



NIST and Forensic Science: A Scan of the Environment

Richard R. Cavanagh
Director, Special Programs Office

May 5, 2016

NIST – Who We Are and What We Do

NIST is a world class scientific and technical agency uniquely focused on research and development through a world class workforce and a national network of small business technology centers.

a world class workforce and small business technology centers.

a national network of small business technology centers.

a program of competitive and innovative research and development around a national network of Institutes for innovation in Manufacturing

- **Deep research expertise** underpins technological innovation – e.g., new materials, advanced clinical diagnostics and therapies, advanced communications, etc.
- **Non-regulatory status** enables important role as a convener that facilitates collaboration between industry and government

an Advanced Manufacturing National Program Office -- facilitating expansion of a nation-wide network of Institutes for innovation in Manufacturing

Dr. Wilmer Souder National Bureau of Standards Identification Laboratory



STRENGTHENING
**FORENSIC
SCIENCE**
IN THE UNITED STATES

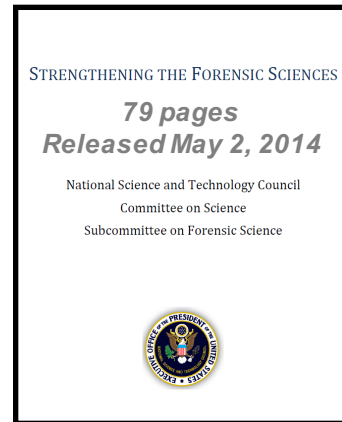
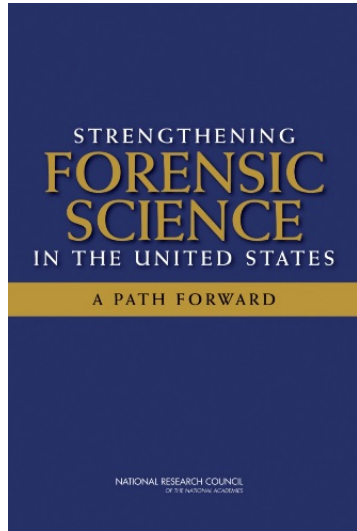
A PATH FORWARD

NATIONAL RESEARCH COUNCIL
OF THE NATIONAL ACADEMIES

It is clear that change and advancements, both systematic and scientific, are needed in a number of forensic science disciplines to ensure the reliability of work, establish enforceable standards, and promote best practices with consistent application.

Strengthening Forensic Science in the United States: A Path Forward provides a detailed plan for addressing these needs and suggests the **creation of a new government entity, the National Institute of Forensic Science**, to establish and enforce standards within the forensic science community.

