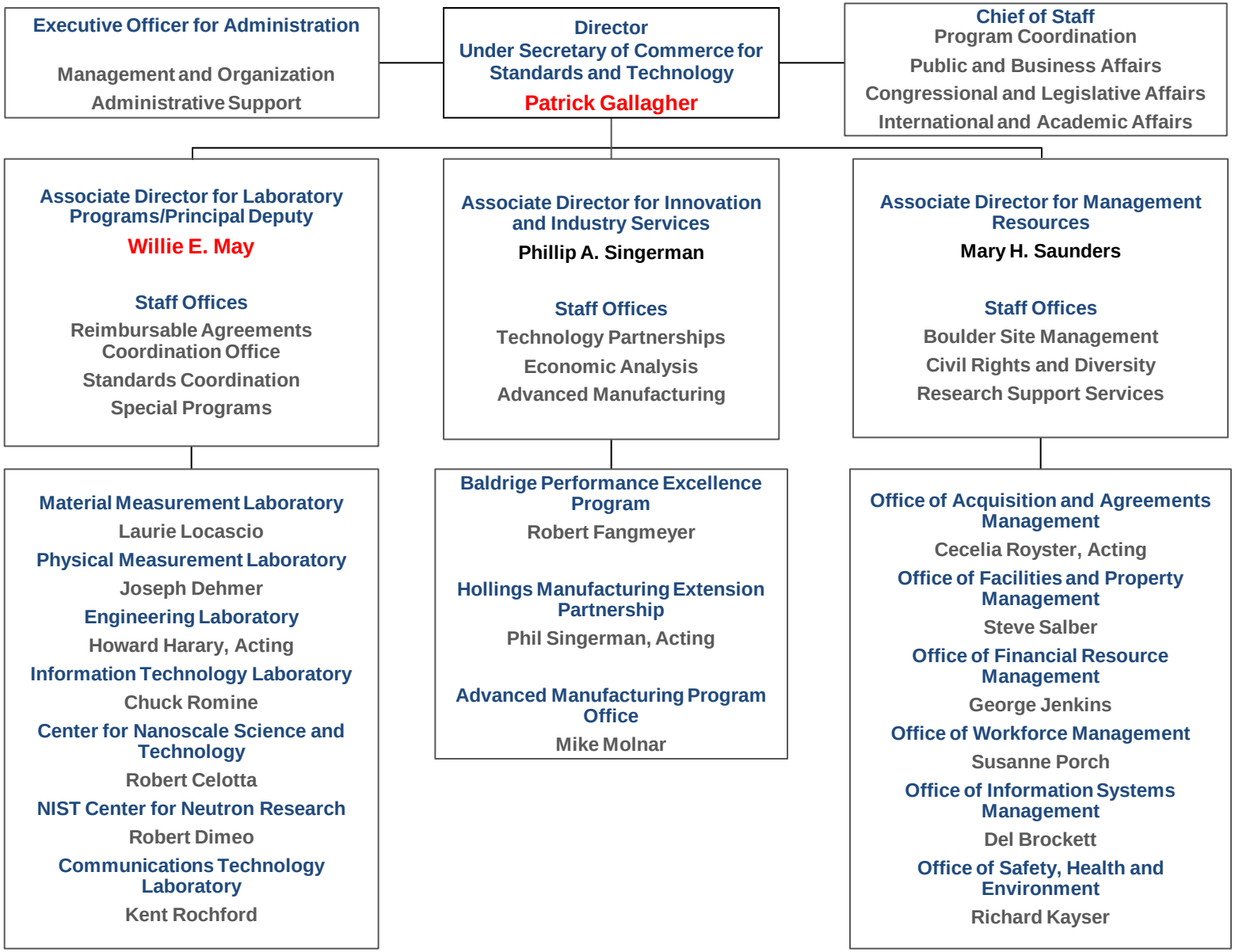
NIST Organizational Structure



Forensic Science at NIST

NIST has a long and rich history of work in support of law enforcement

Currently providing research and measurement services such as validated test methods, Standard Reference Materials, and Reference Data in areas such as:

- computer forensics
- fire investigations
- drug detection
- hair analysis
- drunk driving testing
- biometrics (fingerprints and handwriting analysis)
- firearms/ballistics/gunshot residues
- standards for body armor, nonlethal weapons
- explosives detection technologies
- sports integrity/fairness
- genetics and DNA-based identification

that support the Departments of Defense, Justice, and Homeland Security in carrying out their programs

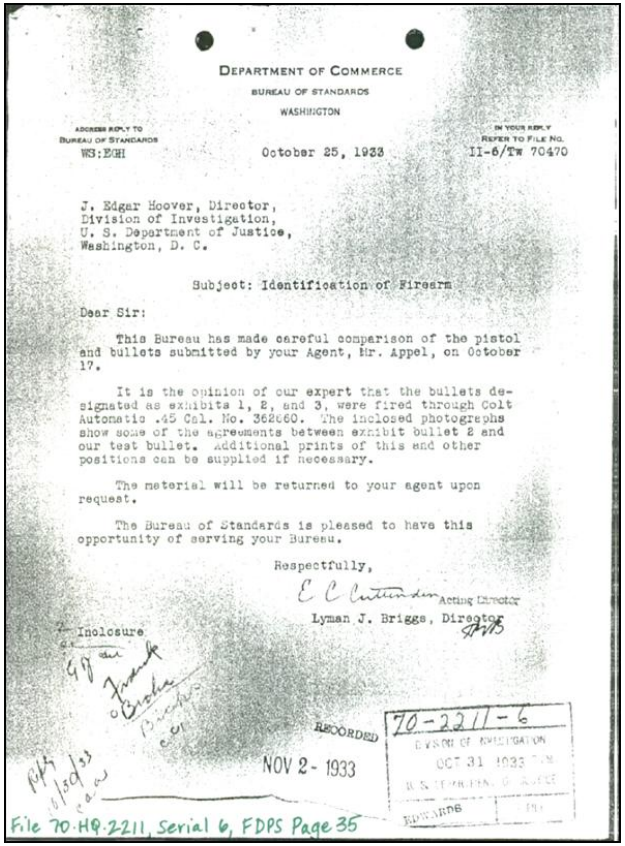
History of Forensics at NIST

The nation's first crime lab:

From 1932, National Bureau of Standards expertise in firearms and document identification helped solve hundreds of crimes.

NBS/NIST helped the Division of Investigation (now the FBI) establish its crime lab in 1932.

In 1935, William Souder's (NBS) testimony on handwriting samples was key to convicting Richard Hauptmann in the kidnapping and murder of Charles Lindbergh's son.



DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS
WASHINGTON

ADDRESS REPLY TO BUREAU OF STANDARDS
WS:EGH

October 25, 1933

IN YOUR REPLY REFER TO FILE NO.
II-6/Tw 70470

J. Edgar Hoover, Director,
Division of Investigation,
U. S. Department of Justice,
Washington, D. C.

Subject: Identification of Firearm

Dear Sir:

This Bureau has made careful comparison of the pistol and bullets submitted by your Agent, Mr. Appel, on October 17.

It is the opinion of our expert that the bullets designated as exhibits 1, 2, and 3, were fired through Colt Automatic .45 Cal. No. 362060. The inclosed photographs show some of the agreements between exhibit bullet 2 and our test bullet. Additional prints of this and other positions can be supplied if necessary.

The material will be returned to your agent upon request.

The Bureau of Standards is pleased to have this opportunity of serving your Bureau.

Respectfully,

E C Crittenden Acting Director

Lyman J. Briggs, Director

2 Inclosure

RECORDED
NOV 2 - 1933

70-2211-6

DIVISION OF INVESTIGATION
OCT 31 1933

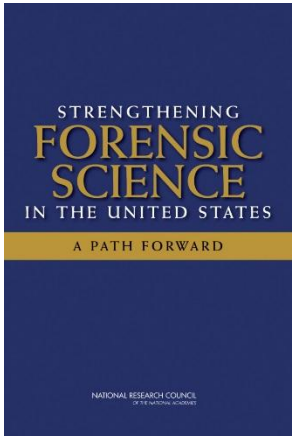
File 70-HQ-2211, Serial 6, FDPS Page 35

1933 Letter from NBS Director Lyman J. Briggs to **FBI Director J. Edgar Hoover** reports on ballistics analysis that confirms evidential bullets match a specific Colt .45 revolver.

