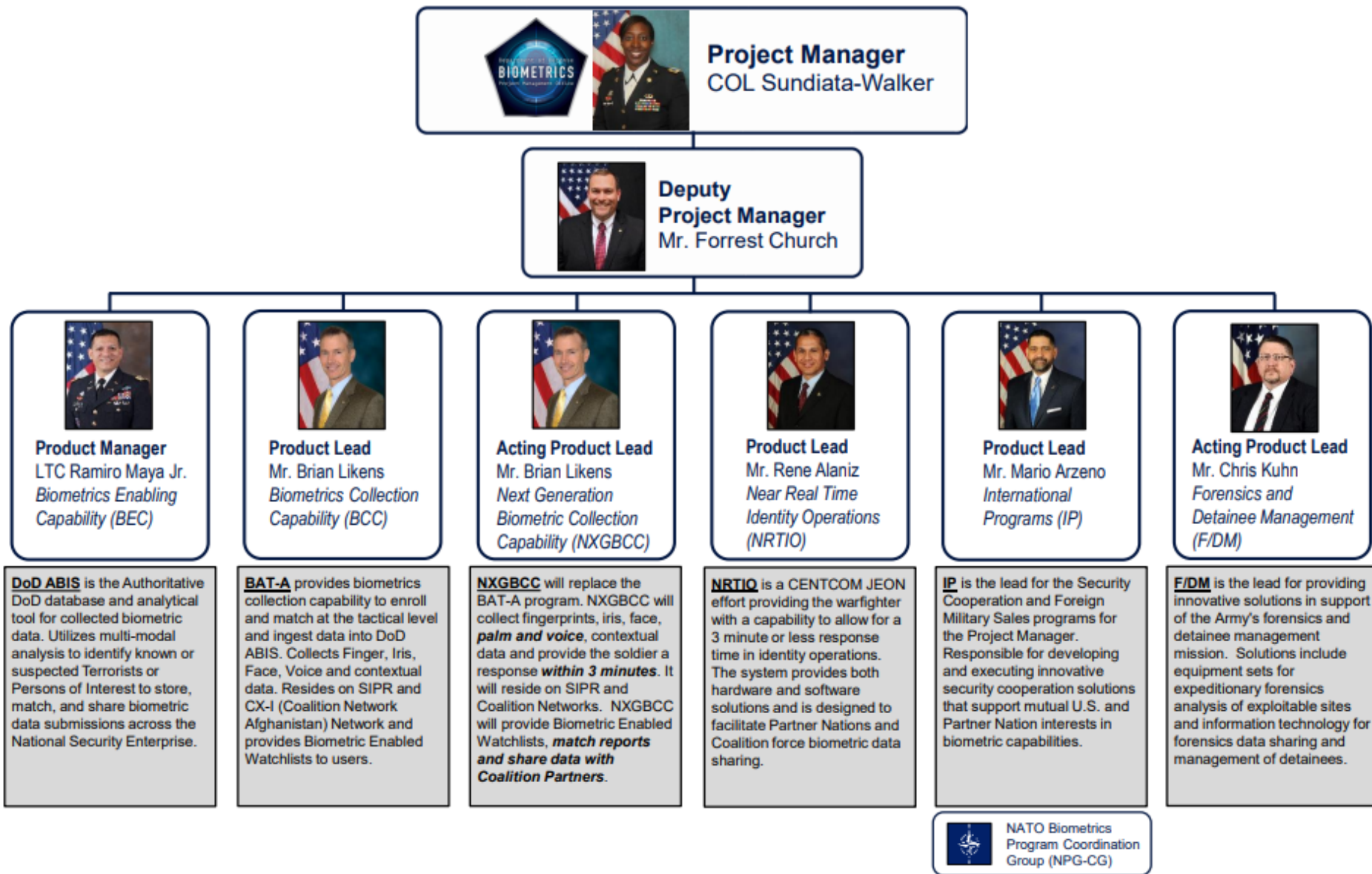# PM DoD Biometrics

Biometrics Interoperability and Standards Compliance Office (BISCO) Implementation of NIEM Conformant EBTS 4.1