U.S. Efforts to Strengthen Forensic Science

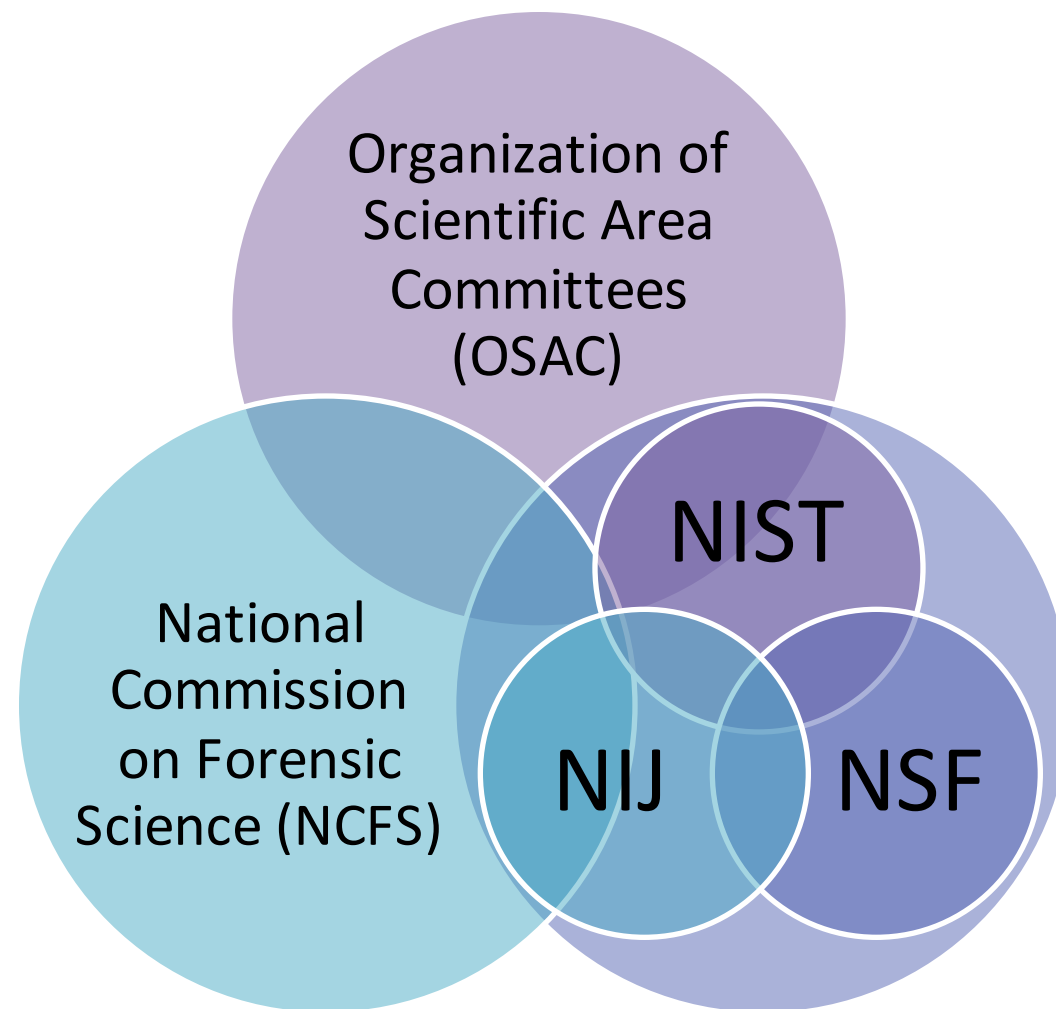
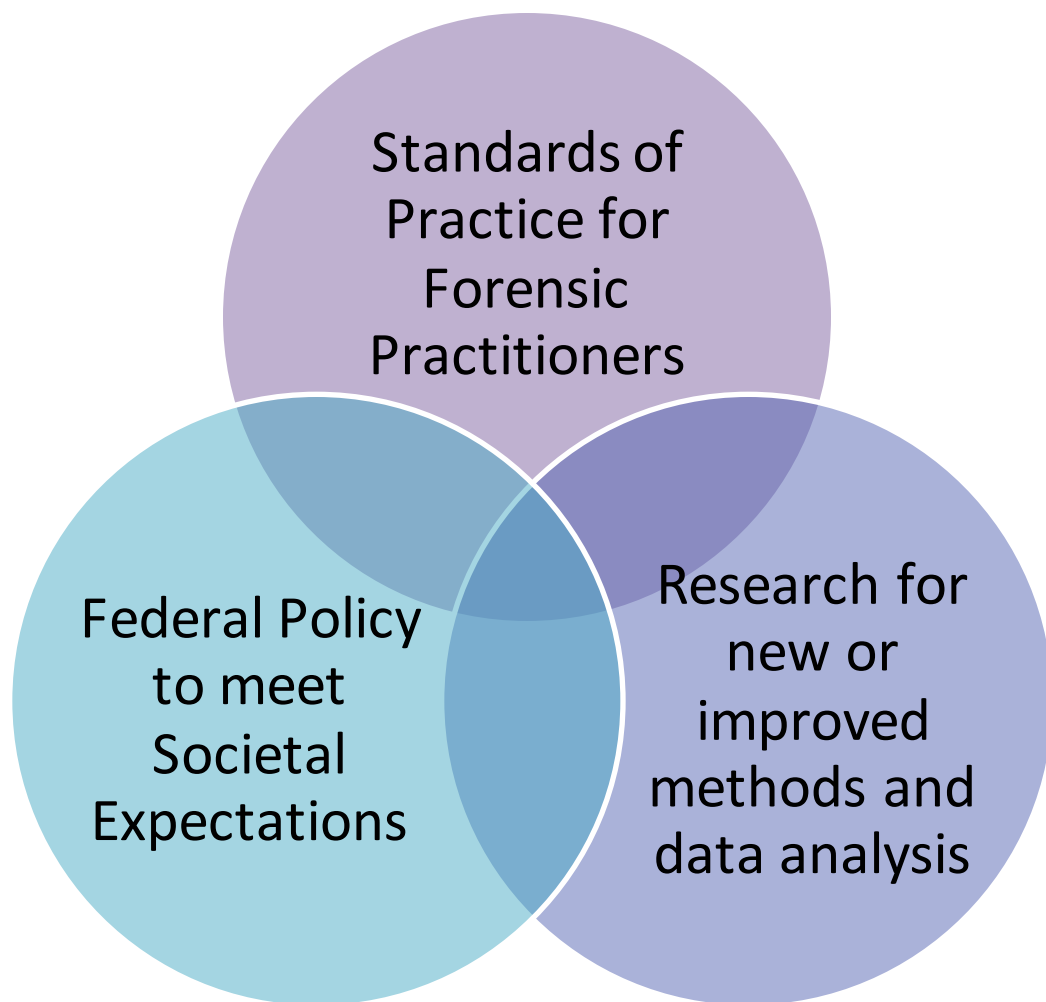


