

---

# ANNUAL REPORT 2018

European Network of Forensic Science Institutes

---

# ENFSI



## Contents

3 Message from the Board and Secretariat

7 New Places, New Faces

12 ENFSI in Close-up

28 ENFSI Meetings

37 Key Projects

42 External Relations

46 Map of ENFSI Members

# ENFSI Board



Erkki Sippola,  
Chairman  
NBI, Finland



Michael Bovens  
FOR Zurich, Switzerland



Dorijan Kerzan  
Treasurer  
NFL, Slovenia



Dariusz Zuba  
IFR, Poland



Kornelia Nehse  
LKA KTI Berlin, Germany



Yalçın Büyük  
ATK, Turkey



Pavel Kolář  
ICP, Czech Republic

## ENFSI SECRETARIAT



Isabelle Jopp  
BKA, Germany



Bianca Benisch  
BKA, Germany

# Message from the Chairman



Dear colleagues, partners and stakeholders!

ENFSI has grown to a network of 69 laboratories, the last new member being from Malta. The growth of ENFSI is a very positive trend as it brings all forensic laboratories in Europe together, but it also makes the steering and administration more challenging. ENFSI has to find new ways to best exploit its size and power and to develop into a more professional organization.

The ENFSI Annual Meeting 2018 took place in Budapest. Once again the local organizers had done a magnificent job and the Membership could enjoy great meeting facilities and a fabulous social program.

Budapest is also the home of CEPOL. During the Thematic Part of the Annual Meeting the ENFSI Membership had the honor to hear a presentation of a CEPOL representative. ENFSI – CEPOL co-operation has taken a new step after the signing of a contract, the so-called “Working Arrangement”. The co-operation also yielded a workshop concerning the EU Strategic Training Needs Assessment (EU-STNA). ENFSI participated actively in the workshop, which should result in more forensic topics in the CEPOL training program.

Preparation of the Monopoly Program 2018 started during late 2018. The scope of the project was the implementation of the EFSA2020 Action plan, namely actions 5 and 6 concerning stimulation of accreditation and Prüm exchange of DNA and fingerprint data. This time the project had a ‘political’ dimension as well as a ‘forensic’ dimension. Thus the Board took a leading role to invite project proposals under pre-defined themes and also to select the proposals that will proceed to the grant application stage.

Action 2 of the EFSA2020 Action Plan, namely ‘Stimulating exchange of forensic information from databases, for example in the areas of weapons and ammunition, explosives and drugs’ has been on the agenda of ENFSI since the publication of the Action Plan. Europol has been ENFSI’s self-evident partner to seek practical solutions to host forensic databases. This work, however, has not progressed as planned. Europol has a growing number of new tasks without extra funding and this has become a significant hindrance

on the ENFSI – Europol co-operation. Other solutions shall be found, most likely such in which ENFSI has a major role in the implementation of the system with long-term EU funding.

ENFSI has to start to prepare the activities after the current Action Plan. This work needs to be done in close co-operation with those parties who represent future EU Presidency countries.

The Board decided to dissolve the EFSA2020 Task Force, as the Board felt that although the Task Force had achieved very much, the remaining tasks require frequent discussions with EU agencies such as Europol and CEPOL, but also with EU departments responsible for different funding programs. Also, further work in the forensic expert level will continue within different ENFSI Expert Working Groups and Standing Committees. All these tasks are actually responsibilities of the Board. The Task Force is once again greatly acknowledged for their excellent work.

The Board had a meeting with the top management of the European Judicial Training Network (EJTN). As a result of the meeting, critical aspects could be identified which need to be taken into consideration in the training of prosecutors and judges. For example, the meaning of various terms such as error rate, false negative/positive, confidence interval, validation, hypothesis etc. should be clear to all parties of judicial proceedings. Further, the distinction between factual reporting and evaluative reporting should be clarified. Many courts also struggle with how to identify reliable forensic experts. ENFSI will have a significant role in helping the judicial experts to learn these issues in the future training.

The European Academy of Forensic Sciences conference (EAFS 2018) took place in Lyon, France in late August 2018. The conference venue was excellent and so were the local organization. Scientific program very well reflected the current state of the art of forensic science. Significant ENFSI contributors were awarded during the conference.

All this illustrates the diversity of ENFSI in Europe.

Yours,  
Erkki Sippola, Chairman of the 22nd Board

# Yalçın Büyük

Member of the 22nd ENFSI BOARD



Dear ENFSI members!  
Dear Readers!

Forensic information, its accessibility and communication within this community across Europe has been an invaluable asset in terms of the development of forensic sciences, reaching international quality standards in the way we conduct science across all member countries, providing an exchange of experience and assistance for the justice being served.

It is a privilege for me to pen a message to all of you as a new ENFSI board member I feel honored and look forward to expand and build upon this relationship; furthering our connection and collaboration as forensic scientists all over Europe.

As forensic science disciples, we use our knowledge and do research to support justice in the light of science. This is what has appealed to me the most after I had specialized in family medicine and worked as a practicing doctor for a year. This fascination led me to take an exam for a specialization at the Council of Forensic Medicine in Istanbul, Turkey. I have been working in this field ever since.

My journey at the Council of Forensic Medicine started in 2001. Along the way, I have had the chance to become an Assistant Professor and to teach at the Kırıkkale University, Medical Faculty, Department of Forensic Science. In 2009, I have taken on the role of Vice Presidency at the Council of

Forensic Medicine and ever since 2013; I have been serving the Council as Chair.

The Council of Forensic Medicine is one of the distinguished members of the European Network of Forensic Science Institutes. As well as serving to ensure that science is employed to its upmost level to bring out concrete evidence and information that helps secure justice, bring relief and respond immediately, especially in times of disasters of epic proportions; it is an institute of education. We provide medical doctors with forensic medicine training, send hundreds of personnel abroad based on the principle of continuous development, and we train many committees from developing countries.

I believe that creation of value is not possible without principles. It is what makes me excited to be a part of ENFSI and the forensic science community which bases itself on principles of justice, objectivity, transparency and human rights. Under the roof of ENFSI, in the light of these principles, we will keep creating value; learning, improving and collaborating on broader levels. There is a lot more contribution to be made together. I am excited and honored to be part of this journey.

Yours,  
Yalçın Büyük

# Pavel Kolář

Member of the 22nd ENFSI Board



Dear ENFSI members!  
Dear Readers!

I started to work in a forensic lab more than 35 years ago when my doctoral study supervisor asked me if I knew somebody suitable for a position in the Chemistry Department of the Institute of Criminalistics. The management of the Institute was looking for someone to examine textile fibres and trace evidence. I did not know anybody suitable but in fact I was qualified in chemical technologies of fibrous materials. So I decided to apply for this job, succeeded and finally, in 1984 I entered a world totally unknown to me.

I consider it a lucky circumstance that, after approximately ten years of practice, I was invited to the ENFSI European Fibres Group where I could meet leading specialists in this field (Mike Grieve, Ken Wiggins and others) and where I could communicate with my European colleagues. Later, until 2010, I had been a Working Group Steering Committee member and a general secretary. The working group was, in a pleasant friendly atmosphere, executing many projects which proved beneficial to everyone. Let me mention the Best Practice Manual, mutual studies of fibres behaviour, scientific studies, the overview of legal background in the countries of the individual ENFSI members, the Young Scientist Workshops, etc.

The former director of the Institute of Criminalistics used my experience in international cooperation and appointed me a member of the group preparing our Institute for becoming an ENFSI member. The Institute of Criminalistics joined ENFSI in 1998 and I am very glad I have had the opportunity to participate in the annual ENFSI meetings since 1999 (first as an interpreter and since 2007 as a Permanent Representative). I believe our Institute is considered an active member of ENFSI. Also I must remark that there are not many colleagues within ENFSI anymore who could

say they have actively followed the history of the European Academy of Forensic Science conferences since 1997. In 2015 I was responsible for the overall organisation of the EAFS2015 conference in Prague.

After 1997, in the Institute of Criminalistics, I concentrated more on research and development. I was appointed deputy director for this field and in 2010 finally became the director of the Institute. In 2016 I resumed the position of the deputy director.

Enthusiasm and effort of all members outside their regular work commitments are the driving force of ENFSI and its success. This is mirrored in the recognition ENFSI receives from other similar organizations within IFSA, the European Commission and cooperating organizations as CEPOL. Within its over 20-year-long history ENFSI has experienced a dynamic development from a kind of a “directors’ club” to a form of an association with a professional secretariat. During these years also forensic science has changed dramatically as well as the system of forensic labs management. There appeared the need for financial support of ENFSI activities and with this, new requirements on the work of ENFSI. I personally consider especially the efforts of the Expert Working Groups, the key part of ENFSI work which brings the added value and respect to the entire ENFSI association. I would be happy if the Expert Working Groups contribution was felt and appreciated not only by the group members but also by the directors of the ENFSI member institutes.

I look forward to being able to support the ENFSI mission towards becoming a forensic institute’s organization respected all over the world.

Yours,  
Pavel Kolář

# ENFSI Secretariat



Dear ENFSI members!  
Dear Readers!

We look back to an eventful and exciting year 2018 marked by many new challenges and the effort to steadily improve our working processes.

In April 2018 after more than two years of dedicated service Elisabeth Pickersgill left the Secretariat but luckily not ENFSI, as she is nowadays still active within the Digital Imaging Expert Working Group. The new Secretary, Bianca Benisch, also like her predecessor coming from police background, entered a complete new working area but profited from a common familiarization period. Obviously, a change of personnel has its impact on daily business issues and therefore, we hope that in the course of the year the tasks assigned to us were still fulfilled to the satisfaction of the ENFSI membership!

This year we had the chance to experience the outstanding event of the 8th triennial European Academy of Forensic Science Conference in Lyon, organised under the collective title "The Forensic Odyssey". The event was a real setting for the exchange of expertise knowledge and an outstanding possibility for networking. At the fair exhibition, the Secretariat presented ENFSI at a fair stand providing interested parties with information, handing out the ENFSI Annual Report or its History Booklet and, of course, pleasant promotional products marked with the ENFSI logo. Many of the visitors found their way to our booth. For us, this was a great opportunity to promote ENFSI and to meet so many interesting people.

The last year also brought some major administrative tasks to the Secretariat. A new accounting system was established to meet the requirements of a financial administration apparently becoming more and more complex. The implementation of the General Data Protection Regulation was initiated but the realization of some actions will be continued in 2019. The change of the ENFSI Constitution was accompanied by a time-consuming post processing with the German court which led to its delayed acceptance.

Our portfolio covers a wide range of tasks which makes daily business sometimes challenging but always rewarding. We would like to express our gratitude for the good cooperation with the ENFSI membership and your understanding even if the answering of questions may take their time.

It is always a pleasure for us to work for you, the ENFSI membership!

We are looking forward to another year of fruitful cooperation!

Yours,  
Bianca & Isabelle

An aerial night photograph of a city, showing a dense network of roads and buildings illuminated by streetlights and building lights. The image is in black and white, with the lights appearing as bright white and yellow streaks against the dark background of the city.

# NEW PLACES NEW FACES

# Malta Police Forensic Science Laboratory

The Malta Police Forensic Science Laboratory (MPFSL) is an entity of the Maltese government, which falls under the Ministry for Home Affairs & National Security. It currently forms part of the Malta Police Force and falls directly under the remit of the Commissioner of Police. It is considered to be a cornerstone of the force.

The MPFSL is the only laboratory in Malta which is appointed by national legislation and is empowered to assist in the investigation of any crime within the Criminal Justice System. With just around 50 employees, the laboratory strives to provide the best Forensic expertise to the Judiciary and the Malta Police Force.



