DHS Strategic Industry Conversation

# Biometrics: Current Challenges and Future Trends


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Homeland Security

# DHS Biometrics Development Communications and Outreach Goals

***We will share publicly available DHS collaboration work products***

***Highlight that all DHS Components have insight into biometrics across DHS****

***Identify opportunities to prevent duplication of effort****

***Identify up and coming new capabilities from academia and industry***

# Goals of the DHS Biometrics Strategic Framework

- Goal 1: Enhance effectiveness of subject identification
  - Objective 1.1: Refresh outdated biometric collection systems
  - Objective 1.2: Centralize access to federal and international biometric databases
  - Objective 1.3: Improve real-time access from field locations
  - Objective 1.4: Expand use of multi-modal biometrics to identify threats
- Goal 2: Transform identity operations to optimize performance
  - Objective 2.1: Automate resource intensive identity processes
  - Objective 2.2: Implement person-centric biometric processing
- Goal 3: Refine processes and policies to promote innovation
  - Objective 3.1: Institutionalize joint requirements efforts
  - Objective 3.2: Establish DHS-wide biometrics authorities
  - Objective 3.3: Develop privacy policies and processes
  - Objective 3.4: Enhance stakeholder communications
  - Objective 3.5: Implement standardized solutions
  - Objective 3.6: Establish governance and ensure appropriate oversight


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Protecting National Security and Upholding Public Safety

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## Biometrics in Investigations

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# Biometrics Today

- Search and Identification
- Booking and Arrest
- Forensic Case work
- State and Local Support

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# Applications

## Make the Small Screen Work with the Big Screen

- **EAGLE is used on our Tier 1 and 2 level devices.**
- **Allows for full identification and booking.**
- **Works offline to collect data.**

- **EDDIE is used on our Tier 3 devices.**
- **Allows for identification.**
- **Information collected and searched can be used to for decentralized bookings**

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# Types of Equipment

## 3 Tiered System of Biometric Equipment

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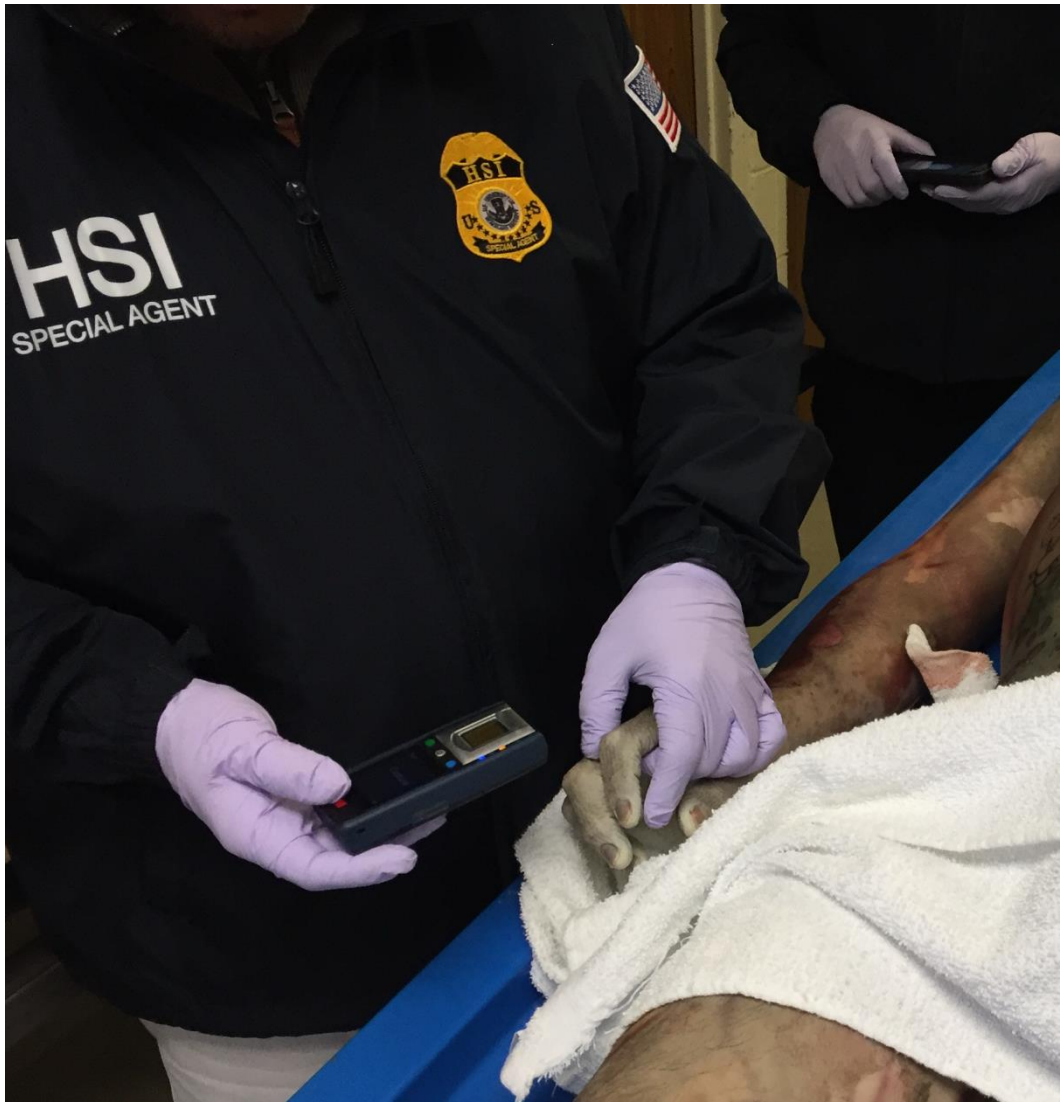
# Types of Equipment

## 3 Tiered System of Biometric Equipment

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# Evaluation Criteria

- Reliability
- Availability
- Usability

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# Future Biometric Needs

## LIVENESS

- **In August 2016 wanted subject Shaun "Shizz" Miller was arrested in Boston area.**
- **Subject paid about $2000 for the mask.**

https://www.washingtonpost.com/news/morning-mix/wp/2016/08/21/fugitive-nearly-evades-police-using-hollywood-quality-disguise/

# Future Biometric Needs

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# Future Biometric Needs

- **IRIS at a Distance for Investigations**
- **DNA comparison for Identical twins at a low cost (4 per 1000 births or estimated 29-38 million people worldwide may share similar DNA)**
- **Algorithms for white light IRIS that work backwards to traditional IRIS**
- **Contactless Fingerprints**
- **Increase the reliability of DNA Phenotyping for face recognition**

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# Key Takeaways

- Biometrics and the IOT
- Liveness Detection
- Multimodal Devices at a Distance
- DHS Standard for Software/Hardware
- Small Screen and Big Screen Working Together
- All Operating Systems (Windows, iOS, Android)
- Robust SDK

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**“The truth is, that a life of dishonesty may pay at first when you are not known to the police, but when an offender once falls into the hands of the ever-watchful police he begins to be a well-known customer.”**
**Harry Houdini**

*The Right Way to Do Wrong: An Exposé of Successful Criminals*. 1906. Reprint. London: Forgotten Books, 2013. 9-10. Print.

# Questions?

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