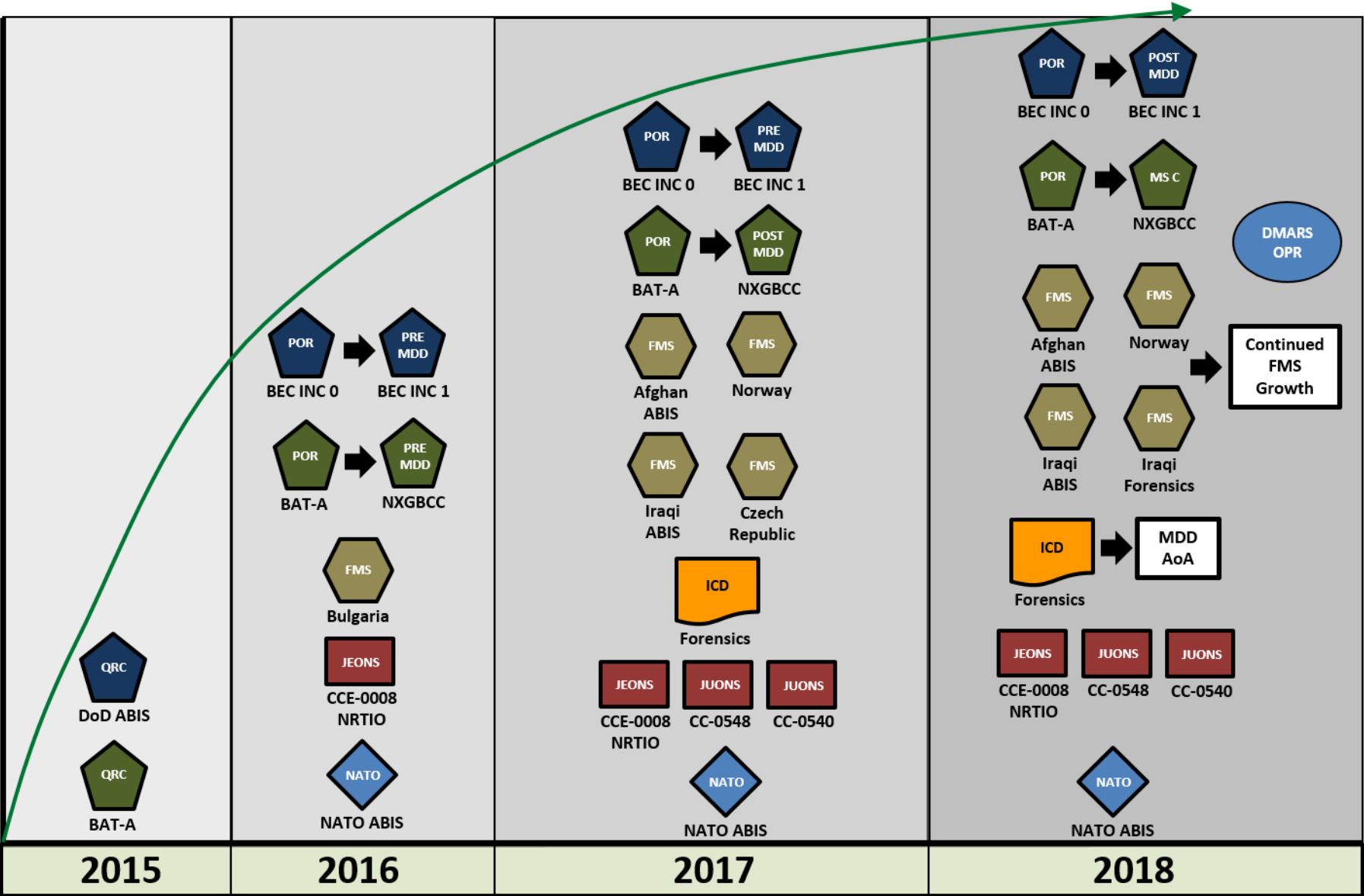**Sept 2019**