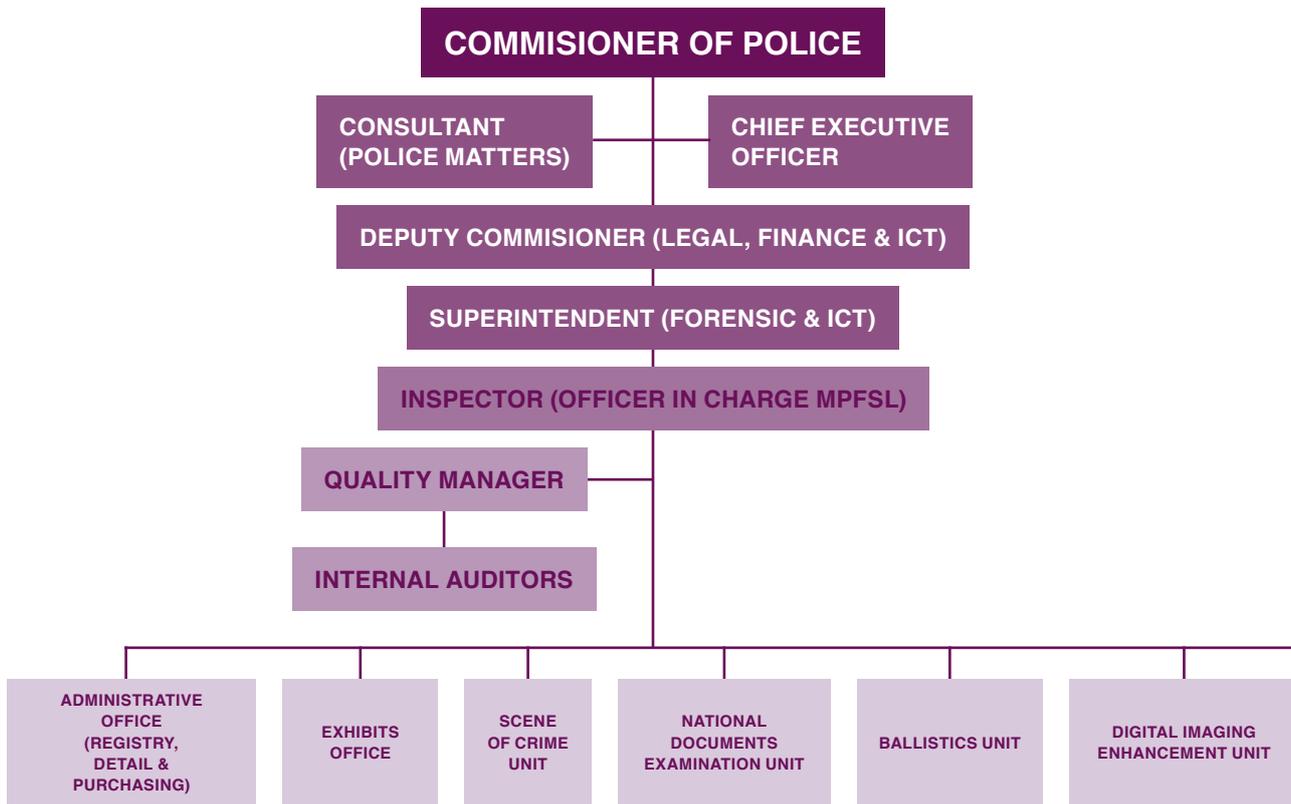
## History

A document stored in the Malta Police archives shows that the history and development of the MPFSL dates back to October 1931. It contains instructions in which 2 detectives from the Criminal Investigations department were assigned to collect any evidence related to Fingerprints. Some years later, a photography unit was also set to be part of this department. However, it was in the late 1950s, when a group of Police officers were sent to the UK for intensive training in Forensic examinations, that the first official Forensic Science Laboratory was set up. Then, in 1984, the current facilities were built and the Scene of the Crime Unit was re-organized.

Due to the influx of migrating people in 2002, the National Documents Examination Unit was established. In 2007, the Chemical Enhancement Unit was set up. In 2008, Malta signed the Prüm treaty to assist in the fight against terrorism and cross border crime and consequently, in

2011, Malta invested in a DNA database (CODIS) and upgraded the AFIS so that DNA & Dactyloscopic data can be exchanged in accordance with the provisions of EU Council Decisions 2008/615/JHA & 2008/616/JHA. In 2015, the Fingerprints & DNA units were certified with accredited testing, in line with the requirements of the ISO/IEC17025:2005 by the National Accreditation Board of Malta. Between the 2016 and 2017, the Mobile Devices Unit was established.

Throughout these years, the MPFSL participated in several extensive and intensive training under the tutelage of the University of Durham National Training Centre, College of Policing, Netherlands Forensic Institute, Division of Identification & Forensic Science of the Israel Police, the Bureau du Déminage, Federal Bureau of Investigation, CEPOL and other institutions.



MPFSL Organizational Chart

Nowadays, the services provided by the MPFSL consist of:

- Scenes of crime investigations
- Photography, Videography & CCTV analysis;
- Aerial photography & videography (by means of drones)
- Document analysis
- Projectiles and firearms investigations-testing-comparisons
- Facial composite constructions
- Latent and trace evidence development
- Dactyloscopy analysis-classifications-comparisons (ISO/IEC17025 accredited)
- DNA profiles identity searches & comparison (ISO/IEC17025 accredited)
- Prüm exchange of DNA and Dactyloscopic Data (as per Prüm Treaty, 2008 and EU Council Decisions 2008/615/JHA & 2008/616/JHA)
- Mobile devices examinations
- Disaster Victim Identification
- Blood pattern analysis



Malta Police General Headquarters



## ENFSI Membership

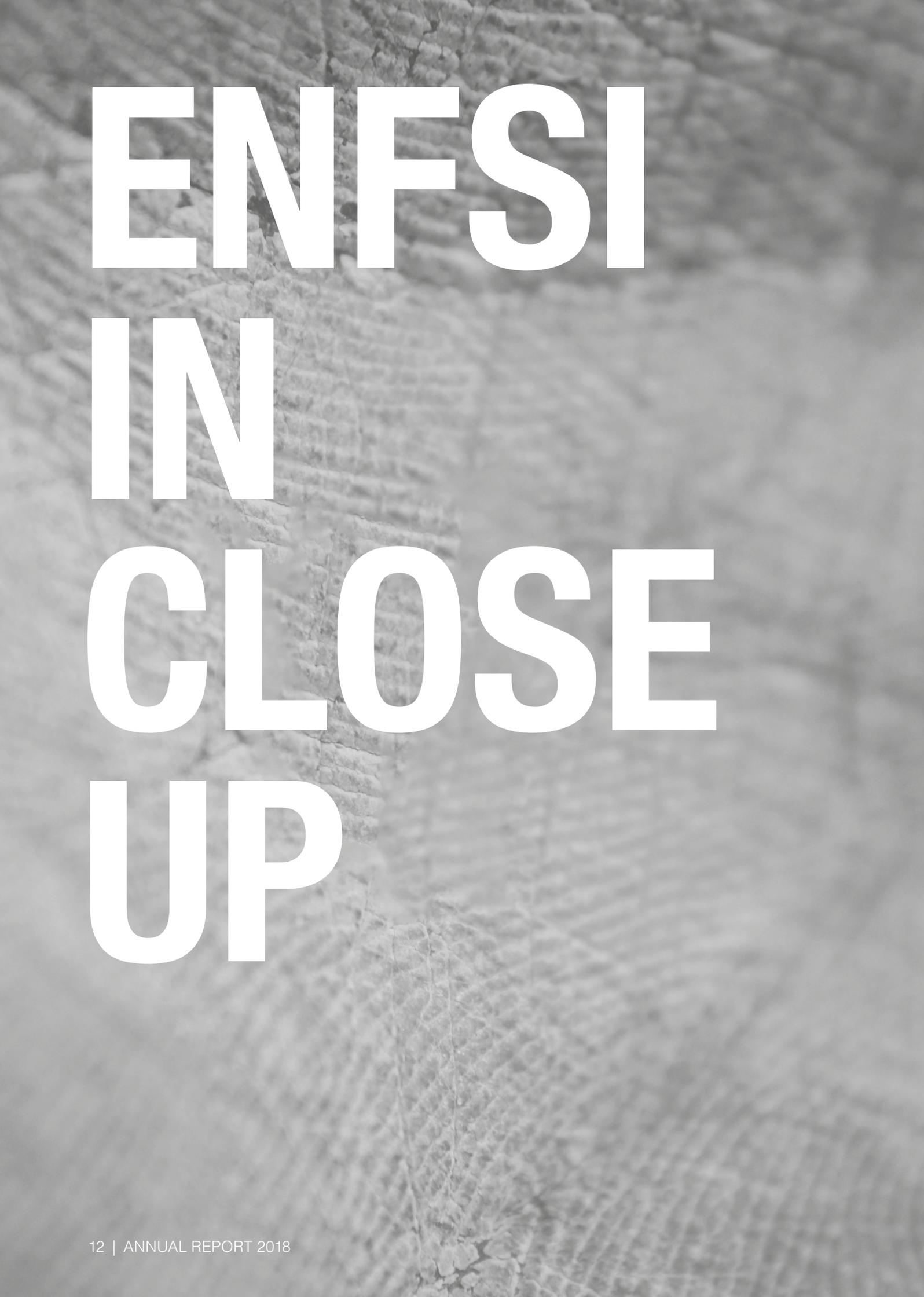
The MPFSL considers the cooperation with other Forensic institutions as an important and valuable task. In January 2017, the MPFSL applied for ENFSI membership and after submitting the relevant information, the assessment process started in May 2017 and concluded with an assessment visit of our lab on the 6th of April 2018. As a result, on the 29th of May 2018, a letter was later received in which the MPFSL was welcomed as a new ENFSI member.

## MPFSL Accreditation – Quality Management System

The MPFSL's Quality Management System was established in November 2015 and it complies with the requirements of the ISO/IEC17025:2005(2017). Nevertheless, the current scope of accredited testing activities are the "Exchange of DNA data and DNA analysis", and "Dactyloscopic verification and exchange of Dactyloscopic data". So far, these are the only 2 areas which are accredited. The laboratory's next goal is to extend the scope of the accreditation to all fields of expertise.



MPFSL Emblem



# ENFSI IN CLOSE UP

# Standing Committees

## Members of the Research and Development Standing Committee

### **Bart Nys**

(Chairperson, INCC, Belgium)

Tapani Reinikainen

(member, NBI, Finland)

Sean McDermott

(member, FSI, Ireland)

Thomas Biermann

(member, BKA, Germany)

Christophe Champod

(member, UNIL, Switzerland)

Ullar Lanno

(member, EFSI, Estonia)

Cecilia Vahlberg

(member, NFC, Sweden)

Didier Meuwly

(Co-opted member, NFI, Netherlands)

Michael Bovens

(Board Liaison, FOR Zurich, Switzerland)

Dariusz Zuba

(Board Liaison for E&T, IFR, Poland)

## Members of the Quality and Competence Standing Committee

### **Chanda Lowther-Harris**

(Chairperson, MPS, UK)

Maria Kambosos

(member, BKA, Germany)

Merike Rump

(member, EFSI, Estonia)

Sandra Krajinović

(member, CFIIV Ivan Vucetic, Croatia)

Martin Hanly

(member, Eurofins, UK)

Dorijan Kerzan

(Board Liaison, NFL, Slovenia)

# Research and Development (RDSC)

## Organisation and membership

During the year 2018 one member has resigned from the Standing Committee: Dr Dominique Saint-Dizier (INPS, France) has reached the end of her term as RDSC and Board member and could therefore no longer hold her position as a Board Liaison. This function was temporarily taken over by Michael Bovens (FOR Zurich, Switzerland) and was shared with Dariusz Zuba (IFR, Poland).

After the Annual Meeting of the Board Bart Nys resigned his post as Chairman as his term was at an end. He was followed as Chairman by Üllar Lanno after internal elections. Bart will continue as a RDSC member as well as EPE webmaster, and he will assist Üllar Lanno in maintaining contacts with the EU owing to his proximity.

It should be noted that Mrs. Saint-Dizier was also heavily involved in the organisation of the EAFS conference in August 2018 in Lyon, which is another reason she had to leave the RDSC. The RDSC remained in close contact with Dominique throughout the year to assist and follow up on the organisation of this important forensic event. She therefore regularly participated in the teleconferences of the RDSC. The most fruitful meeting for the RD community was held in spring with an EU Commission representative in order to talk about funding ideas and expected outcomes from the ENFSI network supporting the EFSA 2020 action plan.

## E&T Collaboration between RDSC and QCC

The plans for a set-up of a brokerage and assistance platform for the overarching education and training needs of the ENFSI member labs were further developed, together with the QCC. An E&T Task Force was formed, consisting of two members of the RDSC and two members of the QCC. A Policy Document on E&T together with a Strategic Plan containing concrete propositions was presented to the ENFSI Board for discussion and approval. In the future, the RDSC Activity Group on Education and Training will take the lead of this activity with the assistance of the Board liaison Dariusz Zuba.

## EU Partnership Vision Text and Discussions

The communication of ENFSI with the EU DG Home continued on a good basis. In December 2018, ENFSI was asked to present itself during a panel discussion in the context of a Community of Users meeting in Brussels. ENFSI was represented at this event by the Chairman Erkki Sippola and the RDSC members Üllar Lanno and Bart Nys.

## Involvement in the Europol EPE Platform

The web presence of the ENFSI Working Groups and Standing Committees on the EPE platform of Europol was further established and kept up to date.