Helping Strengthen the "Science" in Forensic Science

A landmark forensics report by U.S. National Research Council of the National Academies was issued in Feb. 2009.

"With the exception of nuclear DNA analysis, no forensic method has been rigorously shown to have the capacity to consistently, and with a high degree of certainty, demonstrate a connection between evidence and a specific individual or source."



NIST is committed strengthening **forensic science** to provide greater transparency, rigor, and confidence in forensic evidence used in the criminal justice system.

- **Co-Chairing the National Commission on Forensic Science** (with DoJ)
  - to help improve the reliability of forensic science data/information and to develop policy recommendations for the U.S. Attorney General.
  - to be comprised of forensic science practitioners, academic researchers, prosecutors, defense attorneys, judges, and other relevant stakeholders

- **Building out and hosting the OSAC**

- **Conducting laboratory-based research to…**
  - **Validate select existing forensic science methods and guidance**
  - **Develop and critically evaluate new methods**

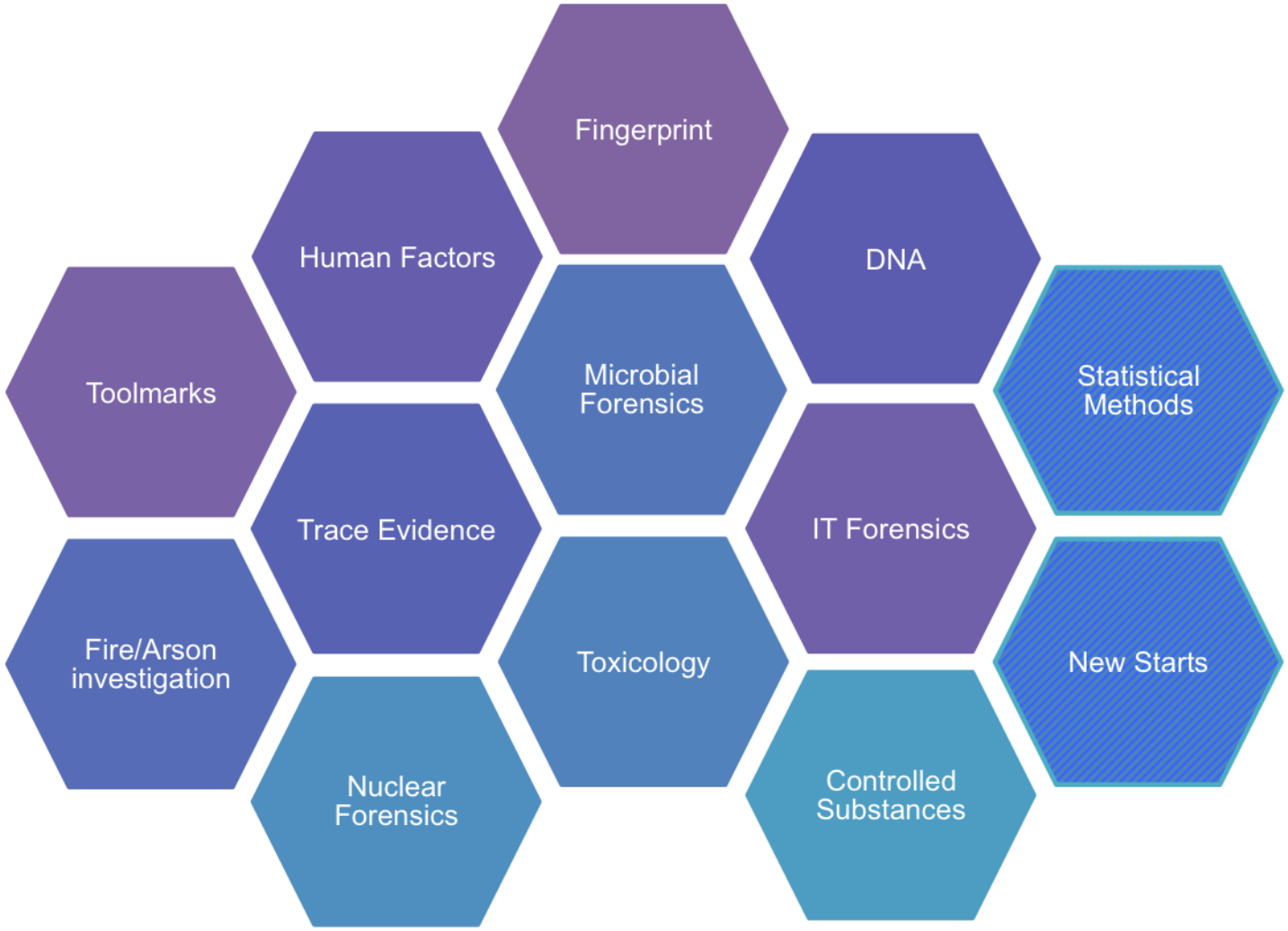
National Commission on Forensic Science
Washington, DC
May 13, 2014