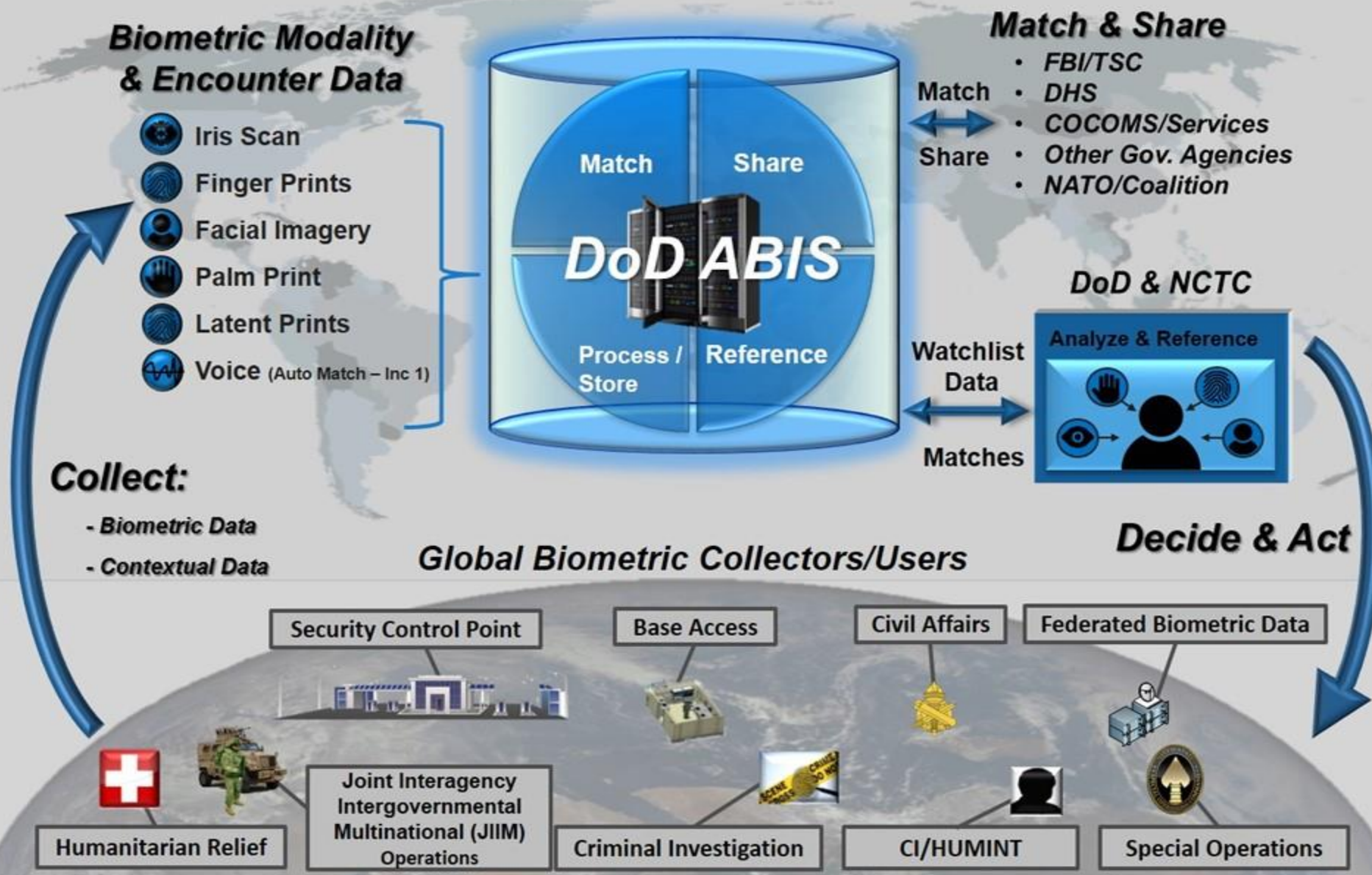
PM DoD Biometrics Chief Engineer:
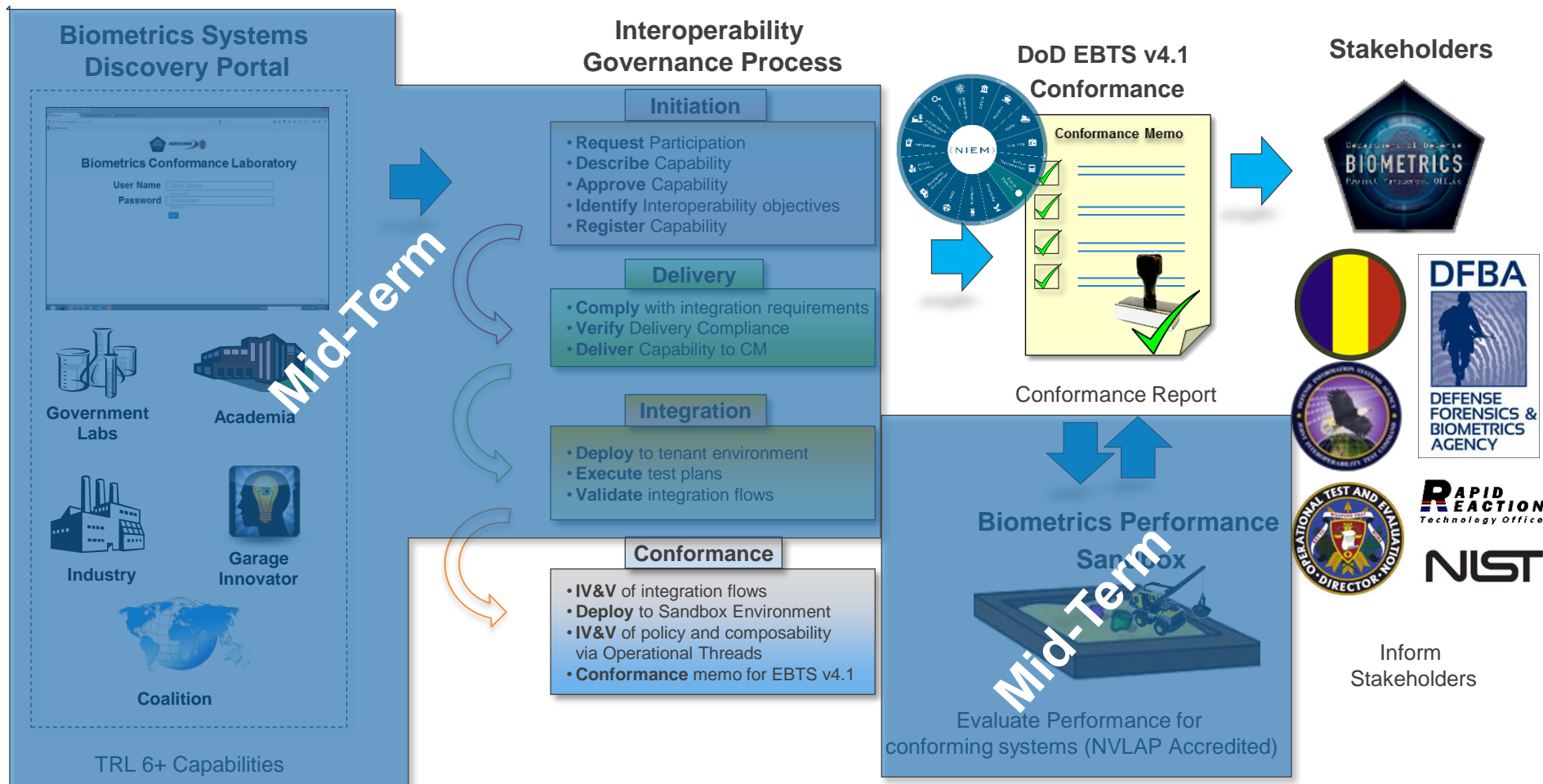**Mr. William Graves**