## Involvement in the Monopoly 2014 Project

The RDSC has followed closely the developments within the sub-projects of the MP2014 Operational Grant '*Towards the Development of Pan-European Databases in Forensic Science*'. Especially the sub-project N1, '*Towards Big forensic Data*', which performs feasibility studies and develops a demonstrator for an over-arching Forensic Database Architecture, was closely monitored. The MP2014 project was officially closed with a final conference, held at the HQ of Europol in The Hague on May 24th. Although the different goals of the forensic databases were attained, a concern remains: the deployment and maintenance of the database prototypes on a permanent platform. The ENFSI Board is in negotiations with Europol in order to secure these sustainable solutions.

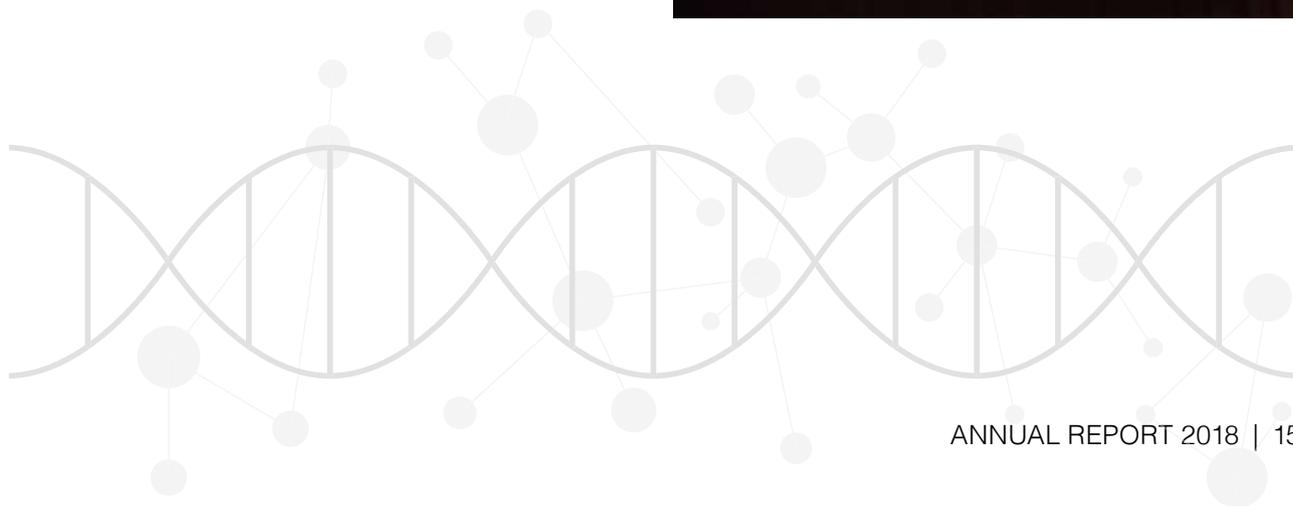


### **Involvement in the CEPOL course on “Forensic Science and Evidence – Challenges for Policing”**

ENFSI was asked to be involved in the CEPOL course 81/2018 which was organised in Tampere (Finland) from 15th to 18th October. Asked by the ENFSI Chairman, Bart Nys presented on the use of databases and data interchange in forensic science. A special slot was reserved for a presentation of the overarching database structure and specific databases developed in the context of the MP2014 Direct Grant (Monopoly) project “TDPEDFS”.

### **Involvement in EAFS 2018 with Research and Development Session**

The RDSC held its R&D Session at ENFSI’s biggest scientific event EAFS 2018 in Lyon. During this event participants from Expert Working Groups, Board, RDSC and others had seen an overview of the European Forensic Research and Development Activity Report 2015 – 2018, EFSA 2020 and European Horizon 2021–2027, EU Monopoly funding and R&D results from 2009 – 2016, Synergy examples of Forensic Science and academic or scientific organizations. The session included a workshop with a mind-mapping of five most challenging themes in forensic RDI future: what is a proper focus for forensic research (IN/ON) in 10 years, how to engage academic partners in coming 10 years, what are the next decade pan-European or Global RDI Funding Synergy aspects, which forensic opportunities RDI can provide to the Industrial partners in next 10 years and which digitalization aspects are important until 2030.



# Quality and Competence (QCC)



The Quality and Competence Standing Committee (QCC) acts as an advisor and coordinator to relevant ENFSI entities on matters of quality and competence in a broad sense. The QCC supports the ENFSI Members to comply with international standards and best practices including achieving and maintaining accreditation. In order to carry out its role, the QCC had 11 meetings in 2018 including QCC meetings and participating into meetings in relation to STEFA, CEPOL, ENFSI annual meeting, EAFS, ENFSI Joint meeting (board and Expert Working groups) and board meeting.

## QCC activities undertaken in 2018

### Annual meeting

QCC held its annual Quality and Competence Liaison Group (QCLG) meeting in Vilnius, Lithuania in Oct 2018 which was attended by 56 delegates. QCC met directly ahead of the annual meeting with representatives of the EWG's to develop further understanding and engagement. The QCLG

meeting was a mixture of presentations and interactive discussions with quality managers and representatives (QCLG) of the ENFSI expert working groups (EWG). The main topics covered were:

- ISO 17025 – main changes of the standard, assessment experience and how laboratories are preparing for the changes
- Lab problems and challenges – a discussion
- Challenging ideas for forensic science in the future
- Measurement of uncertainty – discussion
- Blood pattern analysis validation at scene
- Updates on EA, ILAC, TC 272, PT/CE, STEFA and ENFSI documents
- ISO 17020 accreditation
- Brainstorming on OOS topics

## Facilitate the establishment and sharing of ENFSI technical documents

In 2018 the QCC has focussed on the ENFSI document structure and control and have produced templates for Best Practice Manuals (BPMs) and guidelines. Instructions have also been produced on writing of technical documents.

## Best Practice Manuals (developments in 2018)

### New:

BPM for Forensic image and video enhancement (ENFSI-BPM-DI-02 Version 01 – June 2018)

### Updated:

BPM for the Forensic Examination of Handwriting (ENFSI-BPM-FHX-01, Version. 02 – July 2018)

## Facilitate the search for new Proficiency Tests and Collaborative Exercises

QCC has updated and made available on [www.enfsi.eu](http://www.enfsi.eu) and on EPE the following two lists of PT/CE providers:

1. ENFSI EWGs providers of PT/CE and
2. providers suggested by ENFSI members.

QCC takes the responsibility of updating the lists on at least an annual basis. The lists have been compiled from information from ENFSI members and EWGs. No evaluation has been made of the PT/CE providers by the QCC.

## E&T activities

In collaboration with the R&D Steering Committee, the QCC is part of the E&T task force.

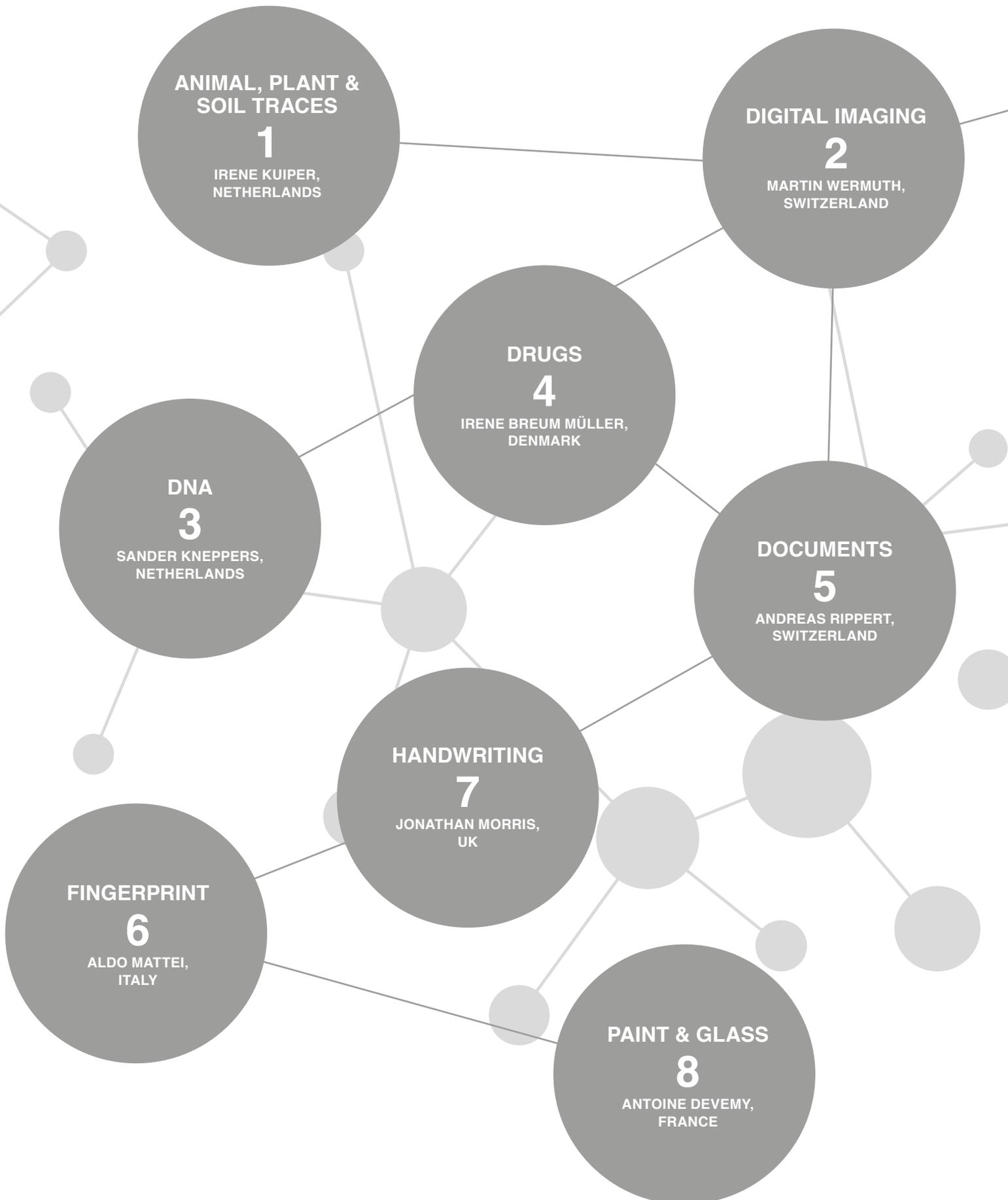
## Liaising with ISO TC 272, EA and ILAC

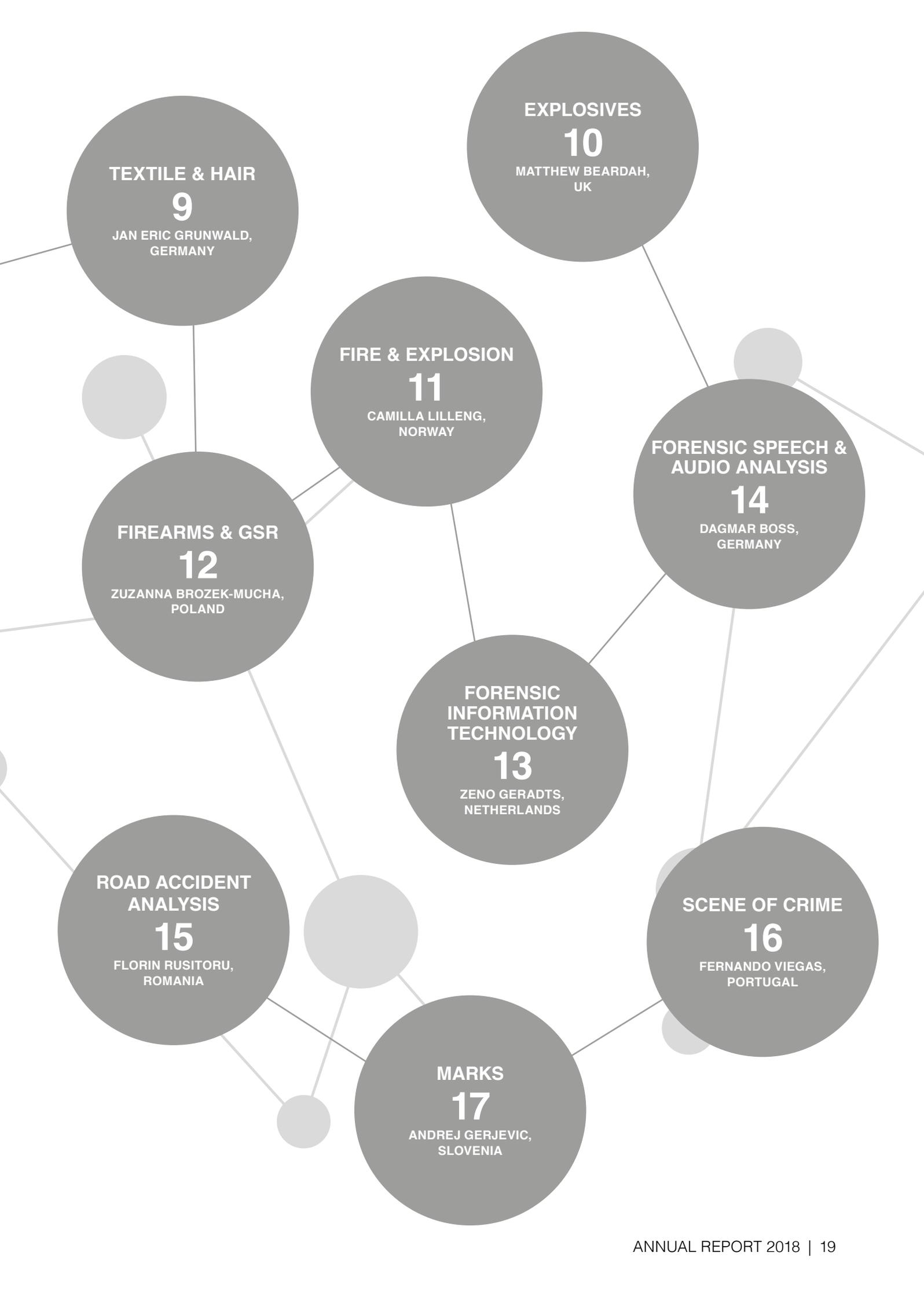
Updates on the development of two international forensic standards have been provided to QCLG members in Oct 2018 by Michael Hastrup who is the QCC "liaison" for ISO TC 272.

