

NIST Organization of Scientific Area Committees (OSAC)

Forensic Science Standards Board (FSSB)

**Mark D. Stolorow
John Paul Jones II
Karen Reczek**



**Inaugural FSSB Virtual Meeting
July 7, 2014**

Agenda

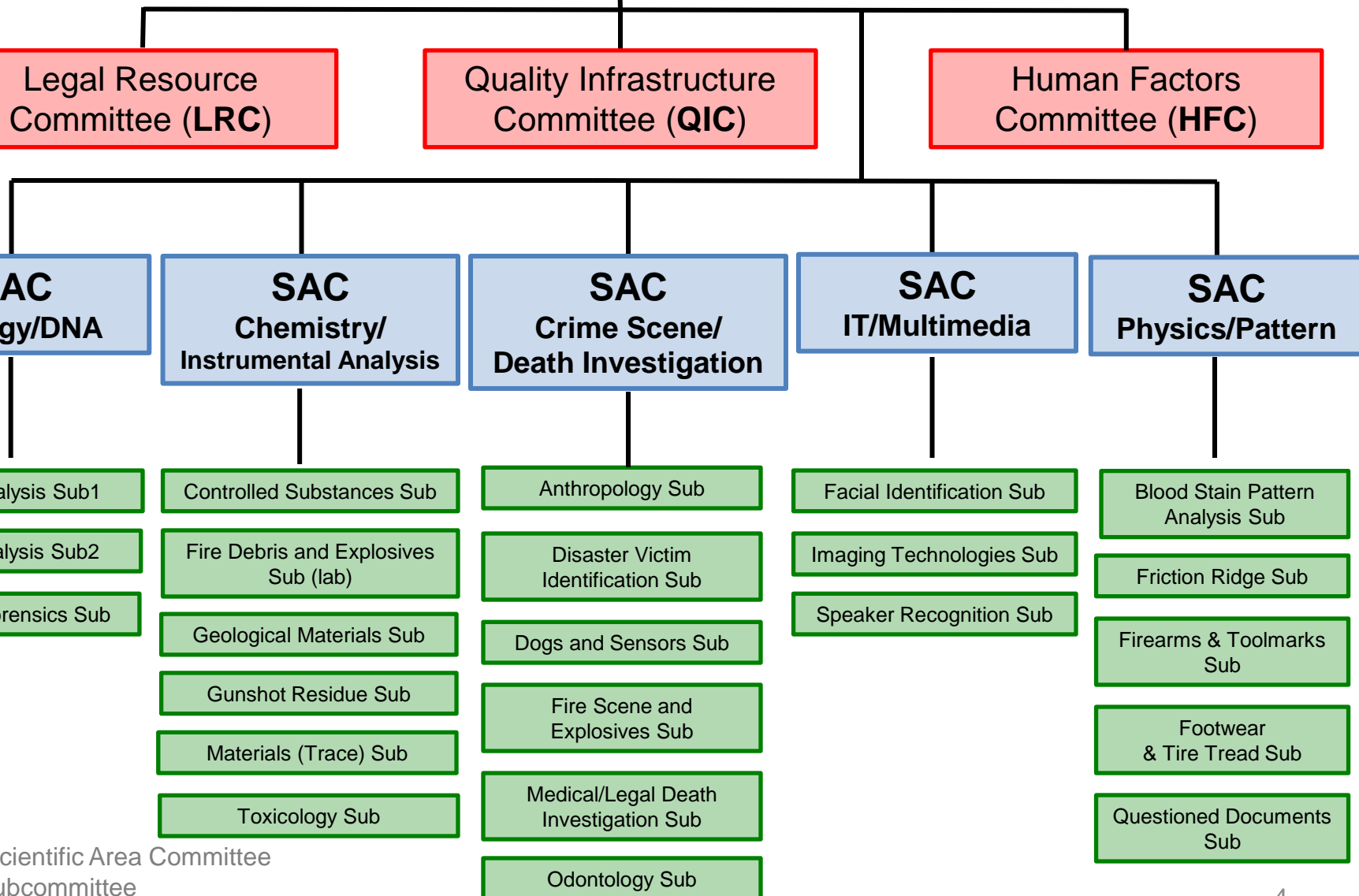
- FSSB Introductions
- OSAC Overview, Mission and Vision
- FSSB Roles & Responsibilities
- Anticipated Time Commitments of FSSB Members
- Implementation Timeline
- Pending Contract Actions at NIST
- General Process for Approving Standards
- FSSB Officers Discussion
- Priority Areas for FSSB to Address in the Future

FSSB Introductions - Self

1 Professional - AAFS	Barry K Logan	NMS Labs/Fredric Reiders Family Renaissance Foundation
2 Professional - AFTE	Mark A. Keisler	Indiana State Police Laboratory
3 Professional - ASCLD	Jeremy Triplett	Kentucky State Police
4 Professional - IAI	Steven Lee Johnson	Ideal Innovations, Inc.
5 Professional - NAME	Andrew Michael Baker	Hennepin County Medical Examiner, Hennepin County, Minnesota
6 Professional - SOFT	Laurel J Farrell	ASCLD/LAB
7 SAC Biology Chair	George Herrin, Jr.	Georgia Bureau of Investigation-Division of Forensic Sciences
8 SAC Chemistry Chair	Scott R. Oulton	US Department of Justice Drug Enforcement Administration
9 SAC Crime Scene Chair	Gregory George Davis	University of Alabama at Birmingham
10 SAC IT Chair	Richard W. Vorder Bruegge	Federal Bureau of Investigation
11 SAC Physics Chair	R. Austin Hicklin	Noblis
12 z - Researcher 1	Anil K. Jain	Michigan State University
13 z - Researcher 2	Douglas H. Ubelaker	Smithsonian institution
14 z - Researcher 3	Joe Francisco	University of Nebraska Lincoln (American Chemical Society President 2009-10)
15 z - Researcher 4	Karen Kafadar	University of Virginia (after 8/26/2014)
16 z - Researcher 5	Sarah Kerrigan	Sam Houston State University
17 Ex-Officio NIST	Mark Stolorow	NIST

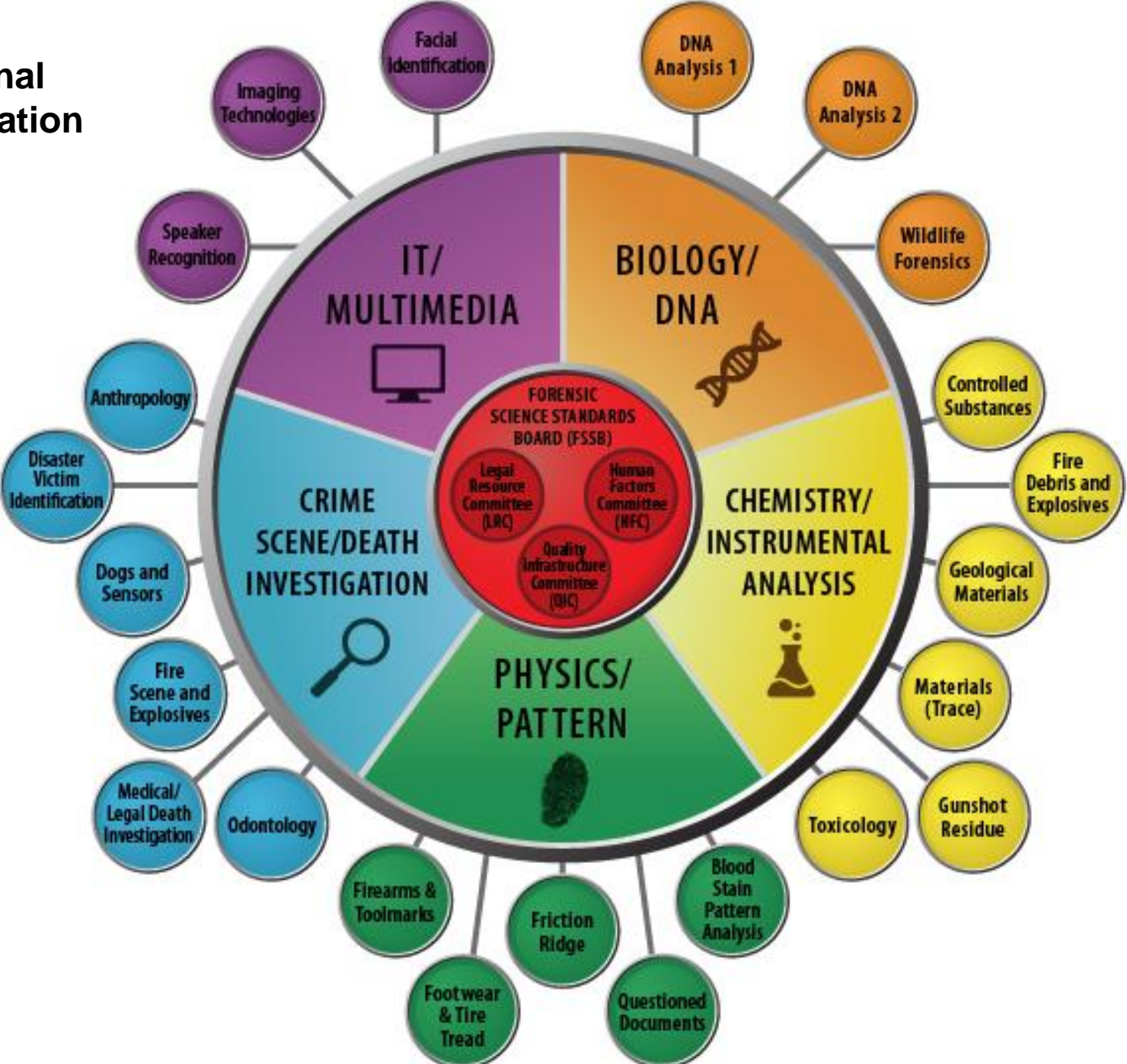
Traditional Hierarchical Organizational Chart

