/ENFSI

7.2 A presentation was provided by Christophe Champod of the University of Lausanne (UNIL) regarding a statistical model used for fingerprint analysis and comparison. Members were provided with an overview of the statistical model now integrated in 'PiAnoS' used at UNIL to compute a score-based likelihood ratio² for fingerprint comparison. The system is not used for searching a fingermark against a large database of fingerprints, but is used when reasonable suspicion was held to compare a fingermark and a fingerprint.

7.3 Analysis of a fingermark is carried out prior to comparison with a fingerprint. The minutiae³ in the fingermark and on the comparison print are set by the examiner and a likelihood ratio is computed by the system for that alleged correspondence. Distortion due to elasticity of skin is duly considered in the model and a map can be produced to display the degree of distortion. If a close non-match is obtained, then the potential high degree of distortion would mean that the likelihood ratio calculated would be low. A member asked about the difficulty of computationally comparing fingermarks which had an 'open field'⁴. The model accounts for the absence of minutiae in open field as well.

7.4 An overview was provided of FRStat, fingerprint comparison software developed by Henry Swofford, former chief of the latent print branch at the U.S. Army Criminal Investigation Laboratory at the Department of Defense (now a doctoral candidate at UNIL). FRStat is based on open-source software but it is not yet available in the public domain. Examiners mark the potential corresponding minutiae on the mark and the print. From these annotations, the minutiae are compared, and a global similarity statistic is calculated. This is the sum weighted by all of the scores obtained from the differences computed between all paired minutiae. This figure is used to calculate a value for the statistical strength of the match.

7.5 Use of PiAnoS, FRStat and other digital comparator tools would be desirable for use in the criminal justice system to provide extra transparency in substantiating opinions reached by an individual. It was questioned whether such a statistical approach would alter the way in which evidence is given. If the cross examination took a statistical turn, a statistician should be brought in to explain the method.

7.6 It would be important for sufficient training to be provided to examiners, alongside maintenance of sound comparison practices. In addition, fingerprint comparison software should have a separation between analysis and comparison so that results cannot be tweaked to obtain a sought-after likelihood ratio. Searches are logged so it could be seen what the operator had done.

7.7 The availability of the PiAnoS software was discussed. Since the software is free, it was asked why it was not already in use within fingerprint bureaux. TF were aware of the

² A score-based likelihood ratio is weighing the support provided by the findings from a fingerprint comparison in favour of common source or different sources. The resulting (usually numerical) value from the comparison can be translated to an appropriate verbal scale.

³ Minutiae are the major features (ridge endings or bifurcations) of a fingerprint.

⁴ An open field in a fingermark is an area of apparent ridge detail where there is only continuous ridges showing no minutia.

product, having tested it some time ago in an earlier version. There had since been advances in the capabilities of the software and so TF would use with pathfinder forces. The TF representative would feedback on the presentation received.

7.8 c. HOB – Fingerprints

7.9 Members were provided with an update on the work of the Home Office Biometrics Strategic Matcher (Fingerprint) project, which would deliver a new Biometric Matcher Platform and associated Service (BMPS) to replace the two separate matching capabilities in the legacy IDENT1 (law enforcement) and IABS (immigration) systems. The HOB vision was to show acceptance by June/July 2019, and to then carry out user acceptance testing and parallel running of the systems before the new Matcher would go live in October 2019. The HOB business validation plan to support ISO 17025 validation in fingerprint bureaux was described. A separate testing environment would be created for the new system. It would be important to ensure that the system was fully configured and optimised before it went live, as any changes post-implementation would require forces to carry out additional verification and validation.

7.10 A sub-group of the FQSSG would be established to help support the HOB validation work to ensure that the new of the new BMPS met the requirements of ISO 17025. It was asked whether a representative from the TF programme should sit on the group. The TF representative agreed to feed this back to others on the programme.

Action 7: Amanda Harrison to discuss within TF whether a nominee will be put forward to the validation sub-group

7.11 The sub-group would produce a draft validation plan for the next meeting of the FQSSG in November to ensure that the HOB programme had sufficient time to source additional data should it be required.

Action 8: FQSSG Validation Sub-group to produce a first draft of the validation plan by the November meeting of the FQSSG

8.0 Professional Updates

8.1 a. Dstl

8.2 Due to staffing issues, technical delivery had not progressed much over the last 6 months. New staff members were currently being taken on to resolve this issue. Progress that had been made included a review of a Dstl-held archive of forensic science research over the last 40 years. This was carried out in preparation of a site move planned for 2020 and put Dstl in a good position to answer historical enquiries and plan for future science and technology work. The validation materials that sit behind the Dstl fingerprint source book had been moved into an easily accessible central location so that they could be provided as a pack if requested by law enforcement agencies carrying out accreditation exercises. Technical projects would be initiated by the new intake of staff and reported in a December newsletter.