There is a liaison relationship established with European Accreditation and ILAC and an update was provided to all QCLG in Oct 2018 by Christina Edlund-Bertler who is the QCC liaison for EA and ILAC.



# Expert Working Groups





**TEXTILE & HAIR**  
**9**  
JAN ERIC GRUNWALD,  
GERMANY

**EXPLOSIVES**  
**10**  
MATTHEW BEARDAH,  
UK

**FIRE & EXPLOSION**  
**11**  
CAMILLA LILLENG,  
NORWAY

**FORENSIC SPEECH &  
AUDIO ANALYSIS**  
**14**  
DAGMAR BOSS,  
GERMANY

**FIREARMS & GSR**  
**12**  
ZUZANNA BROZEK-MUCHA,  
POLAND

**FORENSIC  
INFORMATION  
TECHNOLOGY**  
**13**  
ZENO GERADTS,  
NETHERLANDS

**ROAD ACCIDENT  
ANALYSIS**  
**15**  
FLORIN RUSITORU,  
ROMANIA

**SCENE OF CRIME**  
**16**  
FERNANDO VIEGAS,  
PORTUGAL

**MARKS**  
**17**  
ANDREJ GERJEVIC,  
SLOVENIA

# Digital Imaging

The European Network of Forensic Science Institutes (ENFSI) Digital Imaging Working Group (DIWG) deals with three main topics: Facial Image Comparison, Image Technology and 3D/VR. The work area, which has numerous intersections to other forensic topics, is very versatile and is characterised by an increasing dynamic.

In the area of Facial Image Comparison, we will also have to deal with automatic facial recognition systems in greater depth. The systems will improve and become more reliable through deep learning. The automatic recognition of persons, however, remains a recognition task and not that of identification. Seen in this way, the technology can serve as an aid for visual identification, but cannot replace it. With the support of MP18, we are working on a training programme for assessors in this forensic field, with the aim of harmonising the training principles and methods on a European level.

Image Technology deals with the identification of cameras with which a recording was made, the repair of corrupt image and video files and the authenticity of imagery. The working group is currently working on a Best Practice Manual for the authentication of image material, again with the support of MP18. More and more manipulated videos appear in the media, in which heads are exchanged or the facial expressions of an individual are transferred to another. This technique causes increased uncertainty as to what is real or not. We must assume that the technique will improve a lot in the near future and that it will not be long before we are confronted with such questions in forensic work.

The combination of 3D technology with Virtual Reality (VR) opens up completely new possibilities for forensics. VR, which was actually developed for the gaming industry, has been adapted for forensic purposes and now enables us to return to the scene of the crime at any time and clarify new hypotheses that arise during an investigation, if the data is available.

For us, the intensive and rapid exchange between the members of the working group is of great importance. This is not least because, as aforementioned, we find ourselves in a very dynamic environment and are constantly confronted with new challenges. Our annual work meetings

offer a good opportunity for exchange and above all the expansion of each participants network.

The DIWG held its 2018 annual meeting in Bled, Slovenia and was attended by 48 members and associate members from 24 European nations. Evidence of the heightened interest in the professional and intensive knowledge exchange in the field of Digital Imaging was underlined by the attendance of experts from the USA, Morocco and Nigeria.

In addition to this important meeting, we were able to publish the Best Practice Manual for Forensic Image and Video Enhancement and conducted four Proficiency Tests which covered Photo Response Non-uniformity (PRNU), Height Estimation from CCTV imagery, Facial Image Comparison and Image and Video File Restoration in 2018.



# DNA



The ENFSI DNA Working Group provides a forum for the validation, introduction and improvement of methodologies in DNA analysis in casework and the subsequent DNA database filing and usage. It will consider all aspects of DNA case analysis and case reporting.

The Expert Working Group DNA is a large group with members from 47 countries and 83 laboratories. 58 % of all members are from full ENFSI member laboratories. The EWG DNA consists of five subgroups with main focus on Quality Assurance, Methods/Analysis & Interpretation, DNA-database & Legislation, Automation & LIMS and Casework/Forensic biology.

The working group also has representatives attending from other groups like ISFG's European workgroup EDNAP, the European CODIS user meeting and SWGDAM to inform and learn from each other. Also companies attend the meeting to introduce their latest products and services and thereby help the forensic community to progress.

In 2018 the 42nd ENFSI DNA working group meeting took place in Rome. The annual meeting is always preceded by the one day European CODIS user meeting and the ISFG EDNAP working group meeting. At the annual DNA working group meeting 130 persons were attending from 31 countries.

Within the two and a half day meeting the first day is reserved in full for the subgroups.

In total more than 60 speakers gave information about projects they were working on, achievements that were made and challenges to face. Also interesting topics were presented like 'New interpretation guidelines for Y Chromosome STR profiling' and the use of the new Next Generation Sequencing method.

The group made a distribution of work concerning the update of ENFSI DNA WG documents and four Task Forces were formed. It was decided to put emphasis on the writing of one overarching Best Practice Manual on Human DNA Analysis. Other documents will be transformed into guidelines. An action plan was formed to get the work done.

This year two questionnaires were sent out: A questionnaire on contamination monitoring in DNA work and an Educational & Training questionnaire to address the needs for professionals within the community. Furthermore the DNA Database Management Document is challenged to day to day practise. The results will be presented at the next annual meeting.



# Drugs

The Drugs Working Group (DWG) supports the aims and objectives of ENFSI in the area of forensic drug investigation. The strategic goals for the DWG are:

- Acting as a platform for information exchange on new developments and trends in the drugs field
- Organising an annual conference-style meeting and business meeting
- Promoting accreditation of member laboratories
- Preparing general guidelines, a Best Practice Manual and recommendations on specific issues
- Organising an annual proficiency test
- Enhancing the competence of forensic drug experts
- Establishing a collaborative MS library for drugs related compounds
- Co-ordination of the work between other organisations (SWGDRUG, UNODC, EMCDDA and JRC)

## Annual DWG Meeting in May 2018

The DWG Annual Meeting took place from 22<sup>nd</sup> to 24<sup>th</sup> May in Lisbon, Portugal and was hosted by LPC.

In total, seventy-six (76) experts (members, associate members and guests), from 36 countries, attended the meeting. Among them were members of EMCDDA (European Monitoring Center for Drugs and Drug Addiction) and European Commission representatives of the Customs Laboratories (CLEN); SWGDRUG, UNODC and JRC were unable to participate this year.

The main goal of the meeting was the exchange of information on drugs and other related issues, such as developments in drug detection and the clandestine production of drugs.

The programme of events consisted of scientific oral presentations, short presentations of posters, poster

sessions, 'casework forum' presentations (5 – 10 minutes duration), a session presenting the DWG subcommittee activities over the past year, 'bring your own case' presentations and presentations from Guest organisations.

The following is a short summary of the subjects discussed at the meeting:

New kinds of clandestine laboratories were discovered in Latvia, where they were producing methadone, and in the Netherlands and Bulgaria, where they were producing heroin. Illicitly produced methadone was intended to replace the use of heroin. It is estimated that a kilogram of methadone in the illegal market is worth about 40,000 euros. Illicit production of heroin in the Netherlands and Bulgaria is unprecedented. Heroin has, so far, been produced in Asia and then imported into Europe. In these laboratories, large amounts of morphine were being used as raw material for the production of heroin. Heroin was being produced by acetylation of morphine and the process did not require sophisticated equipment. For this reason, it has been very difficult to identify such laboratories.

The situation of New Psychoactive Substances (NPS) in Poland, Portugal and Singapore was presented by the respective forensic laboratories, and the situation in Europe was presented by the EMCDDA. In Poland, most of the NPS discovered were synthetic cannabinoids. Sixty-six per cent (66 %) of the NPS identified in 2016 and 2017 were not controlled under the legislation at that time. In Portugal, the legislation is going to be amended in order to control more NPS, and there are discussions on introducing generic legislation. In Singapore in 2017, the substance with the highest use was methamphetamine, followed by heroin and cannabis. The most used NPS are synthetic cannabinoids. The legislation in Singapore is generic and it is reviewed every second year, where new substances are added as necessary.

An assessment of the use of illegal benzodiazepines in Scotland began in 2016 and was conducted by the University of Dundee in cooperation with the Scottish Police. The assessment revealed that in Scotland there is a high level of abuse of illegal benzodiazepines, with the drugs either originating from the illegal market or by deflection from prescribing. After screening 190,212 illegal tablets the

## ENFSI IN CLOSE-UP

following benzodiazepines were identified: Etizolam (67%), Diazepam (14%) and Diclazepam (12%). Clonazepam, Alprazolam and Flubromazepam were also found.

The serious problem of the use of fentanyl analogues in Sweden was presented. This use has led to a worrying upward trend in poisoning and abnormal deaths. Over the past 3 years, more than 200 deaths in Europe have been reported due to the use of fentanyl analogues. The following analogues were primarily identified: acetylfentanyl, acrylfentanyl and cyclopropylfentanyl. Fentanyl analogues were also detected in illegal Xanax and OxyContin tablets. Due to the high toxicity of these substances, the most suitable safety procedure to handle their analysis was also discussed.

One issue which is of great concern to the scientific community is the uncontrolled marketing of cannabis products. A presentation on CBD oil in the Netherlands showed that there is no satisfactory quality control over the available products and that labels do not accurately describe product composition. A further problem is the absence of a European Regulation to classify CBD oil as a medicinal product or food supplement. The need for further CBD research and decision-making on this issue was also highlighted.

One of the presentations at the meeting covered the possible confusion of narcotics and explosives during police searches. In particular, the explosive substance TATP, which is very sensitive to impact and friction, can easily be

confused with drugs such as methamphetamine. TATP is often used as a trap for police officers during investigations and this use highlights the need for security measures to protect those involved in front-line policing.

In addition, issues related to the use of different techniques for the chemical analysis of unknown substances were discussed, such as:

- Ultra performance liquid chromatography with charged aerosol detection (UHPLC-CAD) for the detection of synthetic cannabinoids in plant materials
- ATR-IR for qualitative and quantitative determination of mixtures of cocaine and levamisole, and comparison of quantitative results with results from GC-MS and GC-FID methods
- Elemental Analysis coupled to IRM (isotopic ratio mass spectrometry) to study the profile of drugs and their diluents
- Various techniques used for profiling methadone samples

Presentations on the activities of EMCDDA and CLEN focused on the importance of all organisations working together to exchange know-how and analytical data with a view to helping the detection of narcotic substances.



## ENFSI IN CLOSE-UP

The activities of the following subcommittees were also presented:

### Quality Assurance Subcommittee

*(including the results of the interlaboratory proficiency tests)*

As quality is very important in forensic science, the Quality Assurance subcommittee is very active within the DWG. As their aim is to help the ENFSI member laboratories with best practice and international standards, an important task is to organize an annual proficiency test. This year four relevant materials (unknown) were selected and sent to the participating laboratories. The Hungarian Institute for Forensic Sciences coordinated the proficiency test. The substances were sent for identification and quantification (including measurement of uncertainty), and covered three common drugs (THC, amphetamine and cocaine) and an identification challenge: a plant material with a new psychoactive compound (so called 'ADB-FUBINACA'). Without the right analytical techniques, it was difficult to identify this compound and only thirty-three (33) laboratories reported the identity correctly. The popularity of the proficiency test is evident from the response: Sixty-six (66) participants responded.