Forensic Science Standards Board (FSSB)



SAC = Scientific Area Committee
Sub = Subcommittee

OSAC Functional Organization Chart



Agenda

- FSSB Introductions
- OSAC Overview, Mission and Vision
- FSSB Roles & Responsibilities
- Anticipated Time Commitments of FSSB Members
- Implementation Timeline
- Pending Contract Actions at NIST
- General Process for Approving Standards
- FSSB Officers Discussion
- Priority Areas for FSSB to Address in the Future

National Institute of Standards and Technology (NIST)

Unique Mission within the Federal Government ...

to promote U.S. innovation and industrial competitiveness by advancing

measurement science, standards, and technology

in ways that enhance economic security and improve our quality of life

- **Deep research expertise underpins technological innovation** – e.g., new materials, advanced clinical diagnostics and therapies, advanced communications, forensic science etc.
- **Non-regulatory status** enables an important role as a convener that facilitates collaboration between agencies of the Federal Government, industry, private organizations, and state and local governments

NIST as Convener/Facilitator in Standards Development

- **Convened and formed National Conference on Weights and Measures (NCWM)**
 - In 1905, the National Bureau of Standards called for a meeting of the states to discuss the lack of uniform standards and in many instances, a lack of regulatory oversight. The participants decided to meet again the next year marking the birth of the National Conference on Weights and Measures (NCWM).
 - **Provided standards and guidance for State regulators**
 - **Transitioned NCWM to the private sector**



NIST as Convener/Facilitator in Standards Development

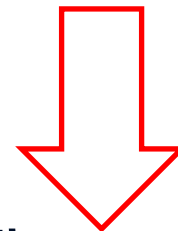
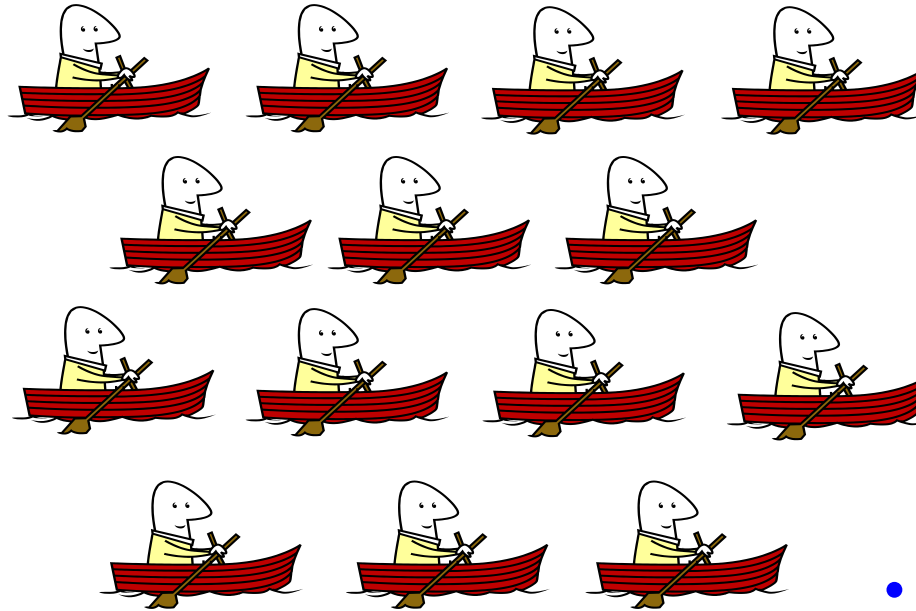


- **Convened and formed Smart Grid Interoperability Panel (SGIP)**
 - The goal of SGIP is to provide a framework for coordinating all Smart Grid stakeholders in an effort to accelerate standards harmonization and advance the interoperability of Smart Grid devices and systems. The public-private partnership, created in November 2009.
 - SGIP was transitioned to a non-profit, public/private funding model in 2013 with the launch of SGIP 2.0.

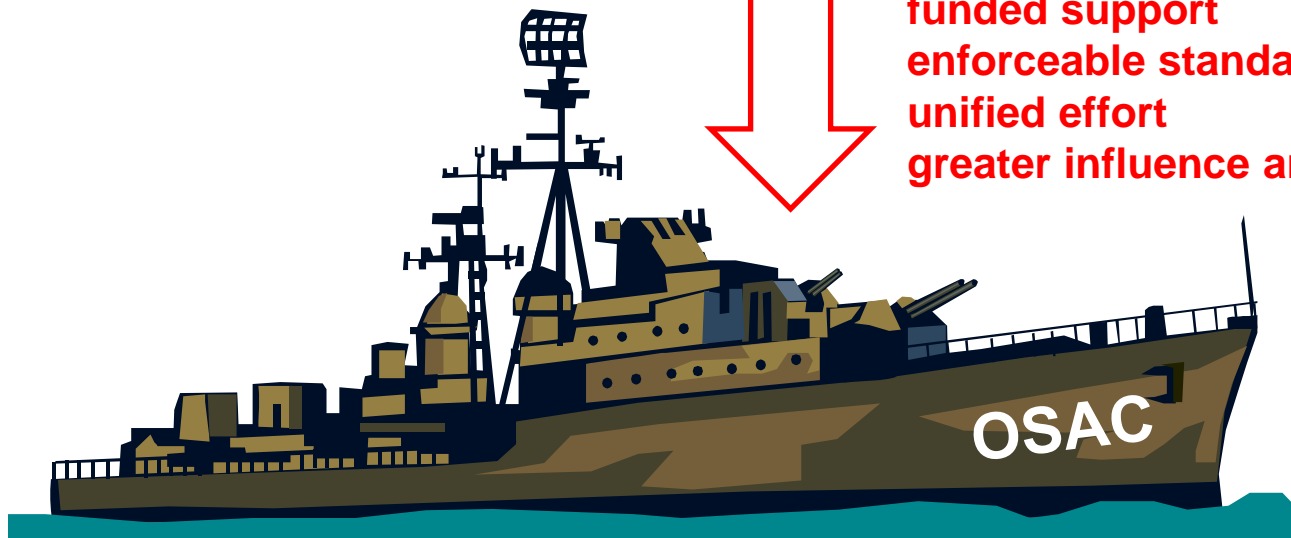
Background: Scientific Working Groups (SWGs)

- Some forensic disciplines had their own scientific working groups, while others did not
- Some received travel support for their work, some did not
- Very little sharing of best practices between SWGs, and very few common resources
- Documents that were developed were of variable quality and did not share common definitions
- Inconsistent training, standards, protocols,

Individual SWGs vs. Organized Effort



**funded support
enforceable standards
unified effort
greater influence and impact**



Organization of Scientific Area Committees (OSAC)

<http://www.nist.gov/forensics/osac.cfm>

- Formerly called “guidance groups”
- Information collected and shared
 - SWG chairs (June 18, 2013)
 - Notice of Inquiry (Sept 27 to Nov 26, 2013)
 - NCFS (Feb 4, 2014)
 - AAFS and webcast (Feb 18, 2014)
 - ASCLD (May 6, 2014)
 - NCFS (May 13, 2014)

Notice of Inquiry (NOI) Responses Received

In general, the responses support the new structure.