PM DoD Biometrics Organization

Project Manager
COL Sundiata-Walker

Deputy Project Manager
Mr. Forrest Church

Product Manager
LTC Ramiro Maya Jr.
Biometrics Enabling Capability (BEC)

Product Lead
Mr. Brian Likens
Biometrics Collection Capability (BCC)

Acting Product Lead
Mr. Brian Likens
Next Generation Biometric Collection Capability (NXGBCC)

Product Lead
Mr. Rene Alaniz
Near Real Time Identity Operations (NRTIO)

Product Lead
Mr. Mario Arzeno
International Programs (IP)

Acting Product Lead
Mr. Chris Kuhn
Forensics and Detainee Management (F/DM)

DoD ABIS is the Authoritative DoD database and analytical tool for collected biometric data. Utilizes multi-modal analysis to identify known or suspected Terrorists or Persons of Interest to store, match, and share biometric data submissions across the National Security Enterprise.

BAT-A provides biometrics collection capability to enroll and match at the tactical level and ingest data into DoD ABIS. Collects Finger, Iris, Face, Voice and contextual data. Resides on SIPR and CX-I (Coalition Network Afghanistan) Network and provides Biometric Enabled Watchlists to users.

NXGBCC will replace the BAT-A program. NXGBCC will collect fingerprints, iris, face, *palm and voice*, contextual data and provide the soldier a response *within 3 minutes*. It will reside on SIPR and Coalition Networks. NXGBCC will provide Biometric Enabled Watchlists, *match reports and share data with Coalition Partners*.

NRTIO is a CENTCOM JEON effort providing the warfighter with a capability to allow for a 3 minute or less response time in identity operations. The system provides both hardware and software solutions and is designed to facilitate Partner Nations and Coalition force biometric data sharing.

IP is the lead for the Security Cooperation and Foreign Military Sales programs for the Project Manager. Responsible for developing and executing innovative security cooperation solutions that support mutual U.S. and Partner Nation interests in biometric capabilities.

F/DM is the lead for providing innovative solutions in support of the Army's forensics and detainee management mission. Solutions include equipment sets for expeditionary forensics analysis of exploitable sites and information technology for forensics data sharing and management of detainees.

NATO Biometrics Program Coordination Group (NPG-CG)

Organizational Growth timeline chart (2015–2018)

2015
- QRC — DoD ABIS
- QRC — BAT-A

2016
- POR (BEC INC 0) → PRE MDD (BEC INC 1)
- POR (BAT-A) → PRE MDD (NXGBCC)
- FMS — Bulgaria
- JEONS — CCE-0008 NRTIO
- NATO — NATO ABIS

2017
- POR (BEC INC 0) → PRE MDD (BEC INC 1)
- POR (BAT-A) → POST MDD (NXGBCC)
- FMS — Afghan ABIS
- FMS — Norway
- FMS — Iraqi ABIS
- FMS — Czech Republic
- ICD — Forensics
- JEONS — CCE-0008 NRTIO
- JUONS — CC-0548
- JUONS — CC-0540
- NATO — NATO ABIS

2018
- POR (BEC INC 0) → POST MDD (BEC INC 1)
- POR (BAT-A) → MS C (NXGBCC)
- DMARS OPR
- FMS — Afghan ABIS
- FMS — Norway
- FMS — Iraqi ABIS
- FMS — Iraqi Forensics
- Continued FMS Growth
- ICD — Forensics → MDD AoA
- JEONS — CCE-0008 NRTIO
- JUONS — CC-0548
- JUONS — CC-0540
- NATO — NATO ABIS

Biometric Modality & Encounter Data

- Iris Scan
- Finger Prints
- Facial Imagery
- Palm Print
- Latent Prints
- Voice (Auto Match – Inc 1)

Match & Share
- FBI/TSC
- DHS
- COCOMS/Services
- Other Gov. Agencies
- NATO/Coalition