### Chemometrics Subcommittee

Software development for evaluation of results by the MVA technique for the characterisation and categorisation of samples.

### Best Practice Manual Subcommittee

The document (Best Practice Manual) will be for the use of drug practitioners in their routine work (to obtain efficient and simple procedures). All members will be asked for their input, ideas and workflow. A good example of sharing the good practices of all European laboratories.

### Database Subcommittee

The most important work for the database subcommittee is to update the screening libraries for identification of illicit drugs. These are very important to all laboratories to enable the identification of new drugs on the market.

Before the meeting was finished, awards for the best poster: P5 'Methadone Production in Latvian Illegal Labs' and the best presentation: 'Heroin Production in the Netherlands' were announced. Seventy-six (76) members and guests participated at the meeting and the newly introduced oral session on poster presentations was very successful.

## Workshop in March 2018

In March 2018, the Drugs Working Group contributed to the *1<sup>st</sup> Day of In-depth analysis on forensic analytical chemistry: Forensic Investigation and Mass Spectrometry Contribution* which was held in Rome by the Scientific Police Service and Italian Chemical Society. Taking part in this workshop enabled the DWG to further its stated aims and objectives, with an emphasis on how knowledge and experience is shared among the members.

## Steering Committee meeting in Madrid, September 2018

The DWG Steering Committee meeting was held in October 2018 and was hosted by the Ministry of Justice in Madrid, Spain. The meeting took place in a magnificent historical building near the centre of Madrid and lasted for 1.5 days. The principal aims of the meeting were to:

- Prepare the annual report of DWG activity for the ENFSI board
- Review the Annual Meeting that took place in Lisbon
- Discuss the arrangements for the next Annual Meeting to be held in Larnaca, Cyprus
- Prepare the budget for the next year's DWG activities
- Draft communications for circulation to DWG members for the Terms of Reference for the DWG and the Communication Subcommittee

We were able to report a lot of activity within the DWG during the past year, especially with the ongoing work being undertaken by the Chemometrics and Best Practice Manual Subcommittees. The feedback and comments on the meeting in Lisbon were very positive and it was clear that the meeting had been a success and provided a good basis for drawing up the programme for the next meeting. At the time of the meeting, the preparations for the meeting in Larnaca were already in progress and further consideration brought forward new ideas for discussion sessions that have now been included in the meeting programme. The review of the DWG accounts showed a healthy balance and a budget was prepared to provide strong financial support for subcommittee activity and for assistance with attendance at the Annual Meeting.

The programme for the meeting afforded time in the evening to wander around the centre of Madrid where we were able to sample the food and drink and the friendly atmosphere of the city. Extending the stay in the city beyond the dates of the meeting allowed for the many sights and tourist spots on offer to be experienced.

It was a pleasure to attend the meeting and sample the hospitality of the host city while successfully completing the work to review the past activity and plan the future activity of the DWG.

ENFSI IN CLOSE-UP



# Fire & Explosion

2018 has been an active year for FEIWG. The annual meeting took place in Tallin, Estonia in June, and 51 members/associate members participated. The meeting highlights were detection limits of ignitable liquid vs. reporting – how low do we go; use of UV light at a fire scene to visualize traces/use of ignitable liquid; electronical traces and collaborative exercises. There were two optional workshops at the end of the meeting, one for the “accelerant” sub-committee comprising the topic of oil training, and one for the “fire scene” sub-committee comprising the topic of Lithium ion batteries – implications in fire and explosion investigations.

In November, NFI offered a two day training in Fire Debris Analysis. The aim of the training was to share knowledge, since one of the working group greatest contributors sadly had to retire early. The training was a unique opportunity, and of course very popular and well received.



# Scene of Crime

2018 was the year of merge for the Scene of Crime Working Group. Archaeology and BPA (Blood Pattern Analysis) Project Groups had been merged into the Scene of Crime WG; the first common meeting took place. The most important aim to be achieved has been to keep up the identity and the visibility of each group of the overall WG. The annual meeting has been organized by the Forensic Police Office of the French National Police and took place at the EAFS 2018 in Lyon, between 27th and 29th August 2018.

62 participants from 27 European countries, one from an African country and one participant from the OSAC/USA took part in the meeting.

One of the achievements of the meeting was the cooperation with other ENFSI Working Groups. Members of the ENFSI Expert Paint and Glass WG, ENFSI Digital Imaging WG and ENFSI European Fingerprints WG attended the meeting this time. Furthermore, the presence of the ENFSI Board Chairman, Erkki Sippola, has been essential to establish a connection between the WG and the ENFSI Board. The theme of this annual meeting was "The Merger – Working Together". Within the meeting, we heard different presentations such as CSI and BPI casework presentations and discussed quality issues. We also carried out a very productive workshop about the documentation of the scene and talked about R&D, BPM's and collaborative exercises.

The highlights of the meeting have been the documentation of the scene workshop, the BPA collaborative exercise, the approval of the 2nd edition of the BPM for crime scene

examiners and the elaboration of a BPM for the finger mark visualization at the scene of crime (with the ENFSI European Fingerprints Experts WG – ENFSI Monopoly Program 2016).

Besides the Annual Meeting, another highlight of 2018 was the organization of a Forensic Excavation Exercise which took place in April 2018 in Portugal and involved Forensic Archaeologists, Crime Scene Investigators, Forensic Pathologists, and Forensic Geologists. The aim was to create working teams composed of experts with different forensic backgrounds and specialized knowledge. In the end, the final results turned out to be amazingly good, because all of the participants understood how much they could benefit from each other's special knowledge and skills.





# ENFSI MEETS

# Annual Meeting Budapest



The Hungarian Institute for Forensic Sciences had the honour of hosting the 30th Annual Meeting from 16th to 18th May 2018. Participants from all over Europe came to Budapest to have a successful and fruitful meeting at the Art'otel Budapest. The attendants had the chance to get to know the city and to learn more about Hungarian history.

## ENFSI MEETS

The Hungarian Institute for Forensic Sciences was chosen to host the Annual Meeting in 2018. After the decision, the organization started looking for the perfect venue with enough accommodation and conference rooms and found the Art'otel Budapest, which was able to host such a great event. In January, the venue was announced and the ENFSI AM 2018 website was presented to the Board. After small changes, the website was launched and the registrations began to arrive, resulting in a total of 120 registrations comprising accompanying persons and exhibitors. On the first day, lieutenant general Mr. Károly Papp, head of Hungarian Police Headquarters, gave a welcome speech expressing his appreciation for the cooperation between Hungarian Forensic Institute and Hungarian Police Force and the importance of this high priority event for ENFSI as well as for the Hungarian Police Force.

At the end of the first day of the Annual Meeting – the participants had the pleasure of visiting the House of Parliament, which is rightly considered to be one of the most beautiful parliaments buildings in the world. Selected as a World Heritage site as a central element in the Danube panorama in 2011, the edifice is not only an invaluable treasure, but also the pride of the nation. The Parliament tour was followed by a Gala Dinner that took place at the Hungarian Academy of Sciences. The Academy Club is a unique venue in the wing of the 150-year-old historic building on the Danube and symbolizes science and development. The Business Meeting was officially opened by the State Secretary of the Ministry of Interior, Dr. László Felkai. The toast was proposed by Major General Mr. János Balogh, who is the current High Commissioner of the Police.

At the end of the following day, the participants went on a sightseeing tour in Budapest, on which they could get to know the city better and learn more about Hungarian history. The last stop of the day was the Hungarian dinner, where everyone could have a cheerful and enjoyable night together. The Rapid Response and Special Police Service band provided the audience with a wonderful music program. Participants also got to know the Hungarian cellar systems along with tasting wines during the cellar walk..

## Business program

Traditionally, the first day of the meeting is a thematic day – interesting presentations were held all day which gave members the opportunity to improve their knowledge about the TDPEDFS project. Mr. Richard Gill lectured perfectly on the EU Direct Grant 2014. Those who chose to take part in the morning session had the chance to listen to the presentation by Cefpol's representative. Later on, in small workshops participants discussed their viewpoints on current training needs. At the afternoon session the leaders of the workshops expounded their experiences to the membership. The long day ended with a pleasant feeling. According to the official programme the Business Meeting was held on Thursday and Friday filled with reports of the ENFSI Board members. Mr. Erkki Sippola handed over the certificates to the new member representatives.

The membership voted on the most important issues such as e.g. the amended ENFSI Constitution which was finally accepted by majority. On the last day, an EFSA task force presentation was given by Ullar Lanno. After the evaluation, Dominique Saint-Dizier gave further information about the EAFS 2018 venue. The representatives of the ENFSI institutes decided to host the ENFSI Annual Meeting 2020 in Madrid. ENFSI Board congratulated the winning institute's representative and closed the meeting with a conclusion on three days of work. The participants expressed their appreciation with standing ovation for the Hungarian Institute for Forensic Sciences because of the professional organization of the ENFSI Annual Meeting in Budapest.



# Joint Meeting Athens



The ENFSI Joint Meeting 2018 took place in Athens during the period 21st to 23rd November. 27 participants attended the meeting, including members of the ENFSI Board, a representative of QCC and the Chair of R&D Standing Committee, Chairs of the Expert Working Groups, the Monopoly Project Manager, as well as the two secretaries, Isabelle Jopp and Bianca Benisch.

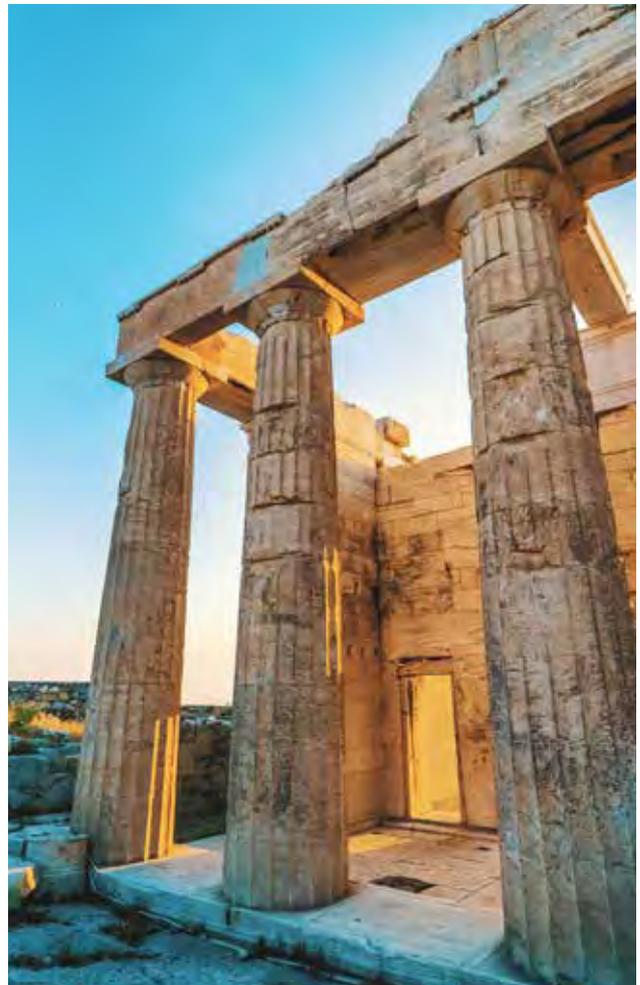
The meeting was held in a central Athens location and was hosted by Dr. Pinelopi Miniati, Director of the Forensic Science Division of Hellenic Police.

Dr. Miniati delivered a speech and welcomed all participants. She introduced the Forensic Science Division of Hellenic Police and presented the important work that is taking place both in terms of forensics and humanitarian work for refugees and immigrants.

On the 21st of November, the heavy and busy program of the meeting was enriched by a sightseeing walk through the winding streets of Plaka (the "Neighbourhood of Gods") and the Monastiraki areas at the foothill of the Acropolis which are filled with traditional houses and shops. The walk ended with a dinner at another traditional neighbourhood in downtown Athens.

On the 22nd of November, the participants had the chance to enjoy a guided tour in the world famous Acropolis Museum with a direct view of the Parthenon as well as a guided walk to the Rock of Areopagus (ancient court place) with its wonderful panoramic view. Dinner was later served in the picturesque area of Mikrolimano, a small harbor in Piraeus.