- **82 responses received**
 - 12 SWGs commented
 - 15 other groups including ASCLD, CAC, CFSO, IAI, Innocence Project, NACDL
 - More than a dozen labs and a half dozen companies
 - Individuals from 21 states and four countries (UK, Canada, Germany, and Australia)
- **Public posting of comments on [NIST.gov/forensics](https://www.nist.gov/forensics)**
- **Highlights:**
 - *Practitioner voice should be a major player*
 - *Strongly urged to include all forensic science disciplines*
 - *Concern about funding (no “pay-to-play” fees)*
 - *Interest in consistent and open support for web postings*
 - *Interest in face-to-face and virtual meetings*
 - *Encouragement to include existing professional organizations*

OSAC Launch

- February 4, 2014 announcement to NCFS
- The OSAC will be a collaborative body of more than 600 forensic science practitioners and other experts who represent all levels of the government, academia and industry.
- Establishing OSAC to strengthen the nation's use of forensic science by:
 - supporting the development and promulgation of forensic science **consensus documentary standards** and guidelines
 - determining each forensic discipline's **research and measurement standards needs**
 - ensuring that a **sufficient scientific basis** exists for each discipline

OSAC Objective

To create a sustainable uniform organizational infrastructure that produces consensus documentary standards and guidelines to improve quality and consistency of work in the forensic science community.



Department of Justice

Policy focused

Limited Term (FACA)

Attorney General

Recommendations



National Commission
on Forensic Science
(**NCFS**)

NIST

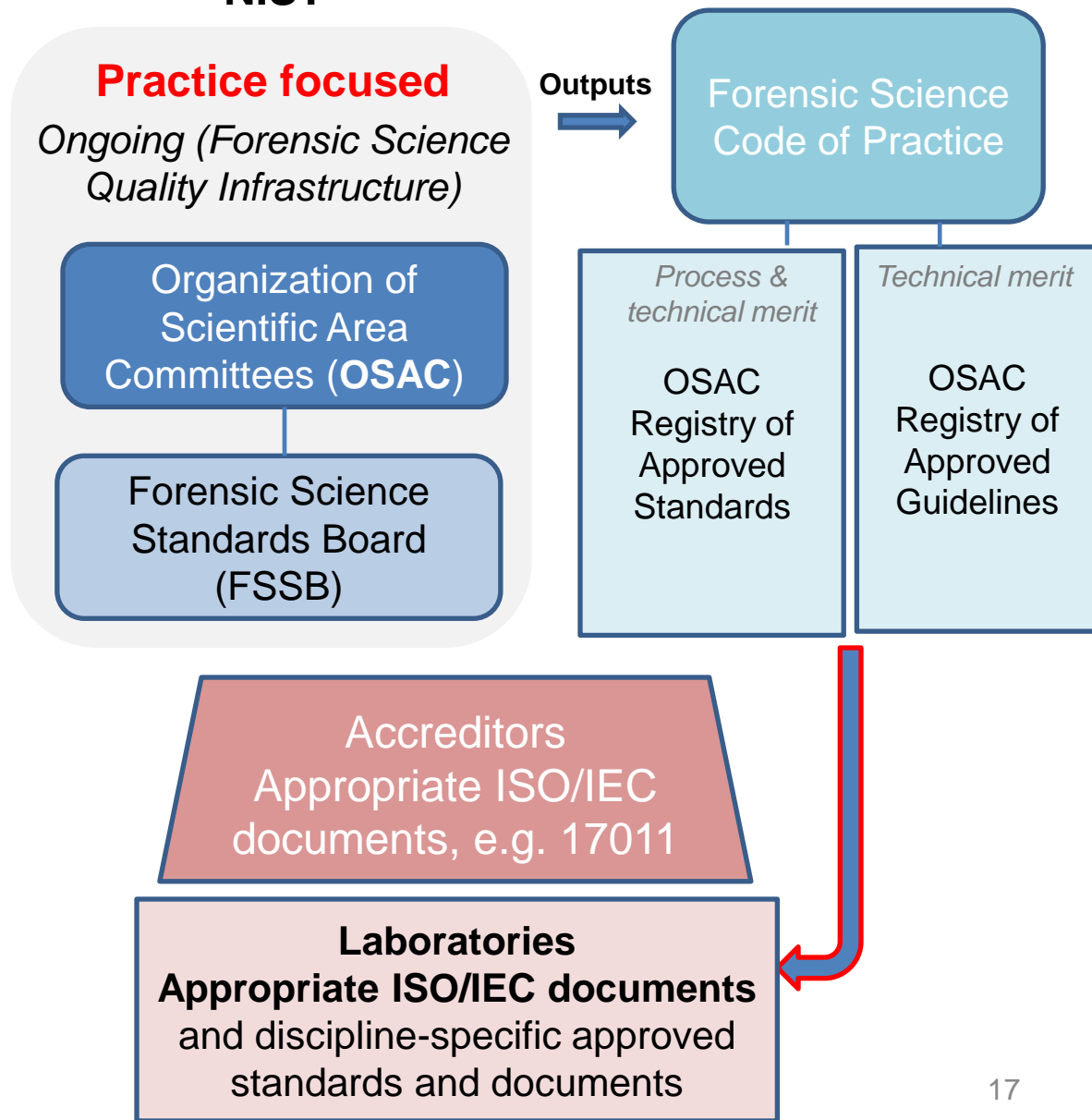
Practice focused

*Ongoing (Forensic Science
Quality Infrastructure)*

Organization of
Scientific Area
Committees (**OSAC**)

Forensic Science
Standards Board
(**FSSB**)

NIST



Organization of Scientific Area Committees (OSAC)

Forensic Science Standards Board (FSSB)

Legal Resource
Committee (LRC)

Quality Infrastructure
Committee (QIC)

Human Factors
Committee (HFC)

SAC
Biology/DNA

SAC
Chemistry/
Instrumental Analysis

SAC
Crime Scene/
Death Investigation

SAC
IT/Multimedia

SAC
Physics/Pattern

DNA Analysis Sub1

DNA Analysis Sub2

Wildlife Forensics Sub

Controlled Substances Sub

Fire Debris and Explosives
Sub (lab)

Geological Materials Sub

Gunshot Residue Sub

Materials (Trace) Sub

Toxicology Sub

Anthropology Sub

Disaster Victim
Identification Sub

Dogs and Sensors Sub

Fire Scene and
Explosives Sub

Medical/Legal Death
Investigation Sub

Odontology Sub

Facial Identification Sub

Imaging Technologies Sub

Speaker Recognition Sub

Blood Stain Pattern
Analysis Sub

Friction Ridge Sub

Firearms & Toolmarks
Sub

Footwear
& Tire Tread Sub

Questioned Documents
Sub

SAC = Scientific Area Committee
Sub = Subcommittee

OSAC FSSB

Forensic Science Standards Board (FSSB)

- **FSSB composed of 17 members** including:
 - **5 SAC Chairs**
 - **6 representatives** of professional forensics organizations (AAFS, AFTE, ASCLD, IAI, NAME, SOFT)
 - **5 Members at large** from the research and measurement science communities
 - **1 NIST ex-officio**
- **Initial** selection of FSSB will be by NIST-DOJ leadership/membership committee

OSAC Support

Forensic Science Standards Board (FSSB)

```
graph TD; FSSB[Forensic Science Standards Board (FSSB)] --- LRC[Legal Resource Committee (LRC)]; FSSB --- QIC[Quality Infrastructure Committee (QIC)]; FSSB --- HFC[Human Factors Committee (HFC)];
```