OSAC Update

Mark D. Stolorow
Director for OSAC Affairs
Office of Special Programs
National Institute of Standards and Technology

NIST FORENSIC SCIENCES

Current and Proposed NIST Forensic Science Research Areas



OSAC Update

- **Outreach** - Conducted open OSAC forums and provided presentations with a dozen stakeholder organizations since last NCFS meeting
- **Infrastructure** - Modified OSAC infrastructure based on stakeholder feedback – (next slide)
- **Membership** - Opened online membership application process, April 11 – May 11, 2014
- **Response** - Received more than 1,300 membership applications

Understanding the OSAC Levels

Forensic Science Standards Board (FSSB)

- Set policy, rules, priorities for OSAC
- Manage OSAC Registry of Standards

Legal Resource, Quality Infrastructure, Human Factors Committees

- Provide advice across all forensic science and discipline committees

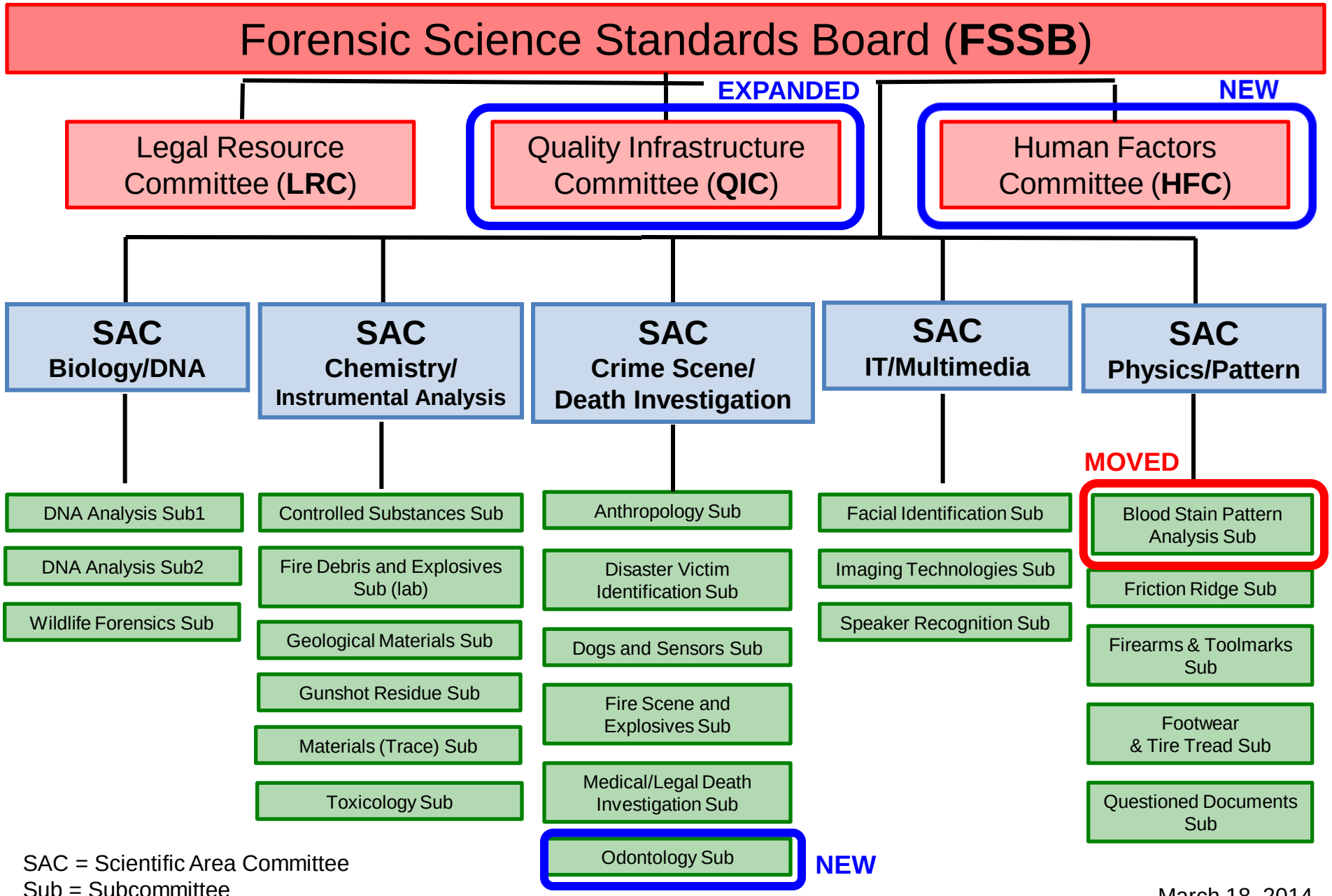
Scientific Area Committees

- Manage work within a scientific area (harmonize/leverage across related disciplines)
- Develop scientific area standards, (e.g., terminology, reporting requirements, conclusion statements)

Discipline specific Subcommittees (Working Groups)

- Identify and develop standards & best practices for discipline

Organization of Scientific Area Committees (OSAC)