Finally, the meeting was completed with the exchange of gifts among Dr. Pinelopi Miniati and the Chairperson of ENFSI, Erkki Sippola, as well as by a farewell to Jonathan Morris, who terminates his forensic career and ENFSI participation.



# Board Meetings

Beside the almost daily communication between the Board members or Secretariat, the ENFSI Board performed its managerial role in the association in 2018 during eleven meetings, six in person and five held as videoconferences.

It's composition changed in May 2018 and has been increased by two members, Dr Pavel Kolář from the Institute of Criminalistics in Prague, Czech Republic and Dr Yalçın Büyük from the Council of Forensic Medicine in Istanbul, Turkey, according to the accepted new constitution.

The interim Board Member since November 2017, Dr. Michael Bovens, has been confirmed and further been elected as Chairman Designate by the Membership. The hitherto members Dr Erkki Sippola, Chairman, Dr Dorijan Kerzan, Treasurer, together with Dr Kornelia Nehse and Prof Dr Dariusz Zuba completed the 22nd ENFSI Board.

The main topics discussed and decided on comprised:

- Preparation of the Annual Meeting in Budapest, especially the changes in the new constitution and its demanding post processing with the German court.
- Strategy and first tasks for the E&T Taskforce
- Ceasing the EFSA 2020 Taskforce
- Updating a series of Frameworks
- Board Report 2017–2018 and Action Plan 2018–2019
- Working Arrangement between ENFSI and CEPOL
- Contracting the internal financial audits (tax consultancy) and project based financial controlling

- Evaluating applications for ENFSI Membership and assessment of the Malta Police Forensic Science Laboratory (MPFSL)
- Ceremony to the 60th anniversary of the Institute of Criminalistics in Prague
- General Data Protection Regulation
- Coordination with the organizers of EAFS in Lyon
- Establishing strategic contacts and visits with COM, EUROPOL (setup of Forensic Databases), LEWP (EU Law Enforcement Working Party liaison) EJTN (The European Judicial Training Network) and ICC OTP Scientific Advisory Board (International Criminal Court – Office of the Prosecutor)
- Preparation of the Joint Meeting in Athens
- Dissemination conference of the MP2014 Grant (TDPEDFS, Towards the Development of Pan-European Databases in Forensic Science)
- Initiation of the MP2016 Grant (STEFA, Steps Towards a European Forensic Science Area)
- Conceptualisation and preparation of the MP2018 Grant

The Board was challenged with exigent tasks but pleased with the developments. Thanks to all who supported and contributed! We are looking forward to a not lesser challenging but promising year 2019.



ENFSI Board Meeting in Budapest January 2018.

# 8th European Academy of Forensic Science Conference

A Forensic Odyssey, the 8th edition of the triennial European Academy of Forensic Science Conference (EAFS) was organized in Lyon by INPS – the French National Institute of Forensic Sciences – 27th to 31st August 2018.



The venue was at the Lyon Confluence congress centre by the river Rhône. The events gathered 809 attendees from 58 different countries. The facilities offered a large theatre for plenary sessions, spacious rooms for parallel sessions and a large hall for poster sessions. The personnel were very efficient in assisting and informing people.

The congress was opened by Préfet Éric Morvan, General Director of the French National Police giving an opening speech with a focus on the feedback of the terrorist attacks that struck Paris (2015) and Nice (2017).

A Forensic Odyssey was proposed across research and development, methodology and processes, education and training, and humanities in forensic fields: an endless improvement towards excellence.

The conference attracted not only forensic experts and providers of forensic services, but also ENFSI's stakeholders from the EC and EU agencies. Particular care had been taken to invite 30 industrial partners to display their equipment and products. They were able to present the new trends in equipment and reactants and up-to-date kits in sampling and detection.

## ENFSI MEETS

It was a mean to bring together all that counts for forensics and offered for the attendees a good opportunity to look at other fields of interest than their own.

To address these expectations, a real forum for exchanging knowledge and know-how took place over five days. The general theme of the conference was chosen to address potential solutions to the challenges our society faces nowadays with the terrorism threat and the evolution in criminal activities. This was achieved through workshops, plenary and parallel sessions; poster presentations and even on-site presentations.

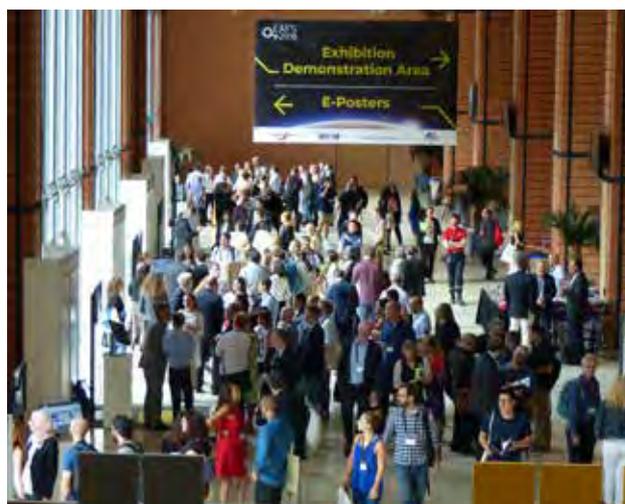
On Monday and Tuesday, 15 workshops were held ranging from DNA to scene of crime and from drugs profiling to response against terrorism. 425 people participated.

Three plenary sessions were proposed from Wednesday to Friday morning gathering most of the attendees. The first morning was dedicated to the opening ceremony, followed by a presentation by M. KAISER on appearance prediction from DNA for investigative intelligence and a presentation by I. OJANPERA on drugs and their current trends and new challenges. During the second morning, the plenary session was composed of a feedback from law enforcement services involved in the Paris and Nice (France) attacks, the London (UK) and Barcelona (Spain) attacks. They explained the way investigations were handled and the difficulties raised by the typology of these attacks perpetrated in public places with well prepared kamikazes aiming at killing or injuring the largest number of people, not fearing losing their lives themselves. Friday morning was devoted to a presentation on grants provided by the EU to ENFSI: mainly TDPEDFS by K. NEHSE and STEFA grants by R. GILL. This was followed by a talk by O. RIBAUX on digital evolution of a forensic laboratory. Short presentations on Epigenetic age prediction by W. BRANICKI, and on UK CT digital intelligence gathering at UK borders by S.CRAWLEY ended the plenary sessions.

Concerning the parallel sessions, 14 different topics were offered. They took place in six different rooms from Wednesday to Thursday afternoons. Opportunity was given to attend short presentations and subsequent questions from the public on forensic mainstream topics DNA, drugs, forensic IT, statistics etc., and more confidential or novel ones, related to humanities or anthropology and the migrant crisis. Their success was such that certain rooms were somewhat overcrowded.

More than 500 summaries were sent to the scientific committee which was composed of 34 forensic experts in their fields, divided into relevant sub-committees. The choice was difficult as only 130 of them were finally presented during the parallel sessions. And only 100 were orally presented during the poster sessions.

A satisfaction questionnaire was filled in by 296 attendees on the content of the conference, its venue, its organization, the online services and contact and the social events. They were rated at least 3.5 out of 5. The main criticism arose from



the e-poster format. It was the first time it was presented at an EAFS conference. Although the venue was a big hall with light and nice environment, it was sometimes difficult to be on time at the right presentation, 6 occurring at the same time, and to hear what was said. It was possible to review the presentation but it was only a 3-slide summary with no live commentary. Although the level of translation was found to be good, some people expressed a preference for all presentations to be in English. This can be difficult for some officials or even scientists. It should not be a barrier for communication.

The conference was closed by the ENFSI Chairman Erkki Sippola expressing his gratitude to the INPS and the organizing committee for having held the 8th EAFS conference as well as his pleasure to have attended the event. A representative from the Swedish National Forensic Centre NFC announced the next EAFS conference will be organized by her laboratory in 2021 in Stockholm. The last words had Philippe SCHAAD, Deputy Director of INPS who declared the 8th EAFS meeting closed.

The media coverage of this conference was extensive with over 20 teams covering the event on their national and regional radios, television channels and newspapers.



ENFSI Honorary Member Wim Neuteboom



## Forensic Scientists Awards

ENFSI has established different Awards to honour those who have made significant contributions to ENFSI or to forensic science in general. During the European Academy of Forensic Science Conference in Lyon the following awards for the performance of outstanding scientific work in forensic science were presented:

- *Emerging Forensic Scientist Award*
- *Distinguished Forensic Scientist Award*

The nomination process of potential candidates for the Awards started with a request sent to all ENFSI members to nominate Forensic Scientists who meet these high standard requirements and to obviously provide a written explanation.

The nominations received were then forwarded to the Ad-hoc committee established by the ENFSI Board which was this time formed of different members of the R&D Standing Committee. Their task was to carefully evaluate the nominations and to give their final recommendation to the ENFSI Board.

It is pleasure to inform that after the evaluation of all nominated candidates, the ENFSI Board as well as the Ad-hoc Committee unanimously appreciated the achievements of **Dr Thibaut HECKMANN, winner of the Emerging Scientist Award** and **Professor Niamh Nic Daéid, winner of the Distinguished Forensic Scientist Award.**

## Honorary Membership

The Honorary Membership is one of ENFSI's most important means to express esteem to a person who has contributed to the work of ENFSI in a most outstanding way. During the EAFS the ENFSI Board and the whole ENFSI community showed its appreciation to Wim Neuteboom by appointing him Honorary Member of ENFSI.

From the beginning of ENFSI, he was the driving force of and within the network. For more than 10 years (May 2002 – December 2012) he was the ENFSI Secretary. Due to his valuable contributions such as the creation of many ENFSI documents and his continuously readiness to move things forward such as his involvement in the preparation and execution of QA projects in different countries, he was rather considered a "Secretary General". In 2012 he was awarded the Distinguished ENFSI Contributor Award. The list of contributions did not end with his term as ENFSI Secretary. He remained active in various areas. The ENFSI Board and the ENFSI membership benefited substantially from his experience.

Congratulations once again to all awarded persons!

# KEY PRO JECTS



# EU Direct Grants

DR. RICHARD GILL – ENFSI MONOPOLY PROGRAMME MANAGER

## EU Direct Grant Funding

The ENFSI work supported by the 2014 direct grant from the EU Internal Security Fund – Police (ISF-Police) programme was completed during the calendar year 2018. This work programme, “Towards the Development of Pan-European Databases in Forensic Science (TDPEDFS)” started implementation on 1st January 2016 with a planned implementation period of 24 months. However, delays arising from the non-availability of key people in some work areas, led to ENFSI making a formal application to the European Commission (EC) to extend the implementation period until 31st May 2018. With this extra time the work was completed successfully, and two dissemination events were held in the final weeks to communicate the results and discuss the next steps for sharing forensic databases across Europe. The first event was held for the ENFSI Member Representatives at the ENFSI Annual Meeting Thematic Day in Budapest (16th May 2018) and then a TDPEDFS Conference was held at EUPOPOL in The Hague NL (24th May 2018). The final reports were submitted to the EC in August 2018. The TDPEDFS project points towards a long-term vision for sharing more forensic databases (DBs) across Europe through a ‘single access point’, to avoid duplication and provide better casework interpretation. The feasibility study looked at the scope for a European infrastructure with a shared data model for DB integration. In addition, the TDPEDFS project developed some new/improved DBs in specific forensic areas. TDPEDFS implementation involved 26 organisations across 18 countries.

The ENFSI project funded by the 2016 direct grant under the EU ISF-Police programme stated implementation on 1st January 2018 with a kick-off meeting held in Berlin DE. This ENFSI work, “Steps Towards a European Forensic Science Area (STEFA)”, has a planned implementation period of 24 months, finishing at the end of 2019. STEFA contains 10 separate work activities that will contribute towards the realisation of the EU Vision for European Forensic Science 2020 with the creation of a European Forensic Science Area. In this respect, these activities have been selected as contributing towards the key work streams specified in the relevant EU Council Decisions and the Action Plan (2016)

where ENFSI has been designated as a lead organisation. The Mid-Term Progress Report for STEFA (covering the whole of 2018), was submitted to the EC in January 2019 and showed that most of the work is progressing in line with the original plans. Nevertheless, a few work streams are experiencing some delays and there remains the possibility that ENFSI may need to make an application to the EC for a short extension to see the work through to completion.

The latter months of 2018 saw an EC announcement that ENFSI has been allocated a direct grant of €1,500,000 grant for a new 2-year project. An ENFSI application to secure this grant, containing a detailed work plan, is in preparation and will be submitted to the EC by the end of April 2019. The grant application will involve further activities related to the EC Action Plan for the creation of a European Forensic Science Area. This will include work on the accreditation of digital forensics & scene of crime, training of forensic personnel on accreditation matters, the training of technical assessors and the development of new and updated best practice manuals across several different forensic science areas. It is pleasing to note that the EC rules for the 2018 direct grant have seen some modifications when compared to previous years, with a wider range of ENFSI Member organisations being able to make full use of the EU grant money.