Match
Share

DoD ABIS

Match   Share

Process / Store   Reference

DoD & NCTC

Analyze & Reference

Watchlist Data

Matches

Collect:
- Biometric Data
- Contextual Data

Decide & Act

Global Biometric Collectors/Users

Security Control Point

Base Access

Civil Affairs

Federated Biometric Data

Humanitarian Relief

Joint Interagency Intergovernmental Multinational (JIIM) Operations

Criminal Investigation

CI/HUMINT

Special Operations

The Biometrics Interoperability and Standards Compliance Office (BISCO) Laboratory has been established to support PM DoD Biometrics by conducting testing and evaluation for current and emerging biometrics capabilities

The BISCO provides is a government owned laboratory environment supporting conformance to DoD standards, integration, and experimentation and evaluation of current and emerging biometrics capabilities to inform PM DoD Biometrics and its Stakeholders.

Biometrics Systems Discovery Portal

Biometrics Conformance Laboratory
User Name [   ]
Password [   ]

Government Labs

Academia

Industry

Garage Innovator

Coalition

TRL 6+ Capabilities

Mid-Term

Interoperability Governance Process

Initiation
- **Request** Participation
- **Describe** Capability
- **Approve** Capability
- **Identify** Interoperability objectives
- **Register** Capability

Delivery
- **Comply** with integration requirements
- **Verify** Delivery Compliance
- **Deliver** Capability to CM

Integration
- **Deploy** to tenant environment
- **Execute** test plans
- **Validate** integration flows

Conformance
- **IV&V** of integration flows
- **Deploy** to Sandbox Environment
- **IV&V** of policy and composability via Operational Threads
- **Conformance** memo for EBTS v4.1

DoD EBTS v4.1 Conformance

NIEM

Conformance Memo

Conformance Report

Biometrics Performance Sandbox

Mid-Term

Evaluate Performance for conforming systems (NVLAP Accredited)

Stakeholders

BIOMETRICS

DFBA
DEFENSE FORENSICS & BIOMETRICS AGENCY

RAPID REACTION Technology Office

NIST

Inform Stakeholders

Standards Conformance

JITC Validation Letter
- EBTS v1.2 - 26 Oct 2018
- EBTS v4.1 – Pending

BISCO Conformance Assessment Memo

BISCO Conformance Assessment Report

BISCO standards conformance process approved for EBTS v1.2 testing and for EBTS v4.1 (A 100% NIEM Conformant)

	EBTS v1.2 AUG '05	EBTS v2.0 NOV '06	EBTS v3.0 MAR '09	EBTS v4.1 June '18
	Type-1: Transaction Information	Type-1: Transaction Information	Type-1: Transaction Information	Type-1: Transaction Information
	Type-2: User Defined Descriptive Text	Type-2: User Defined Descriptive Text	Type-2: User Defined Descriptive Text	Type-2: User Defined Descriptive Text
	Type-4: High Resolution Greyscale Fingerprint Image	(Deprecated)	(Deprecated)	(Deprecated)
	Type-7: User Defined Image (used for FBI EFTS v7.1 Latent Images)	(Deprecated)	(Deprecated)	(Deprecated)
	Type-9: Minutiae Data (using AFIS Feature Set)	Type-9: Minutiae Data (using IAFIS and INCITS M1-378 Feature Sets)	Type-9: Minutiae Data (using IAFIS and INCITS M1-378 Feature Sets)	Type-9: Minutiae Data (using IAFIS, INCITS M1-378, and Extended Feature Sets)
	Type-10: Facial & Scars/Marks/Tattoos Images	Type-10: Facial & Scars/Marks/Tattoos Images	Type-10: Face, Other Body Part, or Scar, Mark, Tattoo (SMT) Image	Type-10: Photographic Body Part Imagery (including Face and SMT)
				Type-11: Forensic and Investigatory Voice Data
	Type-13: Latent Image Data (Variable Resolution)	Type-13: Variable-resolution Latent Image	Type-13: Variable-resolution Latent Friction Ridge Image	Type-13: Friction-Ridge Latent Image
	Type-14: Tenprint Fingerprint Impressions (Variable Resolution)	Type-14: Variable-resolution Fingerprint Image	Type-14: Variable-resolution Fingerprint Image	Type-14: Variable-resolution Fingerprint Image
		Type-15: Variable-resolution Palm print Image	Type-15: Variable-resolution Palm print Image	Type-15: Variable-resolution Palm print Image
	Type-16: User-Defined Testing Image Data (Used for Iris Images)	(Deprecated)	(Deprecated)	(Deprecated)
		Type-17: Iris Image (formerly kept in Type-16)	Type-17: Iris Image	Type-17: Iris Image
			Type-18: DNA Data	Type-18: DNA Data
			Type-20: Source Representation	Type-20: Source Representation
			Type-21: Associated Context	Type-21: Associated Context
			Type-98: Information Assurance	Type-98: Information Assurance
		Type-99: CBEFF Biometric Data Record	Type-99: CBEFF Biometric Data Record	Type-99: CBEFF Biometric Data Record