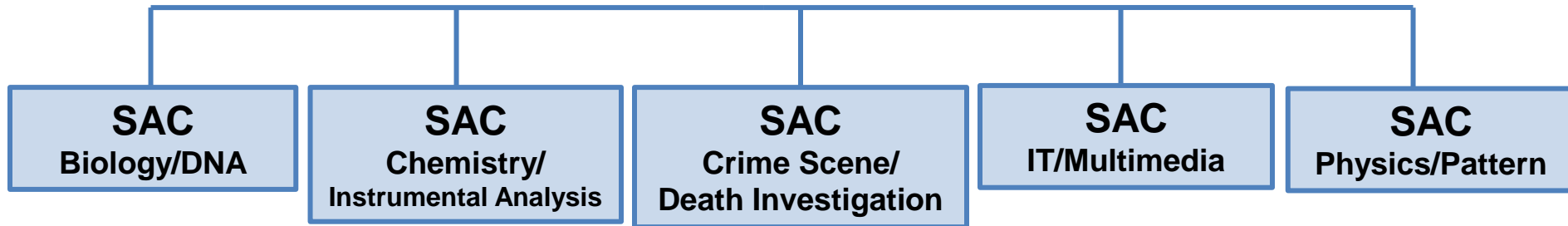
Legal Resource
Committee (**LRC**)

Quality Infrastructure
Committee (**QIC**)

Human Factors
Committee (**HFC**)

- **LRC** composed of up to **10 judges, lawyers, and legal experts who provide guidance about the legal ramifications** of forensic standards under development and input on presentation of forensic results to the legal system
- **QIC** composed of up to 15 standards experts, quality systems managers, laboratory managers, and accreditation and certification specialists who are **responsible for writing and updating the Forensic Science Code of Practice**
- **HFC** composed of up to 10 psychologists, quality systems managers, and usability experts who provide guidance on the influence of systems design on human performance and on ways to mitigate errors in complex tasks
- **Initial** selection by NIST-DOJ leadership/membership committee

Scientific Area Committees (SACs)



SAC = Scientific Area Committee

- **Sets priorities for subcommittee work** and enables a bigger picture view on topics like report wording and statistical analysis
- Recommends (to FSSB) creating, merging or abolishing subcommittees
- **SAC meetings will be open to the public** and agendas made available prior to meetings

SAC Membership

- **Each SAC is comprised of up to 15 members** including:
 - Subcommittee chairs
 - Representatives of professional forensic science organizations appropriate to the scientific area, examples include:
 - American Academy of Forensic Sciences - AAFS,
 - Association of Firearm and Toolmark Examiners - AFTE,
 - International Association for Identification - IAI,
 - National Association of Medical Examiners - NAME,
 - Society of Forensics Toxicologists - SOFT
 - Researchers
 - Measurement scientists (including statisticians, epidemiologists, etc.)
- Note: The Chair of the SAC cannot be a Subcommittee Chair.
- **Initial selection of SACs by NIST-DOJ leadership/ membership committee**

SAC Subcommittees

DNA Analysis Sub1

Controlled Substances Sub

Anthropology Sub

Facial Identification Sub

Blood Stain Pattern
Analysis Sub

DNA Analysis Sub2

Fire Debris and Explosives
Sub (lab)

Disaster Victim
Identification Sub

Imaging Technologies Sub

Friction Ridge Sub

Wildlife Forensics Sub

Geological Materials Sub

Dogs and Sensors Sub

Speaker Recognition Sub

Firearms & Toolmarks
Sub

Gunshot Residue Sub

Fire Scene and
Explosives Sub

Footwear
& Tire Tread Sub

Materials (Trace) Sub

Medical/Legal Death
Investigation Sub

Toxicology Sub

Odontology Sub

Questioned Documents
Sub

Where the real work will happen

Many aspects and participants may map to current SWGs

- **Develops and vets formal documents** to be submitted for approval by SAC (in case of guidelines) or SAC & FSSB (in case of standards)
- Communicates activities and progress to SACs
- Subcommittee **deliberations are not public**

Subcommittee Membership

- Each subcommittee has a **maximum membership of 20 voting members** (and up to 5 invited guests per meeting) - Distribution goal of:
 - **70% practitioner***
 - 20% federal,
 - 30% state & local,
 - 20% civil or other,
 - **20% researchers** (statisticians, certification specialists, epidemiologists, etc.), and
 - **10% R&D technology partners and providers**
- **Initial** Subcommittee members selected by SAC and FSSB then reviewed by DOJ/NIST

** Practitioner is defined as someone actively doing or managing casework*

FSSB will Address Subcommittee Waiting List

- Forensic Art
- Polygraph
- Forensic Psychiatry
- Forensic Engineering
- Forensic Entomology
- Linguistics Evidence



OSAC Infrastructure

- Web-based infrastructure to manage all documents & online balloting/voting
- Enterprise Account to support virtual meetings – enabling all entities in OSAC to conduct virtual business.
- Funding for in-person meetings
- Concept to spin OSAC out of NIST in 3-5 years
 - May initially be with funding from NIST to the outside entity.
 - Must ensure good science and stability



NCFS & OSAC Differences

NCFS

- Federal Advisory Committee that advises the Attorney General
- Reports to Attorney General
- Develops policy
- Limited Duration

OSAC

- Not a Federal Advisory Committee
- Administered by NIST
- Develops discipline-specific practice standards and guidelines
- Indefinite Duration

What a NCFS Meeting Looks Like



37 Commissioners + DOJ/NIST Leadership Team
(Feb 3-4, 2014 with ~100 public attendees)

OSAC Highlights

Creating a quality infrastructure for forensic science with a connection to accreditation bodies

- Practitioner generated (forensic scientists)
- Catalog existing SWG documents for continued access – must not lose legacy value
- Courtroom connected (legal input)
- Scientifically valid (researchers)
- Standards enforcement (by accrediting bodies)

OSAC Vision

What Will OSAC “Success” look like in 5-10 years? *

- Forensic Science practitioners embrace change
- OSAC Forensic Registries of Standards and Guidelines become implemented in the practice of forensic science across all forensic disciplines in addition to DNA
- Prosecutors, defense attorneys and judges begin to use the Registries of Standards and Guidelines in direct and cross examinations of expert witnesses
- Judges and Juries routinely hear witnesses testify about how their analysis met current standards and scientific validity and openly describe the limitations of the tests in general and their interpretations in the specific case
- Significant forensic science research is finally well organized and well funded with influence from OSAC to define research priorities
- Standards enforcement by accrediting bodies finally becomes the rule rather than the exception

Agenda

- FSSB Introductions
- OSAC Overview, Mission and Vision
- FSSB Roles & Responsibilities
- Anticipated Time Commitments of FSSB Members
- Implementation Timeline
- Pending Contract Actions at NIST
- General Process for Approving Standards
- FSSB Officers Discussion
- Priority Areas for FSSB to Address in the Future

FSSB Roles & Responsibilities (1)

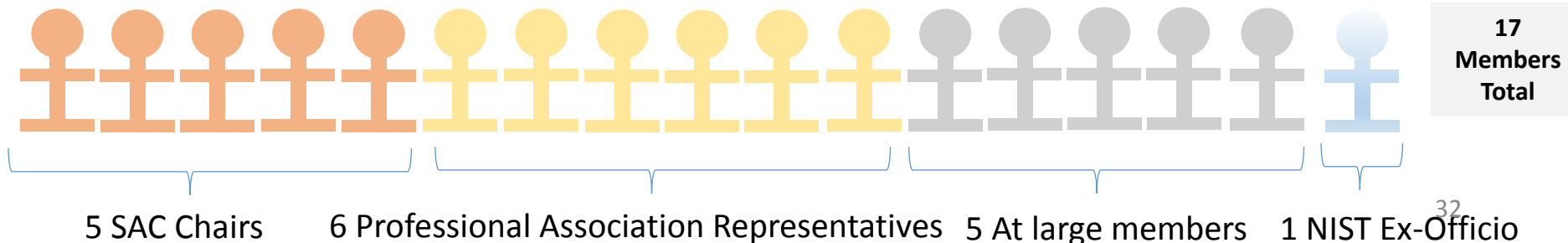
AUTHORITY

Oversees **SAC, Subcommittee** and **Resource Committee** Operations

MAJOR DUTIES

1. Approves of standards for inclusion in the ***OSAC Registry of Approved Standards***
2. Maintains OSAC Bylaws and Operations Manual
3. Manages the appeals process for unresolved comment adjudication and membership matters
4. Ensures communication flow among SACs, the Forensic Science Standards Board and the forensic science community
5. Develops and updates balance requirements and other membership rules and processes, including the length of membership terms and possible creation of term limits
6. Liaise with Human Factors, Legal and Quality Infrastructure Committees