In October 2018, the EC conducted a full retrospective financial audit on a project previously delivered by ENFSI using the 2012 EU direct grant (TEFSBPM, Towards European Forensic Standardisation through Best Practice Manuals). Such random auditing of past projects is regular practice for the EC and emphasises the contractual obligation of maintaining all records for a period of 5 years after a project has been reported. This is the first time that ENFSI has been subject to such an audit. This specific project was administered from the ENFSI Secretariat when it was hosted by EFIC in Poland and thus the auditors spent 3 days at the EFIC office in Warsaw examining the project financial archives.

## KEY PROJECTS

### ENFSI Direct Grant 2014

#### Direct Grant Projects (2014) – 2-year programme (grant awarded € 1,425,821) – ISF-Police funding

**Programme Theme:** “Towards the Development of Pan-European Databases in Forensic Science (TDPEDFS)”.

**Current Status:** Work commenced on 1st January 2016 / Formal EC 5-month extension of the implementation period until 31st May 2018 / Final reports submitted to the EC in August 2018

**EU Reference:** HOME/2014/ISFP/AG/ENFSI/4000007822

	Project Title	Project Leader
<b>N1</b>	Towards Big Forensic Data (TBFD) – feasibility study & proof of concept.	Kornelia Nehse (LKA-Berlin, DE)
<b>N2</b>	Geographical Distribution of Firearms and Gunshot Residue throughout Europe: databases that help experts to report beyond the source level.	Amalia Brouwer-Stamouli (NFI-The Hague, NL)
<b>N3</b>	European Smoke and Ink Staining System Plus (EuSISS+).	Sandrine Lauper (INPS-Ecully, FR)
<b>N4</b>	Forensic Substance Database on Explosives (FoSDE).	Rasmus Schulte-Ladbeck (BKA-Wiesbaden, DE)
<b>N5</b>	Database Platform for the Combination of Various Existing Databases and Research Projects in the Field of Forensic Document Examination.	Rolf Fauser (LKA-Stuttgart, DE)

## TDPEDFS Project – Activities and Final Achievements

The TDPEDFS project has delivered results across five forensic areas:

# 1.

A feasibility study has been conducted on the future possibilities for exchanging forensic information through shared DBs and the potential scope for Big Forensic Data. This work has included a Big Data Conference. This activity has included a survey of existing European forensic DBs and the evaluation of different technological approaches for data sharing along with the development of a pilot demonstrator, FOXX (Forensic Objects EXTensible and EXchangeable). This framework was designed for maximum flexibility, with local data models that can be harmonized into global European models. Innovative techniques empower laboratories to create or modify local DBs. The feasibility assessment has been guided by work across many areas: technical, legal, user requirements, financial, organisational, security, geographical mapping and wiki support.

# 2.

New DBs have been developed across 2 related forensic disciplines, firearms and gunshot residues (GSR). The first has gunshot residue prevalence data for different populations/places across the EU to help understand the significance of detected traces. A second DB has collected spectral information from typical GSR particles arising from specific ammunition brands. A third DB allows geographic/date searches for technical firearm and ammunition information. Also, a collaborative exercise (CE) has led to a Best Practice Manual on the measurement of land engraved areas on bullets.

# 3.

3. Secure cash transit/storage boxes mark banknotes with indelible inks and specific unique taggants on tampering. Criminals are unable to use the stained notes and specific forensic links are established. 5 forensic institutes have cooperated with EURICPA (European Intelligent Cash Protection Association), an association representing leading manufacturers to develop a new DB, EuSISS+ (European Smoke and Ink Staining System Plus) that can identify international links between stained notes and specific attacks/robberies. The server is hosted in France with links across the sTESTA network. Other work has included a one day training seminar and two CEs involving stained notes.

# 4.

A DB (Forensic Substance DB on Explosives, FoSDE) has been developed with data from commercial and military explosives previously not available, designed for the investigation of crime and terrorism. The data content has been prioritized by FINEX (ENFSI Working Group on Explosives). The data includes photographs of the substances and their packaging and extensive validated analytical information including, IR Spectra, XRD/XRF & LC-MS.

# 5.

This activity has involved the combination of various existing DBs in the field of forensic document examination. The platform (on-line through a VPN connection) provides a tool for examiners to access a common information pool allowing one query to combine examination methods. 7 DBs are on the platform: Inkjet, Toner, Pen Blue, Pen Black, Pen Other colours, Printing Defects and Printing Techniques.

## ENFSI Direct Grant 2016

**Direct Grant Projects (2016) – 2-year programme (grant awarded € 1,500,000) – ISF-Police funding**

**Programme Theme:** “Steps Towards a European Forensic Science Area (STeFA)”.

**Current Status:** Grant Agreement signed/Work commenced on 1st January 2018

**EU Reference:** ISFP-2016-AG-IBA-ENFSI-779485

	Project Title	Project Leader
<b>G1</b>	Benchmarking forensic laboratories for strategic planning purposes.	Tore Olsson (NFC-Linköping, SE)
<b>G2</b>	A fitted work tool for analytical data interpretation in forensic chemistry by multivariate analysis (chemometrics).	Sami Huhtala (NBIFL-Vantaa, FI)
<b>G3</b>	Collaborative exercise covering the forensic disciplines of DNA, document examination, fingerprint examination and handwriting examination.	Jonathan Morris (SPAFS-Glasgow, UK)
<b>G4</b>	Development of specialist fingermark visualisation training courses (FV Training).	Aldo Mattei (RaCIS-Rome, IT)
<b>G5</b>	Development of a training and education concept for forensic hair and fibre experts.	Jan-Eric Grunwald (BLKA-Munich, DE)
<b>G6</b>	IT forensic tools test and validation database (Valid).	James Luck (MPS-London, UK)
<b>G7</b>	Empowering forensic genetic DNA databases for the interpretation of next generation sequencing profiles (DNA.bases).	Ingo Bastisch (BKA-Wiesbaden, DE)
<b>G8</b>	Best Practice Manual – Forensic examination of digitally captured signatures and handwritten entries.	Tomasz Dziedzic (IFR-Krakow, PL)
<b>G9</b>	Best Practice Manual – Forensic comparison of soil traces.	Stefan Uitdehaag (NFI-The Hague, NL)
<b>G10</b>	Best Practice Manual – Fingermark visualisation at the scene of crime.	Linda Koomen (NFI-The Hague, NL)



# EXTERNAL RELATIONS

# European Commission



In the course of the year, meetings were conducted with Mr. Patrick Hamon (Head of Sector: Police Cooperation, European Commission, Directorate General Migration and Home Affairs, Unit D1: Police cooperation and information exchange), who is responsible for the EC Direct Grants for forensics. Discussions aimed at finding a mutual understanding about the most beneficial topics for the ISF-P (Internal Security Fund – Police) funding.

As a result, the 2018 final call text declared: “Activities that can be funded include the development of pan-EU project(s) to implement the action plan of the Council conclusions and action plan of June 2016 on the way forward in view of the creation of an European Forensic Science Area (8770/16), in particular its actions 5 which relates to the accreditation of forensic laboratories, and its action 6 which relates to stimulating the exchange of forensics data via Prüm and improving its quality. The maximum EU co-financing rate of the project is fixed at 95 % of its total costs. The maximum grant envisaged in the ISF Police Annual Work Programme 2018 for these activities is € 1 500 000. Your project application cannot be scheduled to last more than 24 months.”

Finding permanent funding for forensic databases was also discussed a number of times. It only became clear that this is a very challenging issue and there isn't any self-evident solution for that.

Likewise, discussions with Mr. Arnoud Heeres (Coordinator Internal Security Fund Police – EU policies, European Commission, DG Migration and Home Affairs, Directorate E Migration and Security Funds, Unit E.1 – Union actions) also took place. Mr. Heeres provided invaluable information about EC policies on criteria of beneficiaries eligible to receive EC funding in the Monopoly projects. Luckily, Monopoly funding became available also for ENFSI Members from non-EU countries and for experts who are Associate Members of ENFSI Expert Working Groups. Mr. Heeres also gave background information about alternative ways to get permanent EC funding for ENFSI. To summarize that, a lot of lobbying seems to be indispensable.

# CEPOL & EJTN

2018 was the year of intensification of ENFSI's cooperation with two major providers of trainings for law enforcement and judges in Europe: CEPOL (European Union Agency for Law Enforcement Training) and EJTN (European Judicial Training Network).

## **Signing of Working Arrangement between ENFSI and CEPOL**

Since 1 July 2016, CEPOL has a new legal mandate, and its audience encompasses the entire family of law enforcement professionals. This change has significantly influenced the relation between ENFSI and CEPOL, because in the past the offer of CEPOL was limited only to police officers. Therefore the ENFSI Board decided to straighten the cooperation with this EU agency. On 24th January 2018, the Board visited CEPOL Headquarter in Budapest and met with high rank representatives of the agency, including Mr. Detlef Schröder, the Executive Director of CEPOL. A draft version of the Working Arrangement and different areas for future cooperation were discussed. Finally, on 8th October 2018, Erkki Sippola and Detlef Schröder signed the Working Arrangement (its full version is available on the ENFSI homepage).

According to the Working Arrangement, the cooperation shall, amongst others:

1. Allow the participation of forensic experts or of officials affiliated to ENFSI in CEPOL training sessions
2. Define possible supporting activities of ENFSI to the organization of CEPOL training courses and vice versa
3. Enhance the exchange of best practices and promote the access to the public sections of CEPOL's electronic network among ENFSI member employees

The educational offer of CEPOL is very interesting, because the agency employs a multi-layered approach to learning, including:

- residential courses and seminars
- online seminars (webinars)
- e-learning modules
- bilateral exchanges through the Exchange Programme
- research and science conferences.

In 2018, CEPOL in cooperation with ENFSI organized a residential course on data interpretation in forensic evidence. Another course, on forensic investigation in CBRN contaminated environment/terrorist attack was postponed to February 2019. Many experts from ENFSI member institutes served as trainers and participated in other courses and seminars organized by CEPOL, including those on cybercrimes, drug analysis, document examination or forensic work on the crime scene. With the new Working Arrangement the participation in the courses and the offer in forensics should even improve.

## **Participation of ENFSI experts in the EU Strategic Training Needs Assessment**

The European Agenda on Security identifies the fight against serious and organized crime, terrorism and cybercrime as the main priorities for European security. At the same time, it stresses that forensic science is critical to law enforcement, prosecution and judiciary. Law enforcement authorities must be confident that the forensic data they rely on is of high quality and can be effectively used in court. So far, the EU was lacking a systematic process for identifying and addressing strategic training needs, which are constantly evolving. Towards this end, the EU Strategic Training Needs Assessment (EU-STNA), as being implemented by CEPOL, seeks to identify those EU level training priorities in the area of internal security and its external aspects to help build the capacity of law enforcement officials, while

## EXTERNAL RELATIONS



avoiding duplication of efforts and aiming at better training coordination in a multi-annual perspective.

Based on the outcomes of the EU-STNA desk research, experts from ENFSI Working Groups, Research and Development Standing Committee and Quality and Competence Committee took part in the Consultation Workshop on Forensics, which was organized in the CEPOL Headquarter in Budapest on 18th April 2018. EU training needs in forensics were defined and prioritized. The working paper was presented to the European Commission, and later consulted with the EU Member States. Finally, in November 2018 the report on strategic training needs was presented to the Council of the EU and the European Parliament. Forensics is one of the topics among 21 categories included in the report. Moreover, specific fields such as cybercrimes, firearms trafficking including explosives and precursors, document fraud and drugs smuggling are strictly related to the activities of forensic experts. Therefore, it seems that in subsequent years the number of trainings in forensics included in the portfolio of CEPOL and other training providers will increase being a good way to improve competencies of forensic experts.