http://www.whitehouse.gov/sites/default/files/microsites/ostp/NSTC/strengthening_the_forensic_sciences_may_-_2014.pdf

- National Academy of Sciences (**NAS**) **report** issued in Feb 2009
- White House **Subcommittee on Forensic Science** (SoFS) operated from July 2009 to Dec 2012

DOJ/NIST Partnership (announced Feb 2013)

1. **NCFS** (National Commission on Forensic Science)
 - First meeting held February 3-4, 2014 in Washington DC
2. **OSAC** (Organization of Scientific Area Committees)
 - 542 members named; first public meetings held in Feb 2015



National Commission on Forensic Science (NCFS)



THE COMMON LAW IS THE WILL OF *Mankind* ISSUING FROM THE *Life* OF THE *People*

THE UNITED STATES
DEPARTMENT OF JUSTICE

HOME ABOUT AGENCIES BUSINESS RESOURCES NEWS CAREERS CONTACT

Home » National Commission on Forensic Science [Printer Friendly](#)

National Commission on Forensic Science Home

- Members
- Meetings
- Subcommittees
- Press Room
- Contact the Commission



NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

In 2013, the Department of Justice (DOJ) established the National Commission on Forensic Science, in partnership with the National Institute of Standards and Technology (NIST), to enhance the practice and improve the reliability of forensic science. This unique partnership draws upon each agency's core strengths to promote scientific validity, reduce fragmentation, and improve federal coordination of forensic science.

The Commission is co-chaired by Deputy Attorney General James M. Cole and NIST Acting Director and Acting Under Secretary of Commerce for Standards and Technology, Willie May. Nelson Santos, Deputy Assistant Administrator for the Office of Forensic Sciences at the Drug Enforcement Administration, and John M. Butler, Special Assistant to the NIST Director for forensic science, serve as vice-chairs. Brette Steele, Senior Advisor on Forensic Science and Senior Counsel to the Deputy Attorney General serves as the Designated Federal Officer and Robin Jones, Consultant within the Department of Justice, serves as Program Manager.

The Commission includes federal, state and local forensic science service providers; research scientists and academics; law enforcement officials; prosecutors, defense attorneys and judges; and other stakeholders from across the country.

