BIOMETRICS

ORGANIZATIONAL SPECIFICS

Standards Organizations:	ISO, IEC, IEEE
Technical Committees:	JTC 1/SC 37 Biometrics
Other Partnering Organizations:	n/a
Government Organizations:	DHS, DOJ, DOD, State Dept., European commission
Industry Sector(s) / Technology:	Biometrics tech companies
Program / Activity Website URL(s):	https://www.dhs.gov/biometrics https://ucr.fbi.gov/fingerprints_biometrics/biometric-center-of-excellence/files/biometricschallenge2011.pdf NIST report on NSTC Standards & Conformity Assessment WG (SCA WG): https://www.nist.gov/system/files/documents/2021/11/18/nstc_supplementaldocument08-10-09_biometricregistry.pdf https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/nstc-biometrics-2008.pdf

STANDARDS DRIVEN PUBLIC-PRIVATE PARTNERSHIP (PPP) OBJECTIVES

PPP Drivers:

After the September 11, 2001 attacks on the United States, a need to create better passports, secure borders, identify fraudulent documents, and increase travel security was identified. Shortly after, in 2002, the ISO/IEC JTC 1/SC 37 Biometrics subcommittee was created. The mission of JTC 1/SC 37 is to ensure a comprehensive and high priority, worldwide approach for the development and approval of international biometric standards.

In 2003, shortly after the formation of JTC 1/SC 37, the National Science and Technology Council (NSTC) established a Subcommittee on Biometrics to develop and implement multi-agency investment strategies to:
- advance biometrics disciplines to meet public and private needs
- coordinate biometrics-related activities of interagency importance
- facilitate the inclusion of privacy-protecting principles in biometrics system design
- ensure coordinated and consistent biometrics programs as government agencies interact with Congress, the press, and the public
- strengthen international and public sector partnerships to foster the advancement of biometrics technologies

Since 2002, JTC 1/SC 37 has worked to develop standards for chips in passports, e-passports, national identification (ID) programs, interoperability and security of the information systems, and to eliminate duplicates in national databases. As biometric standards have become more readily available, the NSTC is now participating in the work of JTC 1/SC 37.

PPP Goals:

Since the formation of JTC 1/SC 37 the goals have evolved. The current goals include:

- **Utilization of ISO/IEC 19794:** phased transition of ISO/IEC 19794 Information technology — Biometric data interchange formats series (15 parts): as passports are renewed, they are created with the new and updated requirements of the standards; however, backwards compatibility is necessary until the transition is complete.
- **Next generation passports**: standards around the new security features, enhanced security to make altering more difficult
- **e-Passports**: biographic and biometric data contained in the electronic chip can be compared to both the traveler and the travel document being presented. There are multiple layers of security in the e-Passport process that prevent duplication.

- **AI Bias:** bias in artificial intelligence (AI) technologies used in biometrics, as governments are dependent on facial recognition technology, needs to be fully inclusive.

One of the NTSC goals was to establish a comprehensive and widely accepted open standards process for biometric information, and the devices that capture it, to include conformity assessment testing processes for broadly accepted certification. Most of these have been met now.

Public Sector Role & Participation:

ISO/IEC JTC 1/SC 37 standards are developed through consensus processes that bring together industry, government, consumers, academia, etc. Each ISO/IEC member country has the opportunity to consult their stakeholders and participate in the work of JTC 1/SC 37. U.S. participation in JTC 1/SC 37 includes engagement from both the public and private sector, each contributing to the development of standards based on their respective needs.

Implementation Methods:

This partnership is primarily executed through JTC 1/SC 37 committee activities. This includes committee meetings which take place regularly to review and update documents as technology and industry needs evolve.

There are instances where results from industry workshops influence the committee work. For example, in 2010 and 2011, NTSC held workshops to bring together academia, government and industry experts in biometric systems and cybersecurity with the charge of identifying the fundamental research challenges for trustworthy biometric systems. Outputs related to standards and testing included:

- Develop best practices and standards to support large-scale framework for e-government, personal information, and business transactions
- Develop standards for revocable biometrics (biometric template protection)
- Provide support for ongoing programs to develop fraud detection standards and develop evaluation methods for fraud detection
- Continue development of biometrics system performance testing standards
- Continue development and standardization of image quality metrics for face and iris
- Define and standardize "plug-and-play" interfaces and software practices
- Provide continued standards developing organization support including developing reference implementations, conformance test suites and testing of standards prior to publication (Extended Fingerprint Feature Set is a prime example of such testing prior to publication).
- Provide institutionalized support to government testing entities to develop certification programs
- Conduct technology testing for operational effectiveness, suitability, and interoperability

Given that many biometrics use cases impact the global community, it is important that the standards work is done at the international level to ensure interoperability and implementation across various countries. JTC 1/SC 37 also works closely with ICAO's New Technologies Working Group to ensure the appropriate JTC 1/SC 37 standards are referenced as it impacts interoperability across borders.

Measurement of Success:

Progress in government biometric applications has been significant. Some accomplishments related to standards development include:
- **National ID Programs**: Many countries use biometric standards for creating and managing national identification systems, ensuring that biometric data can be used consistently and securely across different platforms and agencies.
- **Passport and Visa Systems**: Biometric standards are crucial for international travel documents like passports and visas. Adopting these standards helps facilitate cross-border travel and enhances security by ensuring that biometric data is accurately captured and verified.

- **Law Enforcement**: Standards from JTC 1/SC 37 are used in law enforcement for criminal identification, forensic investigations, and maintaining databases of biometric data such as fingerprints and facial images.
- **Border Control**: Governments use biometric standards to enhance border security and streamline immigration processes, enabling the reliable identification of travelers and ensuring secure entry and exit processes.
- **Social Services and Welfare Programs**: Biometric standards help in the management and distribution of social services and welfare benefits, reducing fraud, and ensuring that benefits reach the intended recipients.
- **Healthcare Systems**: In some countries, biometric standards are used to improve patient identification, secure access to medical records, and manage healthcare services.

Key Takeaways:

1. The U.S. government has supported technology testing and standards development. This support has created a framework and a strong stimulus for continued technological improvement through coordinated and focused research and product development.

2. Because of active global participation from the public and private sector, standards have matured significantly and have contributed to improved system and biometric device interoperability.