8.3 A meeting had been held with the Home Office Commissioning Hub team to understand how the relationship with the FQSSG might be affected. Clear messaging was

received that tasking for Home Office-related work needed to go via the Commissioning Hub.

8.4 A summary had been produced of the material and information Dstl hold across the policing and security group (formerly CAST) on what they can do to support UK law enforcement to meet the Regulator's standards. If these recommendations were accepted by the Commissioning Hub then the document could be shared with the FQSSG.

8.5 b. College of Policing

8.6 A new curriculum designer had been recruited whose role commenced at the end of August 2018.

8.7 An update was provided on the College of Policing (CoP) training packages which were being prepared for licence. The CSI stage 1 and 2 packages were very close to completion and would be out for licence shortly. The fingerprint laboratory packages were currently going through approval and would be launched by the end of the year. A crime-scene skills working group meeting had been held in June. The learning standard for this area had been sent out to scientific report managers for final consultation. Once feedback had been received then the final training documentation could be assembled. For the fingerprint learning programme, the Ident-1 tenprint learning package was available for forces to use. The CoP were working alongside TF and Portsmouth University to progress this work which would look at future requirements for fingerprint service.

8.8 The CoP consultation on role profile would close in November 2018. If members had any more feedback they were asked to submit this via the system.

8.9 c. Chartered Society of Forensic Sciences

8.10 The annual CSFS conference was due to take place between 1-2 November 2018. The theme for the 2018 conference would be the 'value of forensic science: safer, healthier, wealthier and happier communities'. Five workstreams would be conducted over the course of the conference, two of which would be fingerprint related.

8.11 The CSFS had held workshops over the summer on the topic of accreditation to 17020. These had been useful in identifying potential gaps, such as interpretation and opinion.

8.12 A discussion was held about how information regarding the events and the associated learning could be disseminated within policing more effectively. It was agreed that a summary of upcoming events would be circulated to FQSSG members who could distribute the information within their networks.

Action 9: Cheryl McGowan to send event summary to the secretariat who will circulate it to the FQSSG.

8.13 d. ENSFI/ other

8.14 ENSFI had obtained funding to establish fingerprint training courses. Some of this funding was allocated to researchers to attend the training. This event was reserved for ENSFI members only, but external individuals were encouraged to register an interest,

since in previous years vacancies had been filled by non-members. The 2019 ENSFI training would be held in Sheffield.

8.15 The Swiss Fingerprint Group organises fingerprint training for examiners which is separated into three levels. The most advanced training, level 3, is delivered by external trainers. Priority was given to members of the Swiss police, however there is the potential for external individuals to attend. A link to the training would be circulated to members.

Action 10: Christophe Champod to send link for Swiss Fingerprint Group Training for fingerprint examiners to the secretariat for distribution to FQSSG members.

9.0 AOB

9.1 The FSRU had circulated links to papers of interest to the FQSSG which could be distributed amongst their networks.

9.2 The next ENSFI group meeting would be held between 10-12 September 2019 in Porto, Portugal and was open to non-members.

Annex A

Representatives Present:

- Gary Holcroft (chair) - Scottish Police Authority
- Mark Bishop - Crown Prosecution Service
- Iain Borthwick - Greater Manchester Police
- Duncan Brown - College of Policing
- Christophe Champod - University of Lausanne (R&D, ENSFI)
- Neil Woods - West Yorkshire Police (Fingerprint Strategic Network)
- June Guinness - Forensic Science Regulation Unit
- Amanda Harrison - Transforming Forensics
- Gillian Knevitt - Defence Science and Technology Laboratory
- Cheryl McGowan - The Chartered Society of Forensic Sciences
- Fu Pang - Home Office Biometrics Programme
- Michelle Painter - West Midlands Police Service
- Lee Parkes - Forensic Science Regulation Unit
- Andrew Price - East Midlands Special Operations Unit - Forensic Services
- Gillian Tully - Forensic Science Regulator
- Penny Carmichael - Home Office Science Secretariat

Apologies

- Helen Bandey - Dstl
- Graham Camm - Home Office Biometrics Programme
- Katherine Monnery - United Kingdom Accreditation Service
- Lisa Hall - Metropolitan Police Service
- Richard Small - Transforming Forensics