GENERAL INFORMATION
NATIONAL COMMISSION
ON FORENSIC SCIENCE

CONTACT

Brette Steele
Brette.L.Steele@usdoj.gov

By Phone:
(202) 305-0180

32 voting and 8 ex-officio members

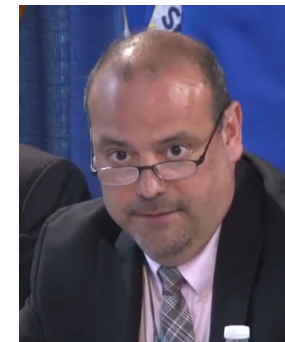
NCFS Leadership



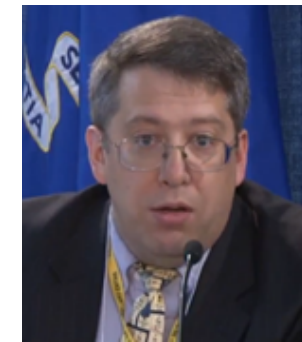
Sally Q. Yates
Deputy Attorney General
DOJ Co-Chair



Willie E. May
Director of NIST
NIST Co-Chair



Nelson A. Santos
Vice-Chair (DOJ)



John M. Butler
Vice-Chair (NIST)

NCFS Accomplishments

Accreditation and Proficiency Testing

- Recommendation on Universal Accreditation

Interim Solutions

- Recommendation on AFIS Interoperability
- Recommendation on Transparency of Quality Management System

Scientific Inquiry and Research

-

Medicolegal Death Investigation

- Recommendation on Electronic Networking of Medical Examiner and Coroner Offices

Reporting and Testimony

- Recommendations on Use of the Term “Reasonable Scientific Certainty”