SAC = Scientific Area Committee
Sub = Subcommittee

March 18, 2014

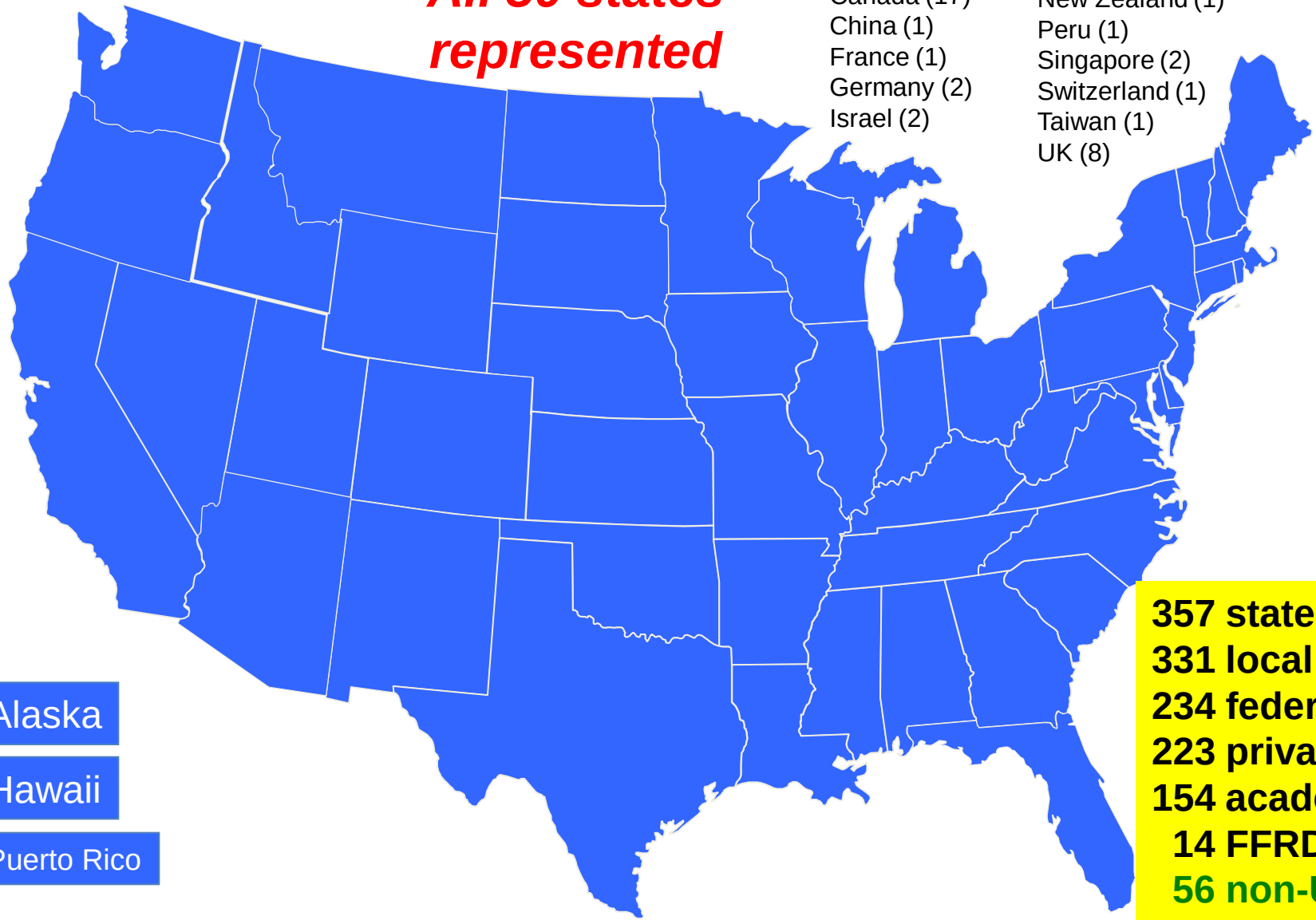
OSAC Applicants

as of 12 May 2014

All 50 states represented

Other countries (21 total; 56 individuals)

Australia (10)
Bangladesh (1)
Belarus (1)
Bosnia (1)
Brazil (1)
Canada (17)
China (1)
France (1)
Germany (2)
Israel (2)
Italy (1)
Korea (1)
Malaysia (1)
Nepal (1)
The Netherlands (1)
New Zealand (1)
Peru (1)
Singapore (2)
Switzerland (1)
Taiwan (1)
UK (8)