MEMBERSHIP



FSSB Roles & Responsibilities (2)

- Website:

<http://www.nist.gov/forensics/osacroles.cfm#F>

Agenda

- FSSB Introductions
- OSAC Overview, Mission and Vision
- FSSB Roles & Responsibilities
- Anticipated Time Commitments of FSSB Members
- Implementation Timeline
- Pending Contract Actions at NIST
- General Process for Approving Standards
- FSSB Officers Discussion
- Priority Areas for FSSB to Address in the Future

Time Commitment of FSSB Board Members

- Quarterly meetings – may be virtual (1-2 days)
- Periodic virtual meetings to address pending issues (hours)
- Time commitment to review standards & other documents that require FSSB vote

Time Commitment of SAC Chairs

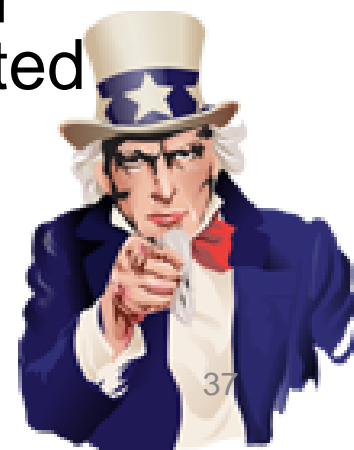
- FSSB Board time commitments
- Two in-person SAC meetings
- Periodic virtual meetings to conduct SAC business
- Option to attend subcommittee meetings
- Time commitments to review guidelines, standards and other documents that require SAC vote

of Volunteers & Terms

- Self-nomination process:
 - **3 Committees** (approximately 35 people)
 - **5 SACs** – (approximately 75 people)
 - **23 Subcommittees** (approximately 400+ people)
- **OSAC needs between 500 and 600 subject matter experts representing a balance of experience and perspectives to serve on OSAC.**
- OSAC terms are for three years, although the initial appointees will serve terms of two, three or four years so that subsequent members are appointed on a staggered basis.

<http://www.nist.gov/forensics/osacroles.cfm>

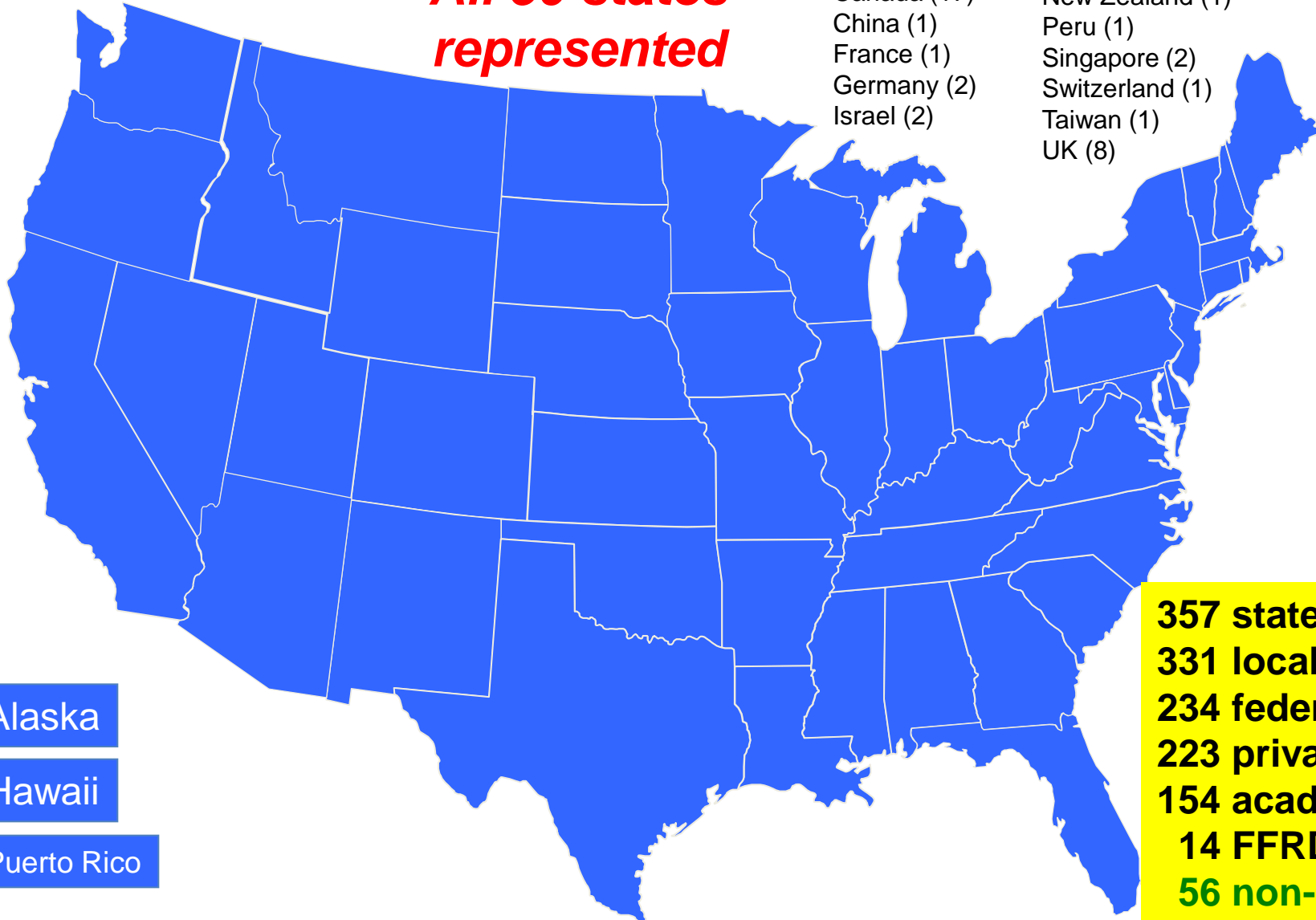
<https://www.nist.gov/forensics/osac-application.cfm>



OSAC Applicants

as of 12 May 2014

**All 50 states
represented**



Alaska

Hawaii

Puerto Rico

Other countries (21 total; 56 individuals)