Human Factors

-

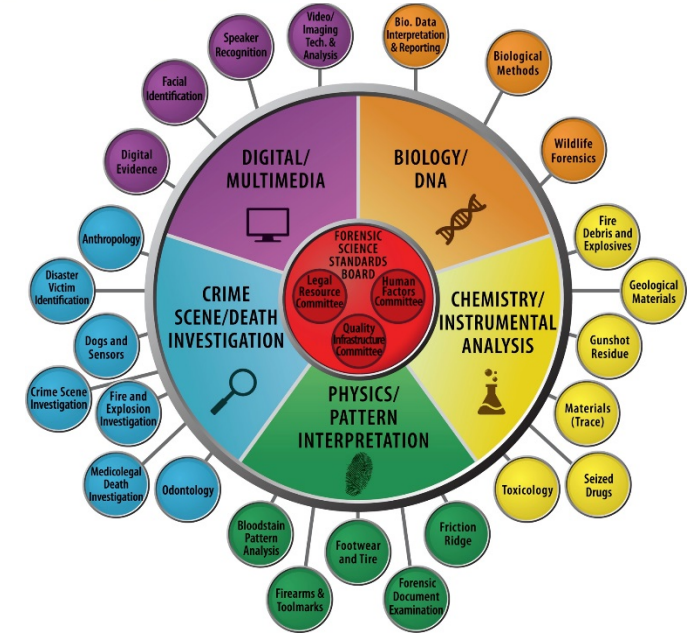
Training on Science and Law

- Recommendation on Forensic Science Curriculum Development

NATIONAL COMMISSION ON FORENSIC SCIENCE



NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

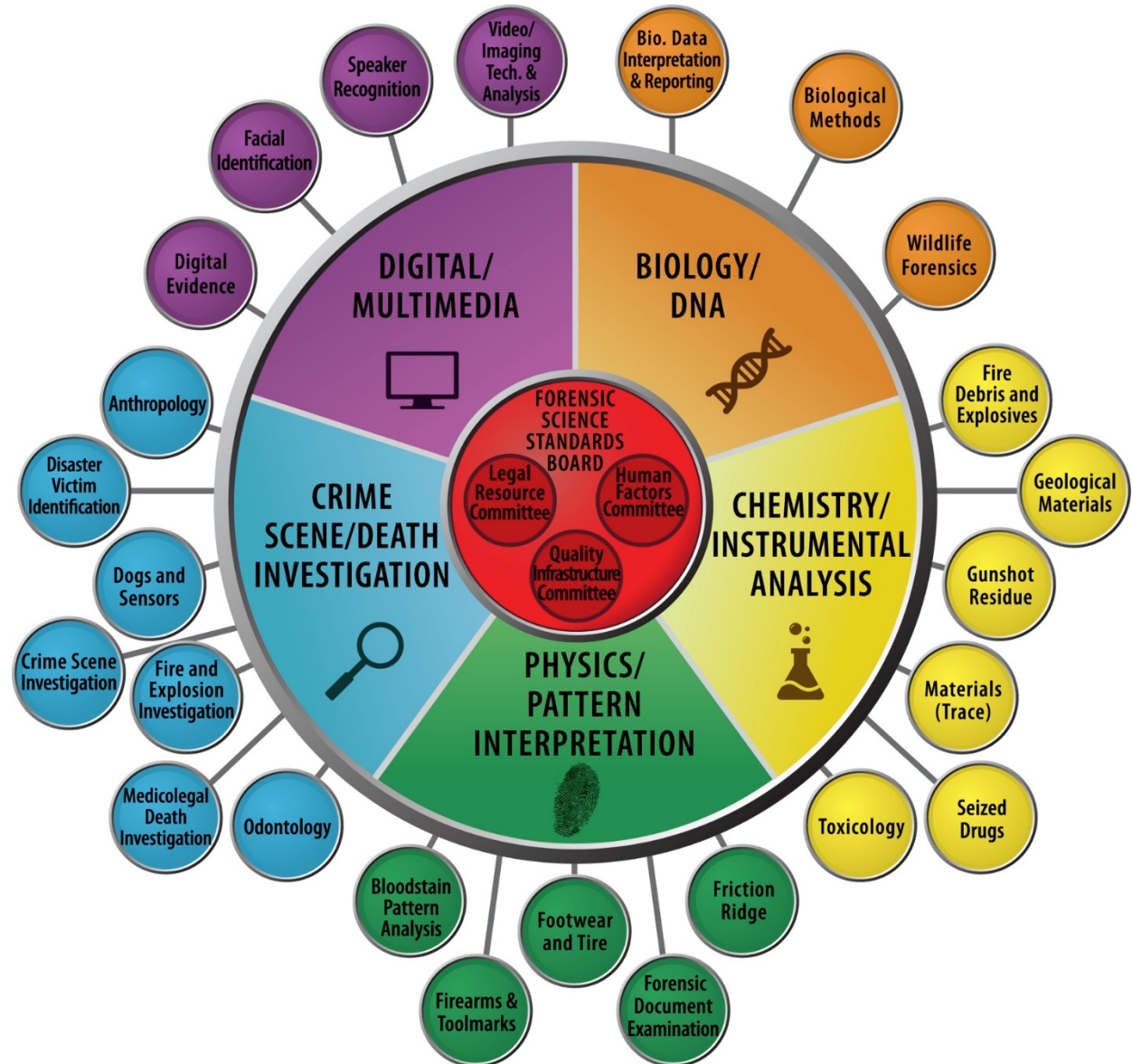


- provide technical leadership necessary to facilitate the development and promulgation of **consensus-based documentary standards and guidelines for forensic science**
- promote standards and guidelines that are **fit-for-purpose and based on sound scientific principles**.
- promote the use of OSAC standards and guidelines by accreditation and certification bodies
- establish and maintain working relationships with other similar organizations.