Alaska

Hawaii

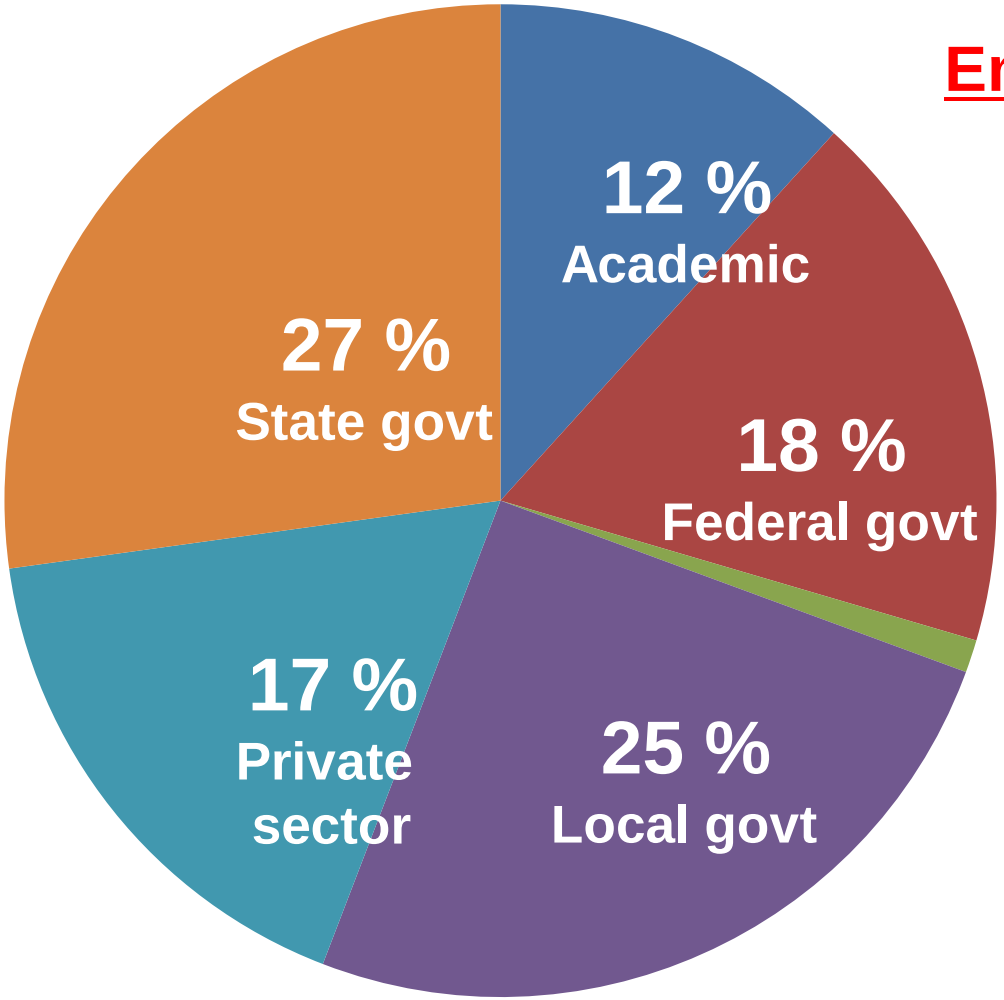
Puerto Rico

357 state govt
331 local govt
234 federal govt
223 private
154 academic
14 FFRDC
56 non-U.S.

Background of OSAC Applicants