### **Establishing mutual cooperation between ENFSI and EJTN**

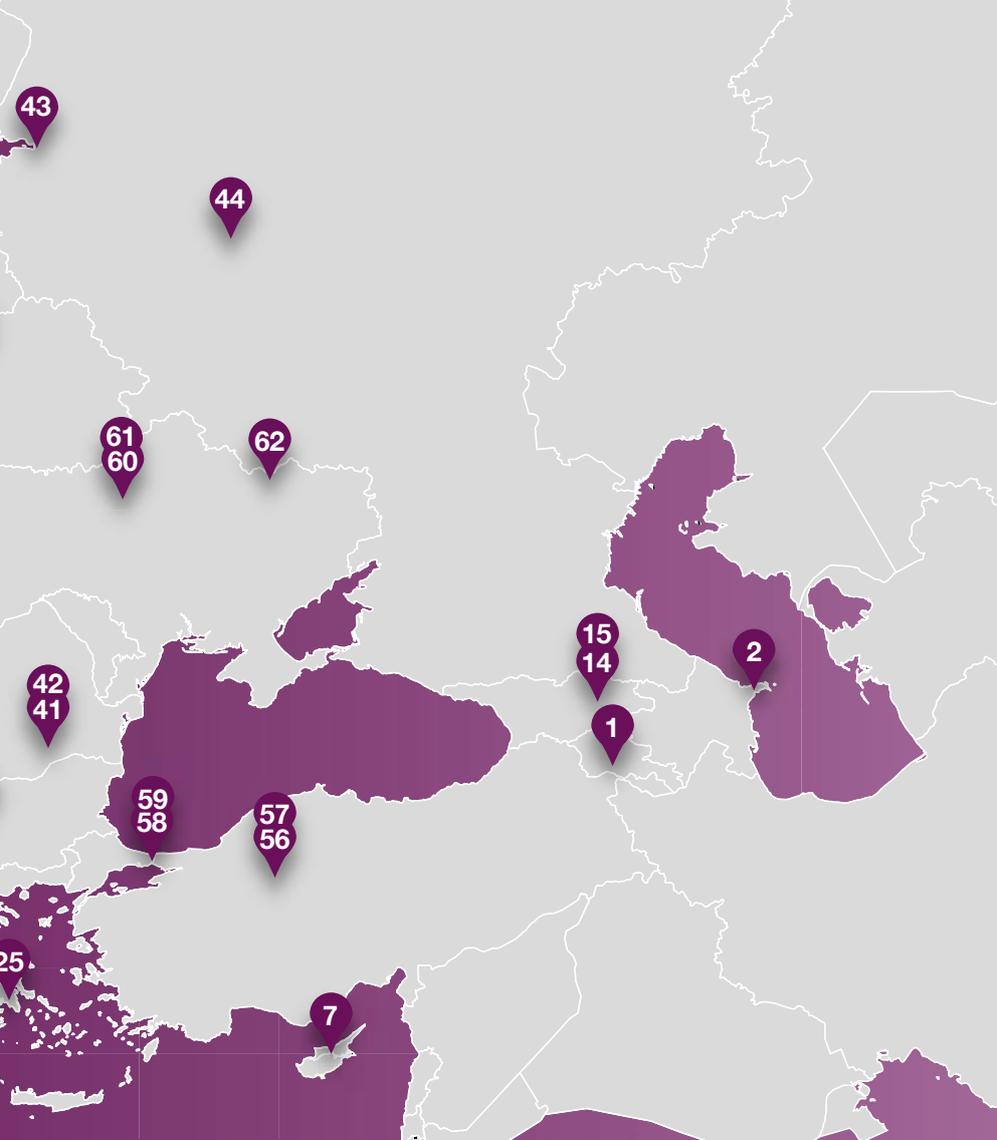
European Judicial Training Network (EJTN) is the principal promoter for the training and exchange of knowledge of the European judiciary. This organization is also mentioned in the Action Plan on the way forward in view of the creation of an European Forensic Science Area 2020 as one of the coordinators of the Action 4 – Forensic awareness and training for law enforcement and justice communities. Its duties are, among others, to liaise with justice system entities in order to identify priority areas for forensic awareness training, as well as implementation of trainings for judges and prosecutors on the use of forensic science developments in legal proceedings and pre-trial proceedings (new areas of research, new equipment, better interpretation of results, standardization of research methods). The latter activity should be realized in cooperation with ENFSI and the European Commission.

On 25th April 2018, the ENFSI Board delegation headed by the Chairman, Erkki Sippola, visited the Headquarter of EJTN in Brussels and met with Judge Wojciech Postulski – EJTN Secretary General and other persons responsible for the management of courses in criminal law. The hosts presented the activities of the Criminal Justice Sub-Working Group, its membership, goals and objectives, EJTN training initiatives in forensics in 2018 and planned for 2019, details of collaboration with CEPOL, as well as national experience with forensics training for judiciary based on experience of Spanish Centre for Judicial Studies (CEJ). The ENFSI Board representatives presented the association itself and the experience of ENFSI in judicial training. A discussion on the position of forensic expert reports for the court, challenges and potential solutions, was led by Michael Bovens. Finally, the representatives of both organizations discussed about training needs in forensics for the EU judiciary and ways of cooperation between ENFSI and EJTN. A common agreement of the formation of new seminars entitled 'Understanding the forensic expert opinions (reports)' was achieved. In the following weeks details of the seminar were discussed by email and the draft proposal for the training was submitted to the EJTN Sub-Working Group Criminal Law in October 2018 and was accepted. The forensics seminars will be implemented in 2020 and the preparatory work (format, topics, agendas, experts) will start in 2019.

# ENFSI MEMBERS



- 1 National Bureau of Expertises, Yerevan, Armenia;
- 2 Forensic Science Centre of the Ministry of Justice of the Azerbaijan Republic, Baku, Azerbaijan;
- 3 Forensic and Technical Services, Criminal and Intelligence Service, Vienna, Austria;
- 4 National Institute for Criminalistics and Criminology, Brussels, Belgium;
- 5 Research Institute of Forensic Sciences and Criminology, Sofia, Bulgaria;
- 6 Forensic Science Centre Ivan Vučetić, Zagreb, Croatia;
- 7 Criminalistic Services of the Cyprus Police, Nicosia, Cyprus;
- 8 Institute of Criminalistics, Prague, Czech Republic;
- 9 Danish National Police, Police Directorate, Copenhagen, Denmark;
- 10 Estonian Forensic Science Institute, Tallinn, Estonia;
- 11 National Bureau of Investigation, Forensic Laboratory, Vantaa, Finland;
- 12 Forensic Sciences Institute of the French Gendarmerie, Pontoise, France;
- 13 National Forensic Science Institute, Ecully, France;
- 14 LEPL Levan Samkharauli National Forensic Bureau, Tbilisi, Georgia;
- 15 Forensic Criminalistic Department of the Ministry of Internal Affairs of Georgia, Tbilisi, Georgia;
- 16 Federal Criminal Police Office, Forensic Science Institute, Wiesbaden, Germany;
- 17 State Criminal Police Office, Forensic Science Institute, Berlin, Germany;
- 18 State Criminal Police Office Northrhine-Westfalia, Department of Forensic Science, Düsseldorf, Germany;
- 19 State Criminal Police Office, Department of Forensic Science, Hamburg, Germany;
- 20 State Criminal Police Office Lower Saxony, Forensic Science Institute, Hannover, Germany;
- 21 State Criminal Police Office Schleswig Holstein, Forensic Science Institute, Kiel, Germany;
- 22 State Criminal Police Office Bavaria, Forensic Science Institute, Munich, Germany;
- 23 State Criminal Police Office Baden-Württemberg, Forensic Science Institute, Stuttgart, Germany;
- 24 State Criminal Police Office Hesse, Forensic Science Institute, Wiesbaden, Germany;
- 25 Forensic Science Division of Hellenic Police, Athens, Greece;
- 26 Hungarian Institute for Forensic Sciences, Budapest, Hungary;
- 27 Forensic Science Ireland, Dublin, Ireland;
- 28 Central Anticrime Directorate of Italian National Police, Forensic Science Police Service, Rome, Italy;
- 29 Forensic Science Laboratories of Carabinieri Force, Rome, Italy;
- 30 State Forensic Science Bureau of the Republic of Latvia, Riga, Latvia;
- 31 State Police Forensic Services of Latvia, Riga, Latvia;
- 32 Forensic Science Centre of Lithuania, Vilnius, Lithuania;
- 33 Lithuanian Police Forensic Science Centre, Vilnius, Lithuania;
- 34 Ministry of Internal Affairs, Forensic Department, Skopje, Former Yugoslav Republic of Macedonia;
- 35 Forensic Center Police Directorate of Montenegro, Danilovgrad, Montenegro;
- 36 Netherlands Forensic Institute, The Hague, Netherlands;
- 37 National Criminal Investigation Service, Oslo, Norway;
- 38 Institute of Forensic Research, Krakow, Poland;
- 39 Central Forensic Laboratory of the Police, Warsaw, Poland;
- 40 Internal Security Agency, Forensic Laboratory, Warsaw, Poland;
- 41 National Institute of Forensic Expertises, Bucharest, Romania;
- 42 National Forensic Science Institute from Romanian Police, Bucharest, Romania;
- 43 North Western Forensic Science



Centre of the Ministry of Justice of the Russian Federation, St. Petersburg, Russia; <sup>44</sup> The Russian Federal Centre of Forensic Science of the Ministry of Justice of the Russian Federation, Moscow, Russia; <sup>45</sup> National Criminalistic-Technical Centre, Beograd, Serbia; <sup>46</sup> Institute of Forensic Science, Bratislava, Slovakia; <sup>47</sup> National Forensic Laboratory, Ljubljana, Slovenia; <sup>48</sup> General Commissary of Scientific Police, Madrid, Spain; <sup>49</sup> National Institute of Toxicology and Forensic Science, Madrid, Spain; <sup>50</sup> Criminalistic Service of Civil Guard, Madrid, Spain; <sup>51</sup> Scientific Police Division, Sabadell, Spain; <sup>52</sup> Forensic Science Unit Basque Country Police Ertzaintza, Bizkaia, Spain; <sup>53</sup> Swedish Police Authority, Swedish National Forensic Centre, Linköping, Sweden; <sup>54</sup> Forensic Science Institute, Zürich, Switzerland; <sup>55</sup> Ecole des Sciences Criminelles Police Scientifique, Lausanne, Switzerland; <sup>56</sup> Headquarter of Forensic Department, Ankara, Turkey; <sup>57</sup> Gendarmerie Forensic Department, Ankara, Turkey; <sup>58</sup> Council of Forensic Medicine, Istanbul, Turkey; <sup>59</sup> Institute of Forensic Science and Legal Medicine, Istanbul University, Turkey; <sup>60</sup> State Scientific Research Forensic Centre of the Ministry of Internal Affairs of Ukraine, Kyiv, Ukraine; <sup>61</sup> Kyiv Scientific Research Institute of Forensic Expertise of the Ministry of Justice of Ukraine (KFI); <sup>62</sup> Hon. Prof. M. S. Bokarius Kharkiv Research Institute of Forensic Examinations (KhRIFE); <sup>63</sup> Forensic Science Northern Ireland, Carrickfergus, Northern Ireland/UK; <sup>64</sup> Centre for Forensic Science, University of Strathclyde, Department of Pure and Applied Chemistry, Glasgow, UK; <sup>65</sup> Forensic Services Scottish Police Authorities, Glasgow, UK; <sup>66</sup> LGC Forensics, Teddington, UK; <sup>67</sup> Key Forensics LTD, Coventry, UK; <sup>68</sup> Directorate of Forensic Services, Metropolitan Police Service, London, UK; <sup>69</sup> Malta Police Forensic Science Laboratory (MPFSL), Malta.

## COLOPHON

### CONTRIBUTORS

Erkki Sippola  
 Pavel Kolár  
 Yalcin Büyüç  
 ENFSI Secretariat  
 Michael Bovens  
 Marton Lontai  
 Pinelopi Miniati  
 Dominique Deharo  
 Charlot Casha  
 Robert Scicluna  
 Dariusz Zuba  
 Camilla Lilleng  
 Martin Wermuth  
 Sander Kneppers  
 Fernando Viegas  
 Bart Nys  
 Üllar Lanno  
 Chanda Lothar-Harris  
 Richard Gill

### EDITION

500

All rights reserved. Reproduction in any form or by any means is allowed only with the prior permission of ENFSI.

### REQUESTS FOR EXTRA COPIES

secretariat@enfsi.eu

### PUBLISHED BY

ENFSI Secretariat  
 Bundeskriminalamt, KT-AS  
 65173 Wiesbaden, Germany  
 Tel/Fax: +49 611 551 66 60  
 e-mail: secretariat@enfsi.eu  
 website: www.enfsi.eu

### DESIGN AND PRINT

Design  
 Fa. Mediapolis, Poland

Layout  
 Ina Bunge  
 Bode Druckerei  
 www.bode-druckerei.de



ENFSI Secretariat  
Bundeskriminalamt KT-AS  
65173 Wiesbaden, Germany  
Phone: +49 611 55 16660  
e-mail: [secretariat@enfsi.eu](mailto:secretariat@enfsi.eu)  
website: [www.enfsi.eu](http://www.enfsi.eu)