OSAC Projects in Motion


February 2015: Launched
360+ projects/ideas

February 2016: Refocused
on 144 specific projects
(Standards/Guidelines)
moving within OSAC
processes



OSAC Evaluation Templates

OSAC
Technical Merit Worksheet



This worksheet is intended to assist in reviewing a potential standard or guideline to determine its appropriateness for inclusion on the OSAC Registries. Depending upon the nature of the standard or guideline, not all areas will be applicable. Additional factors may be needed for the evaluation of standards relating to observational- and judgment-based practices or human factors such as training, qualifications, research and

DATE

CHAIR

Name:

Affiliation:


Email:

Phone:

Document Title, Number, and Year:

- Are the purpose and
- Terminology
Are relevant terms, acron
- Bibliographic Referer
Does the document contain
- Quality Control
Does the document describe
- Is the document a test
reporting guidelines, met

OSAC
Harmonization Worksheet



This worksheet must be submitted with your Registry Request Form. The form is intended to assist in the evaluation of potential conflicts with documents currently listed on the OSAC Registries.

DATE

CHAIR

Name:

Affiliation:


Email:

Phone:

Document Title, Number, and Year:

- Does the document contain any information currently listed on the OSAC Registry as complex as opposing techniques or
- Name of conflicting or overlapping

OSAC
Impact Worksheet



This worksheet must be completed and included with the Registry Request Form if the referenced document is likely to produce a financial, human resource, or other impact on the forensic community.

DATE

CHAIR

Name:

Affiliation:


Email:

Phone:

Document Title, Number, and Year:

- What is the intended impact, for example, is this standard for forensic scientists?

OSAC
Standard Development Process Worksheet



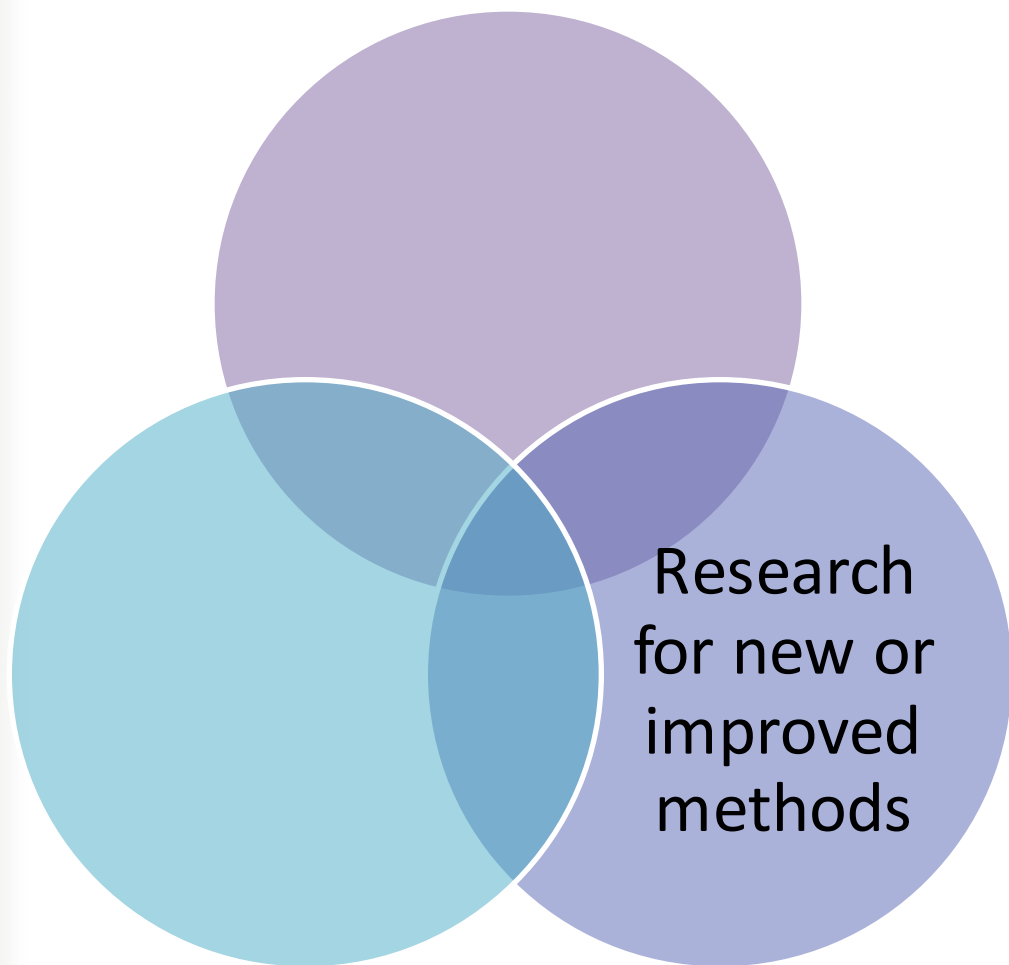
Complete the following worksheet if the standard or guideline submitted for addition to the OSAC Registry was not developed by a recognized standards development organization (SDO) but might meet the process requirements. Provide all documentation to support the responses as attachments.