Type 1
Transaction Information
Organization To/From

Type 2 (User Defined)
Biometric Encounter
Identity and Personal Data
Processing/Audit/Personal Metadata

Cross Reference

Biometric Modalities
Types 9, 10, 11, 13, 14, 15, 17, 18, 20, 21, 99

Generic Metadata
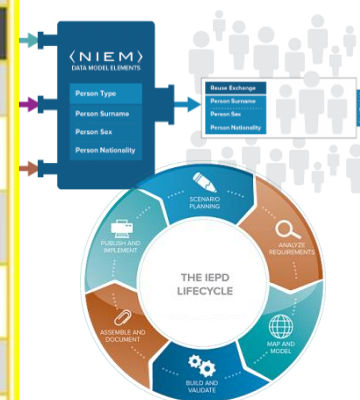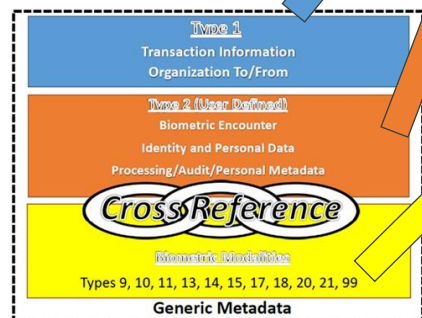
Reference: DoD EBTS v4.1 NIEM IEPD

BISCO SW interface

EBTS v1.2 (binary)

EBTS v4.1 (binary)

EBTS v4.1 (XML/NIEM)