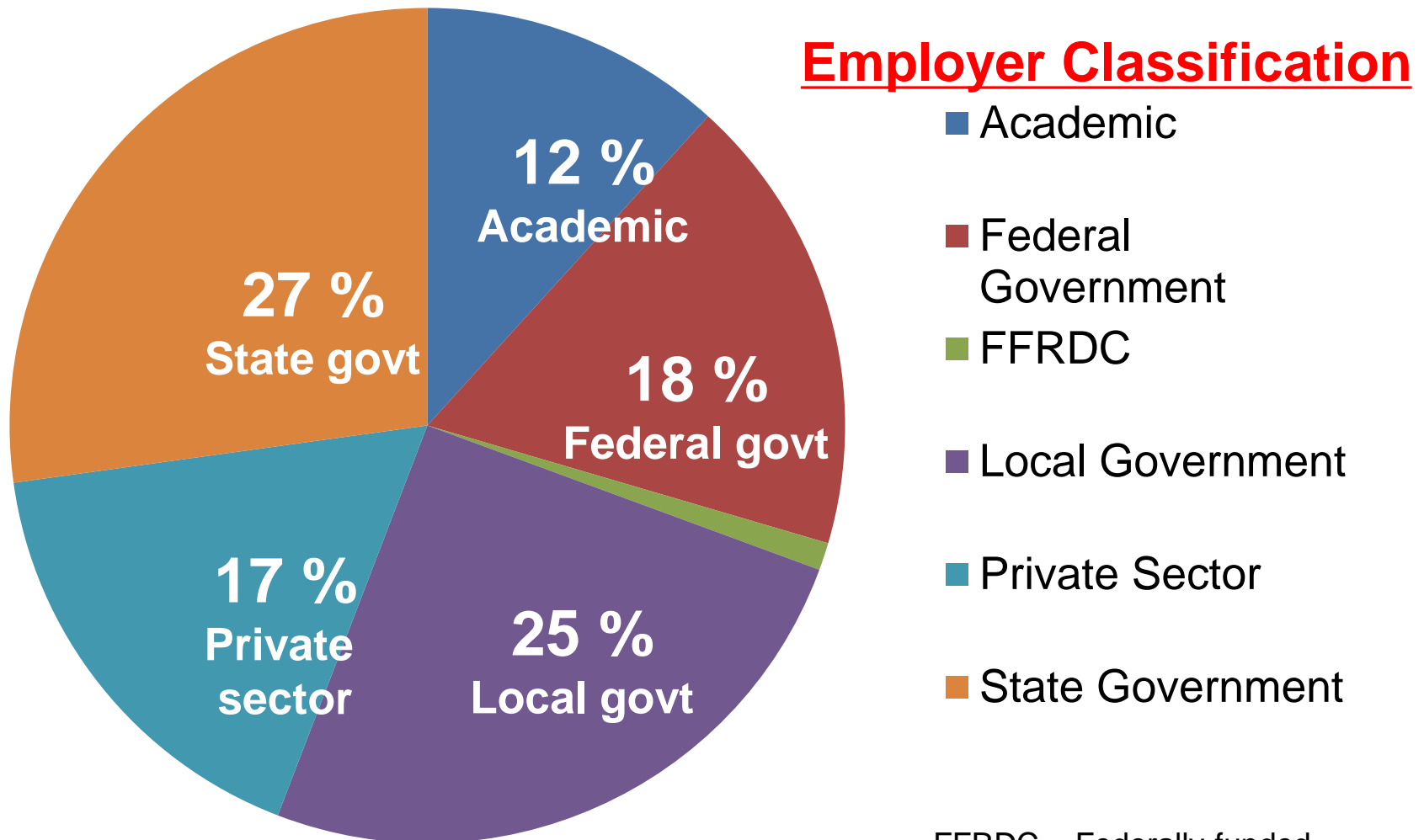
Australia (10)	Italy (1)
Bangladesh (1)	Korea (1)
Belarus (1)	Malaysia (1)
Bosnia (1)	Nepal (1)
Brazil (1)	The Netherlands (1)
Canada (17)	New Zealand (1)
China (1)	Peru (1)
France (1)	Singapore (2)
Germany (2)	Switzerland (1)
Israel (2)	Taiwan (1)
	UK (8)

**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

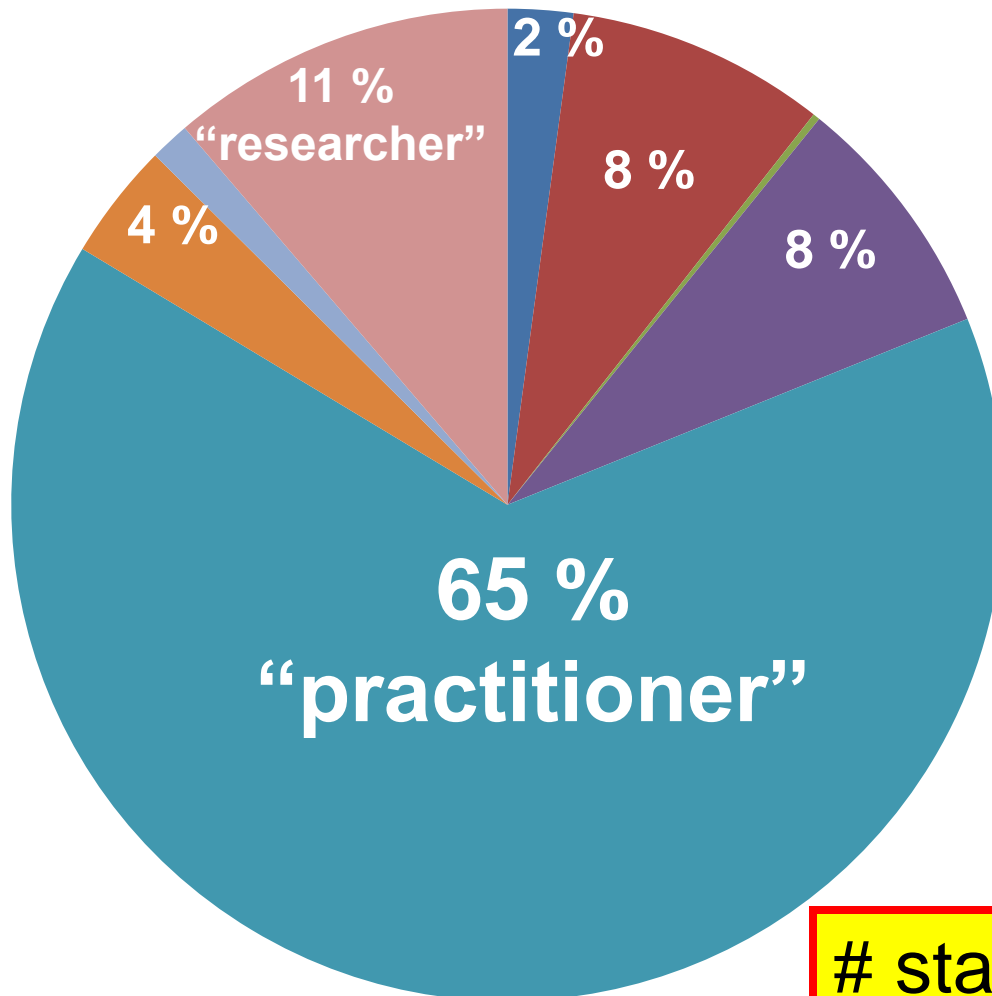


FFRDC = Federally-funded research and development center

Background of OSAC Applicants

(as of 12 May 2014)