DATE	SUBMITTING SUBCOMMITTEE

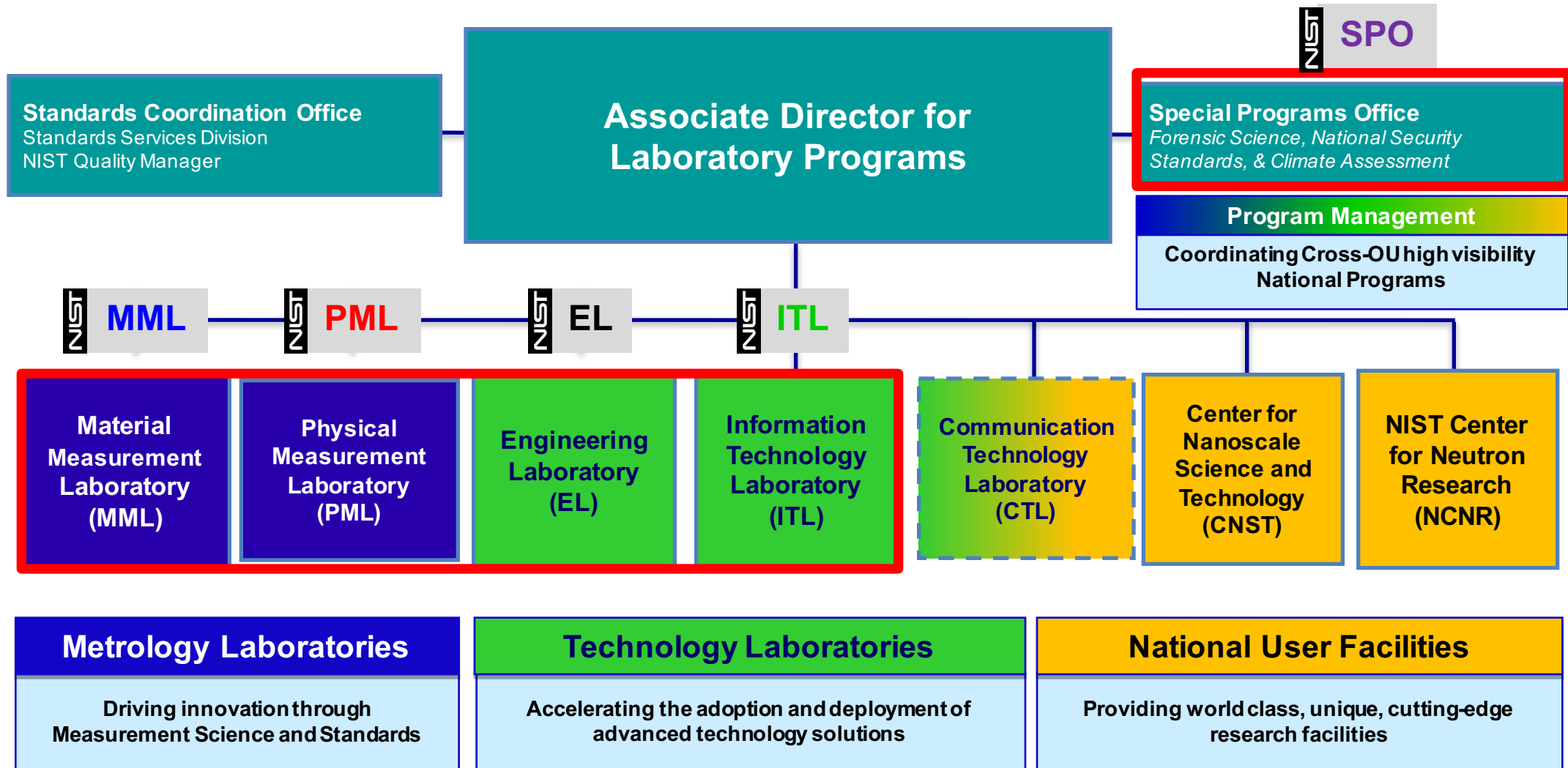
CHAIR	TECHNICAL CONTACT (if different than Chair)
Name:	Name:
Affiliation:	Affiliation:
Email:	Email:
Phone:	Phone:

Document Title, Number, and Year:

- Was a written procedure used to govern the creation of this standard or guideline?



NIST Laboratory Program



Forensic Research in NIST Labs Today

NIST MML	Forensic Genetics
NIST PML	Ballistics and Associated Tool Marks
NIST ITL	Digital and Identification Forensics
NIST ITL	Statistics
NIST MML	Toxins
NIST EL NIST MML	Trace

Common Themes

- Error and Uncertainty
- Data and Information
- Algorithm Development
- Method Validation
- Training



NIST Forensic Science Center of Excellence

- Bring together forensic practitioners and expert statisticians to **develop and apply statistical methods** to: latent prints, ballistics, tire marks, footwear, handwriting, bloodstain pattern, tool marks, computer and information systems, mobile devices, network traffic, social media, and GPS
- **Develop**, in collaboration with NIST scientists, **new methods for forensic evidence**
- **Develop new inference techniques that account for various sources of uncertainty**
- **Establish a sound base of interpretation for forensic evidence** in judicial settings
- **Educate and train forensic practitioners, judges and attorneys**, and the next generation of statisticians



Biannual Conference to Showcase NIST Research



FORENSICS@NIST

Previous Meetings:

November 28-30, 2012 at NIST

December 3-4, 2014 at NIST

Next Meeting:

November 8-9, 2016

Gaithersburg, MD

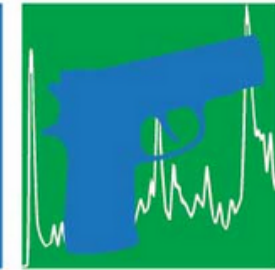
<http://www.nist.gov/oles/forensics-2012.cfm>

<http://www.nist.gov/forensics/forensics-at-nist-2014.cfm>

FORENSIC SCIENCE
ERROR MANAGEMENT

INTERNATIONAL
FORENSICS SYMPOSIUM

JULY 20-24, 2015 • WASHINGTON, DC



Planning has started for a second Symposium

Date: July 24-28, 2017 (Tentative)

Location: Washington DC

Sponsors that have been approached

- DoD
- FBI
- NIST

NIST Forensic Science Efforts

NIST Funded Internal Research Programs



NIST Forensic Science Center of Excellence



International Symposium on Forensic Science Error Management

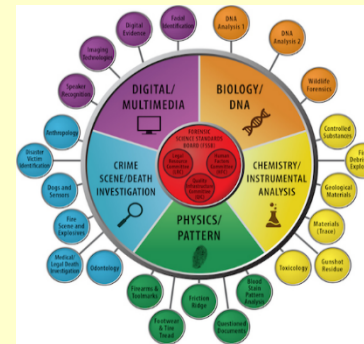


National Commission on Forensic Science (NCFS)



*Department of Justice FACA co-led by NIST
setting policy*

Organization of Scientific Area Committees (OSAC)



*NIST-administered
>540 members of the community
establishing standards and best practices*

Partnership with Department of Justice