(as of 12 May 2014)

1313 total



Employer Classification

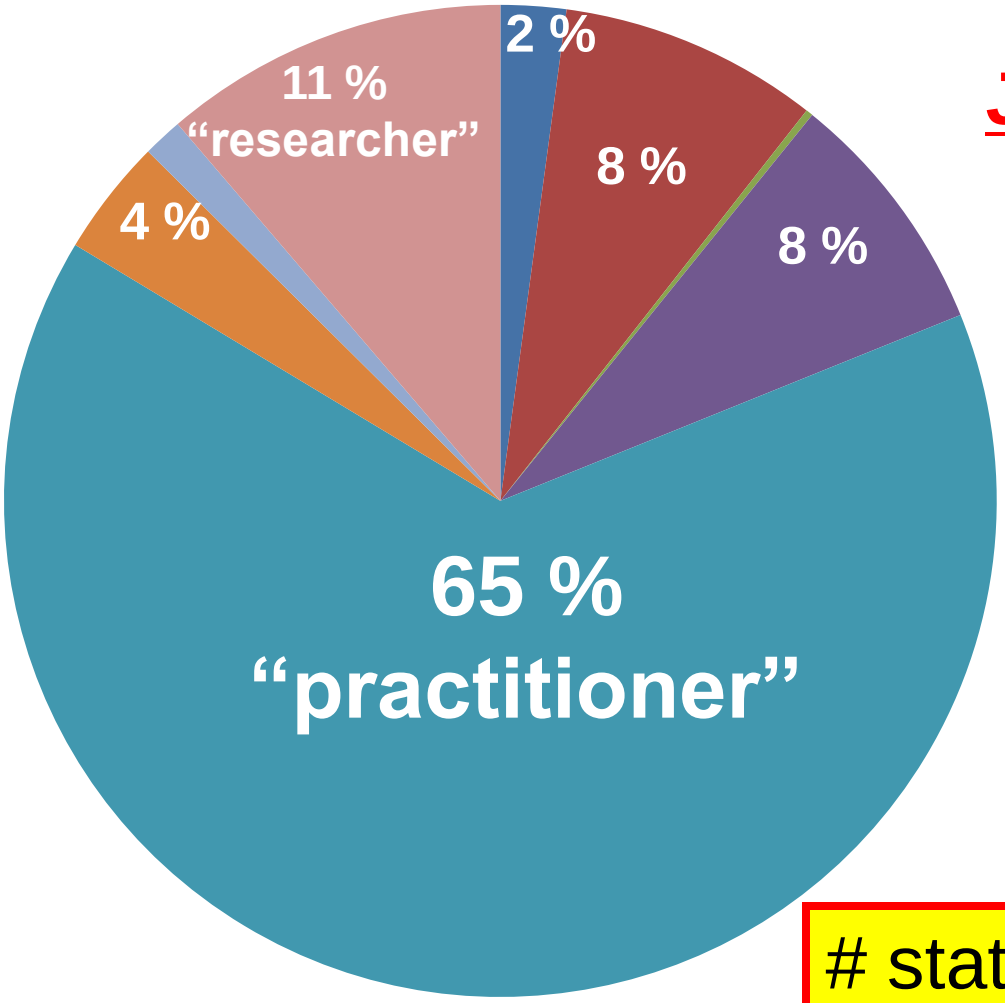
- Academic
- Federal Government
- FFRDC
- Local Government
- Private Sector
- State Government