1313 total



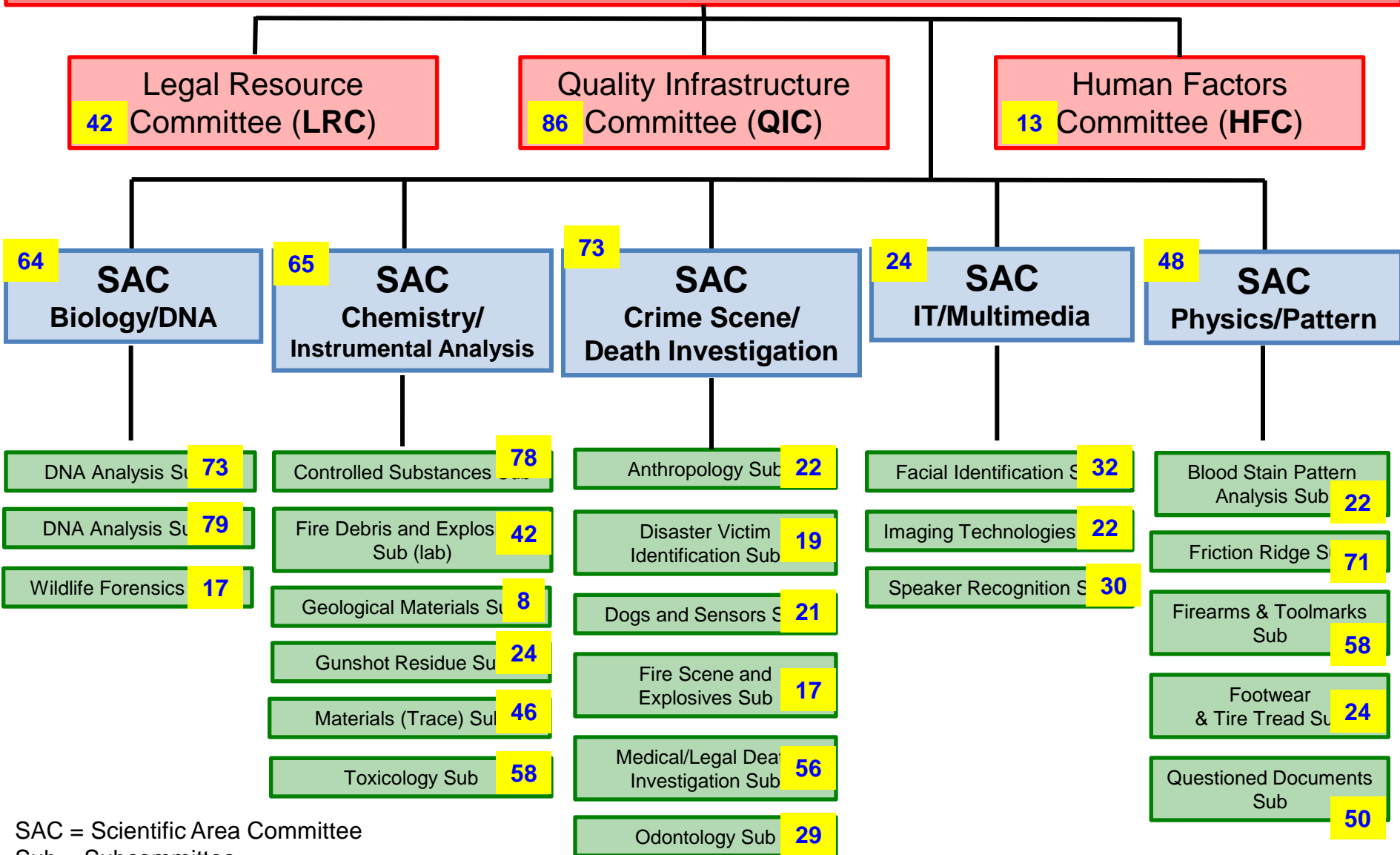
Job Classification

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

statisticians (ASA) = 25

OSAC Application Count by Primary Selection

Forensic Science Standards Board (FSSB)



SAC = Scientific Area Committee
 Sub = Subcommittee

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

OSAC Applicants: Professional Associations

Association	1st	2nd	3rd	Total
AAFS	494	76	13	583
ACS	26	22	14	62
AFQAM	19	21	4	44
AFTE	55	8	5	68
APS	5	3	0	8
ASA	20	4	1	25
ASCLD	50	56	21	127
ASTE	27	34	17	78
CAC	15	22	8	45
IAC&ME	10	11	6	27
IACP	8	4	4	16
IAI	151	72	22	245
IAI Regional	13	86	21	120
IFSG	20	19	3	42
MAAFS	12	11	8	31
MAFS	33	55	22	110
NAME	33	27	3	63
NEAFS	12	16	13	41
NFPA	5	4	1	10
NWAFS	2	8	6	16
Other	149	262	329	740
SAFS	9	11	14	34
SOFT	25	28	7	60
SWAFS	12	17	8	37

Agenda

- FSSB Introductions
- OSAC Overview, Mission and Vision
- FSSB Roles & Responsibilities
- Anticipated Time Commitments of FSSB Members
- Implementation Timeline
- Pending Contract Actions at NIST
- General Process for Approving Standards
- FSSB Officers Discussion
- Priority Areas for FSSB to Address in the Future

Implementation Timeline

- Online application form launched April 11, 2014 – **closed May 11, 2014**
- FSSB appointed – **June 26, 2014**
- FSSB virtual meeting – July 7, 2014
- Appoint HFC, LRC & QIC - July 15, 2014
- FSSB in-person meeting – August 7, 2014
- Appoint SAC membership - August 2014
- First SAC meetings to select subcommittee membership - mid-late September 2014
- FSSB virtual meeting to vote on subcommittee rosters – early October 2014
- Appoint Subcommittee Members - October 2014
- Hold in-person subcommittee meetings - January 2015
- Hold Public SAC Meetings at AAFS - Feb 16 -17, 2015



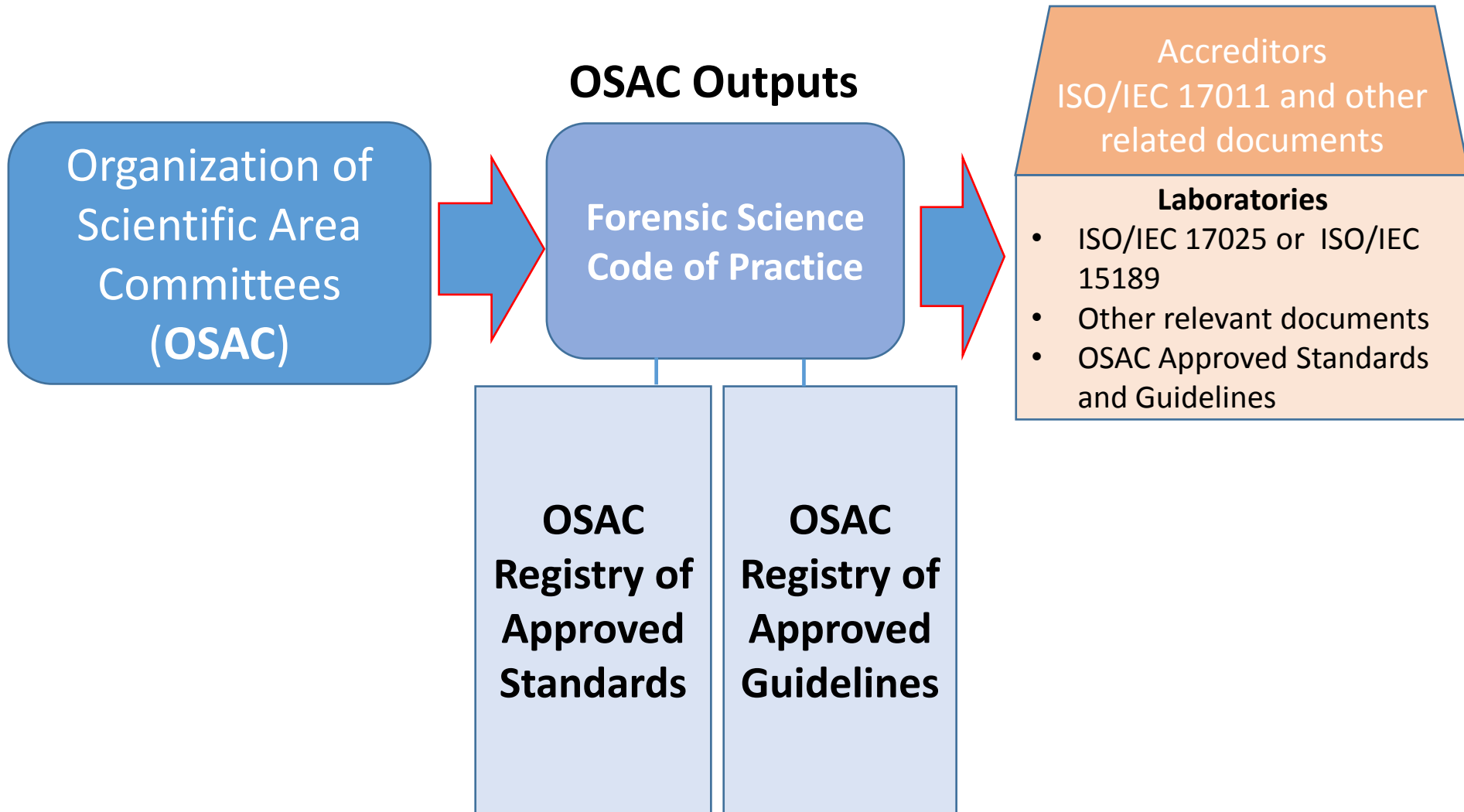
Agenda

- FSSB Introductions
- OSAC Overview, Mission and Vision
- FSSB Roles & Responsibilities
- Anticipated Time Commitments of FSSB Members
- Implementation Timeline
- Pending Contract Actions at NIST
- General Process for Approving Standards
- FSSB Officers Discussion
- Priority Areas for FSSB to Address in the Future