Lakota Ani Software

Conformance Results
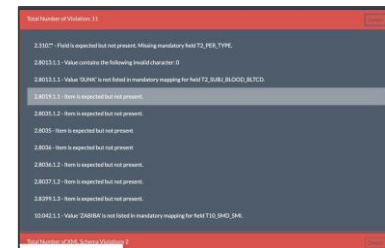
NIEM XML Schema Check
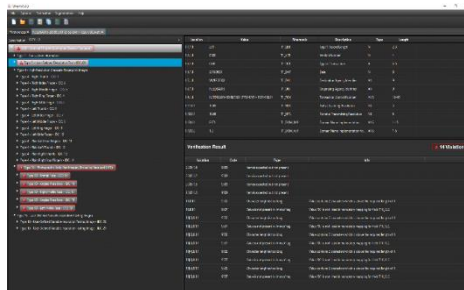
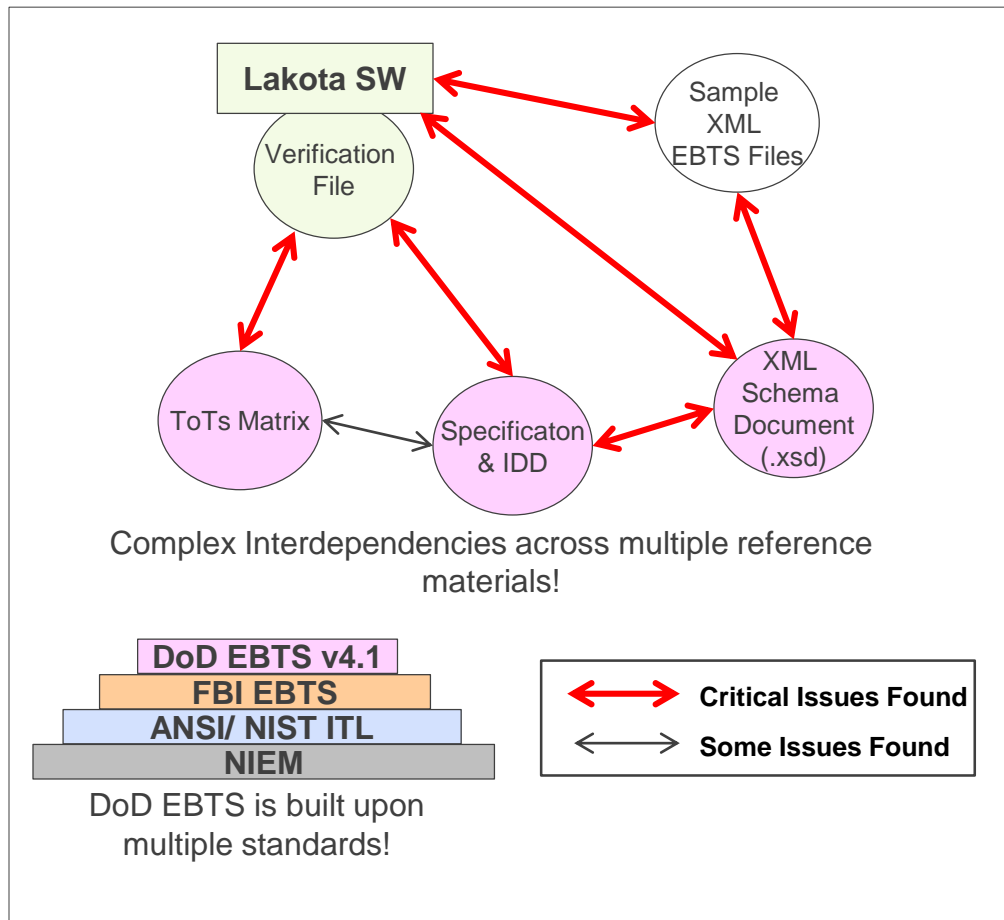**EBTS v1.2 Verification File**

EBTS v4.1 Verification File

EBTS Conformance

- BISCO SW leverages Lakota Ani COTS tool

- Verification File (VF) required to validate conformance.

- EBTS v4.1 (NIEM Conformant)

BISCO Conformance Software now supports DoD EBTS v1.2 (binary) and v4.1 (binary and XML)

Adherence to the EBTS v4.1 standard requires alignment of multiple sets of documentation and software components which the BISCO team reviewed.

Lakota SW

Verification File

Sample XML EBTS Files

ToTs Matrix

Specificaton & IDD

XML Schema Document (.xsd)

Complex Interdependencies across multiple reference materials!

DoD EBTS v4.1
FBI EBTS
ANSI/ NIST ITL
NIEM

DoD EBTS is built upon multiple standards!

⟷ **Critical Issues Found**
⟷ **Some Issues Found**

EBTS v4.1 References

- DoD EBTS v4.1 Specification (142 pgs)
- DoD EBTS v4.1 Integrated Data Dictionary (1114 pgs)
- DoD EBTS v4.1 Types of Transactions (ToTs) Matrix
- XML Schema Documents (278 files with 573,592 source lines of code - SLOC)
- EBTS Sample Files (Generated by DFBA)
  - CAR – 2,925 SLOC
  - MAP – 2,995 SLOC
  - DPRS – 2,315 SLOC
- Other Key References: (FBI EBTS, ANSI/NIST ITL 2011 (update 2015) and NIEM)

Lakota SW and EBTS v4.1 Verification File

- Allows the Lakota SW to check conformance of an EBTS file
- 20,663 lines of text based rules

The BISCO team manually verified over 20,000 lines of text in the Lakota verification file against multiple standards references to ensure it was consistent with the EBTS v4.1 specification.

Thank You!

William Graves

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