FFRDC = Federally-funded research and development center

Background of OSAC Applicants

(as of 12 May 2014)

1313 total



Job Classification

- Attorney
- Educator/Trainer
- Judge
- Other
- Practitioner
- Quality Assurance Manager
- R&D Technology Partner
- Researcher

statisticians (ASA) = 25

Organization of Scientific Area Committees (OSAC)

Forensic Science Standards Board (**FSSB**)

- Legal Resource Committee (**LRC**) — 10 — 42
- Quality Infrastructure Committee (**QIC**) — 15 — 86
- Human Factors Committee (**HFC**) — 10 — 13

SAC Biology/DNA — 64 — 15

- DNA Analysis Su — 73
- DNA Analysis Su — 79
- Wildlife Forensics — 17

SAC Chemistry/Instrumental Analysis — 65 — 15

- Controlled Substances — 78
- Fire Debris and Explosi Sub (lab) — 42
- Geological Materials Su — 8
- Gunshot Residue Su — 24
- Materials (Trace) Sul — 46
- Toxicology Sub — 58

SAC Crime Scene/Death Investigation — 73 — 15

- Anthropology Sub — 22
- Disaster Victim Identification Sub — 19
- Dogs and Sensors S — 21
- Fire Scene and Explosives Sub — 17
- Medical/Legal Deat Investigation Sub — 56
- Odontology Sub — 29

SAC IT/Multimedia — 24 — 15

- Facial Identification S — 32
- Imaging Technologies — 22
- Speaker Recognition S — 30

SAC Physics/Pattern — 48 — 15

- Blood Stain Pattern Analysis Sub — 22
- Friction Ridge S — 71
- Firearms & Toolmarks S — 58
- Footwear & Tire Tread Su — 24
- Questioned Documents Sub — 50

S **Statistician** (ASA)

★ **NIST** applicant primary selection

SAC = Scientific Area Committee
Sub = Subcommittee

1,313 Applicants **and their primary selections as of May 12, 2014**

Next Steps - Timeline for 2014

- Appoint FSSB in **May**
- Appoint LRC, QIC, HFC membership and SAC leadership in **June**
- First SAC meetings to select Subcommittee leadership in **August**
- Conduct OSAC training virtually via webinar in **Sept/Oct**
- Hold in-person meeting between **mid-November and January**

www.nist.gov/forensics/osac.cfm

NIST Centers of Excellence Program

This Program will assist NIST in building new capacity and competencies to carryout our mission

- In 2013 Congress provided NIST with the authority and the funds to establish a new tool for very rapidly augmenting existing and/or acquiring new competencies needed to address emerging areas of national priority

Broadly defined, the objectives of the Centers are to:

- Provide an interdisciplinary environment in which NIST, academia, and industry can collaborate in pursuing research focused on innovations in measurement science and development of new technology focused on emerging areas of national need
- Foster expanded development of expertise in measurement science and its role in innovation through the education and training of scientists and engineers
- Enhance technical innovation through earlier alignment of measurement science with emerging and innovative new fields of research
- Further expand NIST's Laboratory Program's footprint beyond our Gaithersburg and Boulder campuses

NIST Centers of Excellence

- **First of these new "Centers of Excellence" is focused on Advanced Materials**
  - Center for Hierarchical Materials Design (CHiMaD)
    - NIST, Northwestern, University of Chicago, Argonne
- **Later this year, NIST plans to issue RFPs for establishment of two additional CoEs**
  - One to be focused on Forensic Science
  - Press Release signaling this intention and soliciting proposals is imminent
- **We would welcome the Commission's input with respect to specific areas of focus for the Forensic Center**

NIST Forensic Center of Excellence

Possible Focus Areas

– **Cognitive Bias:** Establish the limits and measures of performance and address the impact of sources of variability and potential bias. The Center would address the forensic disciplines that rely on subjective assessments of matching characteristics.

– **Pattern Evidence:** Development of objective comparison methods that would ultimately provide a measurement of similarity and confidence limits in; firearm/toolmark evidence, fingerprint/latent prints, shoe/tire tread impressions, and in the future blood spatter patterns, and shooting trajectory/reconstruction.

– **Other?**