Agenda

- FSSB Introductions
- OSAC Overview, Mission and Vision
- FSSB Roles & Responsibilities
- Anticipated Time Commitments of FSSB Members
- Implementation Timeline
- Pending Contract Actions at NIST
- General Process for Approving Standards
- FSSB Officers Discussion
- Priority Areas for FSSB to Address in the Future

Key OSAC Outputs



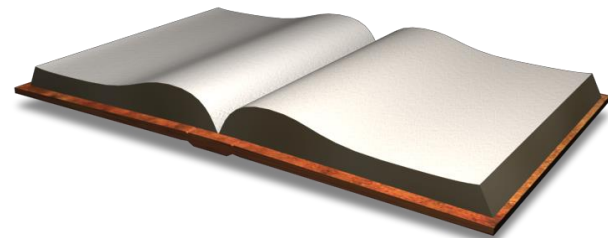
Forensic Science Code of Practice

Documents the minimum requirements for:

1. Standards and guidelines used in forensic science
2. Accreditation of laboratories and investigative units supplying forensic science services

Discipline specific requirements to supplement international standards developed in a consensus

3. Competencies of forensic science practitioners
Implemented in forensic science service organizations' management systems



OSAC Registries of Approved Standards and Guidelines

Documentary standards and guidelines that have demonstrated:

1. Technical merit

- Detailed Scope
- Examination of fitness for purpose
- Consideration of uncertainty measurement and potential bias
- Method validation, as appropriate

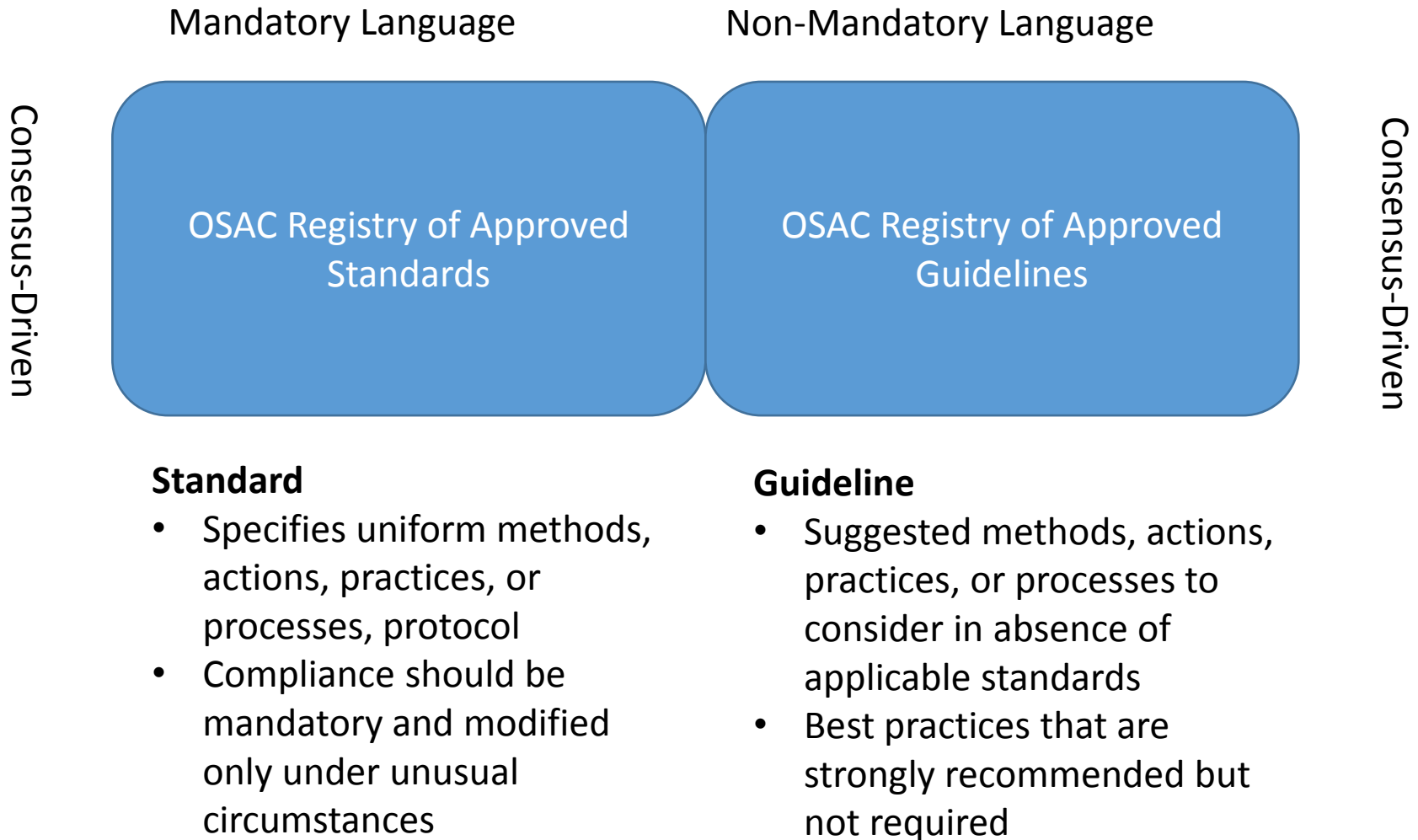
2. Reasonable standards development process

- Due Process
- Consensus
- Openness
- Transparency
- Freedom from undue influence
- Balance of interests

Registry Sources:

1. An existing standard developed using approved processes
2. Catalyzed with an existing SDOs
3. Developed by OSAC using canvass method

Approved Standards vs Guidelines



Agenda

- FSSB Introductions
- OSAC Overview, Mission and Vision
- FSSB Roles & Responsibilities
- Anticipated Time Commitments of FSSB Members
- Implementation Timeline
- Pending Contract Actions at NIST
- General Process for Approving Standards
- FSSB Officers Discussion
- Priority Areas for FSSB to Address in the Future

FSSB Officers Discussion

- Will appoint FSSB Officers during August 7th Meeting.
 - Chair
 - Vice Chair
 - Executive Secretary
- Please email us if you are interested in or wish to recommend other FSSB members for any of these positions.

Agenda

- FSSB Introductions
- OSAC Overview, Mission and Vision
- FSSB Roles & Responsibilities
- Anticipated Time Commitments of FSSB Members
- Implementation Timeline
- Pending Contract Actions at NIST
- General Process for Approving Standards
- FSSB Officers Discussion
- Priority Areas for FSSB to Address in the Future

Future Priority Areas for FSSB to Address

- New Subcommittees (forensic disciplines)
- Expanding Current Subcommittees – should Materials (Trace) Subcommittee be broken into two subcommittees (20 members each)
- Term Limits for OSAC Members
- Need Picture & 100 word bios for OSAC website



Questions?

**Mark D. Stolorow
John Paul Jones II
Karen Reczek**

**National Institute of Standards and Technology
100 Bureau Drive, Mailstop 8102
Gaithersburg, MD 20899**

www.nist.gov/forensics

Creating a Standard or Guideline

Forensic Science Standards Board (FSSB)

Legal Resource
Committee (LRC)

Quality Infrastructure
Committee (QIC)

Human Factors
Committee (HFC)

SAC
Biology/DNA

SAC
Chemistry/
Instrumental Analysis

SAC
Crime Scene/
Death Investigation

SAC
IT/Multimedia

SAC
Physics/Pattern

DNA Analysis Sub1

DNA Analysis Sub2

Wildlife Forensics Sub

Controlled Substances Sub

Fire Debris and Explosives
Sub (lab)

Geological Materials Sub

Gunshot Residue Sub

Materials (Trace) Sub

Toxicology Sub

Anthropology Sub

Disaster Victim
Identification Sub

Dogs and Sensors Sub

Fire Scene and
Explosives Sub

Medical/Legal Death
Investigation Sub

Odontology Sub

Facial Identification Sub

Imaging Technologies Sub

Speaker Recognition Sub

Blood Stain Pattern
Analysis Sub

Friction Ridge Sub

Firearms & Toolmarks
Sub

Footwear
& Tire Tread Sub

Questioned Documents
Sub

SAC = Scientific Area Committee
Sub = Subcommittee

