Evaluation of Latent Fingerprint Technologies 2007 (ELFT07)

AFIS Committee Meeting

IAI

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Sponsors

This work is sponsored by the
Department of Homeland Security,
Science and Technology Directorate
(S & T).
We would like to expressly thank Bert
Coursey of that organization

NIST's Interest in Biometrics

- A core component of NIST's mission is the assessment of technology, establishment of metrics, and the setting of standards
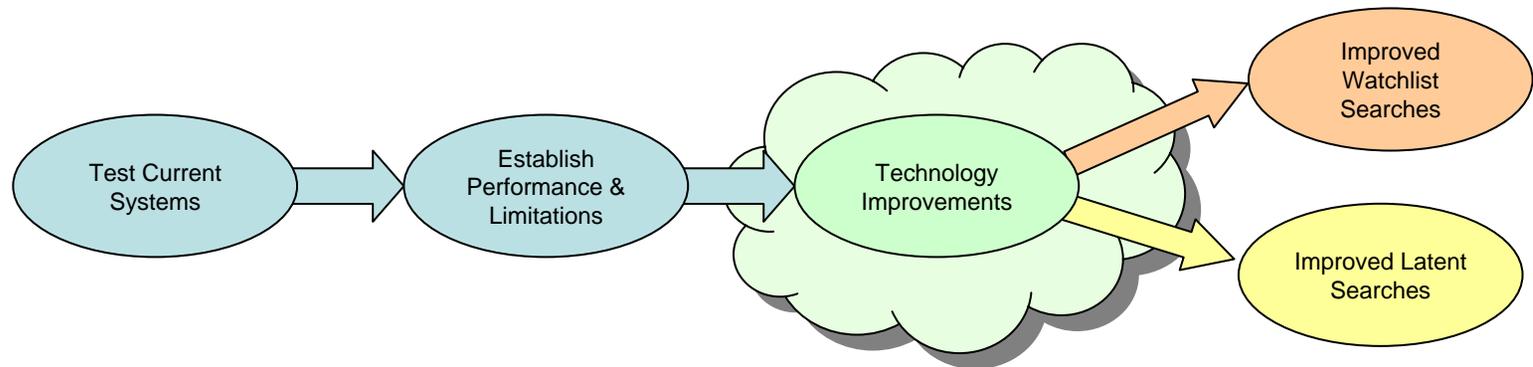
USA Patriot Act

- The USA Patriot Act specifically mandated that NIST develop and certify a standard for verifying the identity of persons applying for a visa or seeking to enter the United States, and that NIST provide technical support to the Attorney General and Secretary of State in evaluation of biometric identification systems for Entry and Exit Data System for U.S. borders.

- Since that time, other agencies, including the U. S. Department of Homeland Security (DHS), Federal Bureau of Investigation (FBI), and the U. S. Dept. of Justice (DOJ), have sought technical guidance from NIST in several evaluations of biometric systems which may be considered for homeland security

Overall Project Goals

Test Current Systems → Establish Performance & Limitations → Technology Improvements → Improved Watchlist Searches / Improved Latent Searches

Extending SDK Testing to Latents

- Like to extend performance testing to latent fingerprints
- Make tests as automated as possible
  - Simplify testing logistics
  - Protect vendor proprietary data
  - Protect Data
  - Decouple the performance of the automated system from the performance of latent examiners to the greatest degree possible
- These requirements suggest
  - SDK (= Software Development Kit)
  - "Lights-out" testing

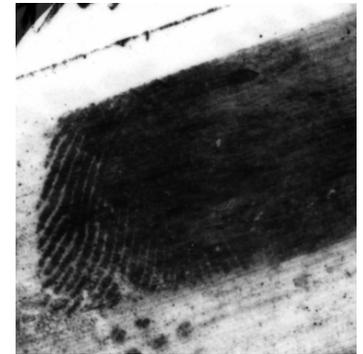# Representative Latent Fingerprints

Excellent
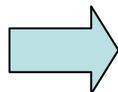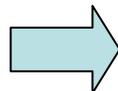

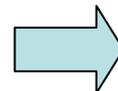Good

Bad

Ugly

Unusable

Schematic of ELFT-2007

**Publish
Concept of Operations
(CONOPS)
and Software API.
Create and maintain
Website.**

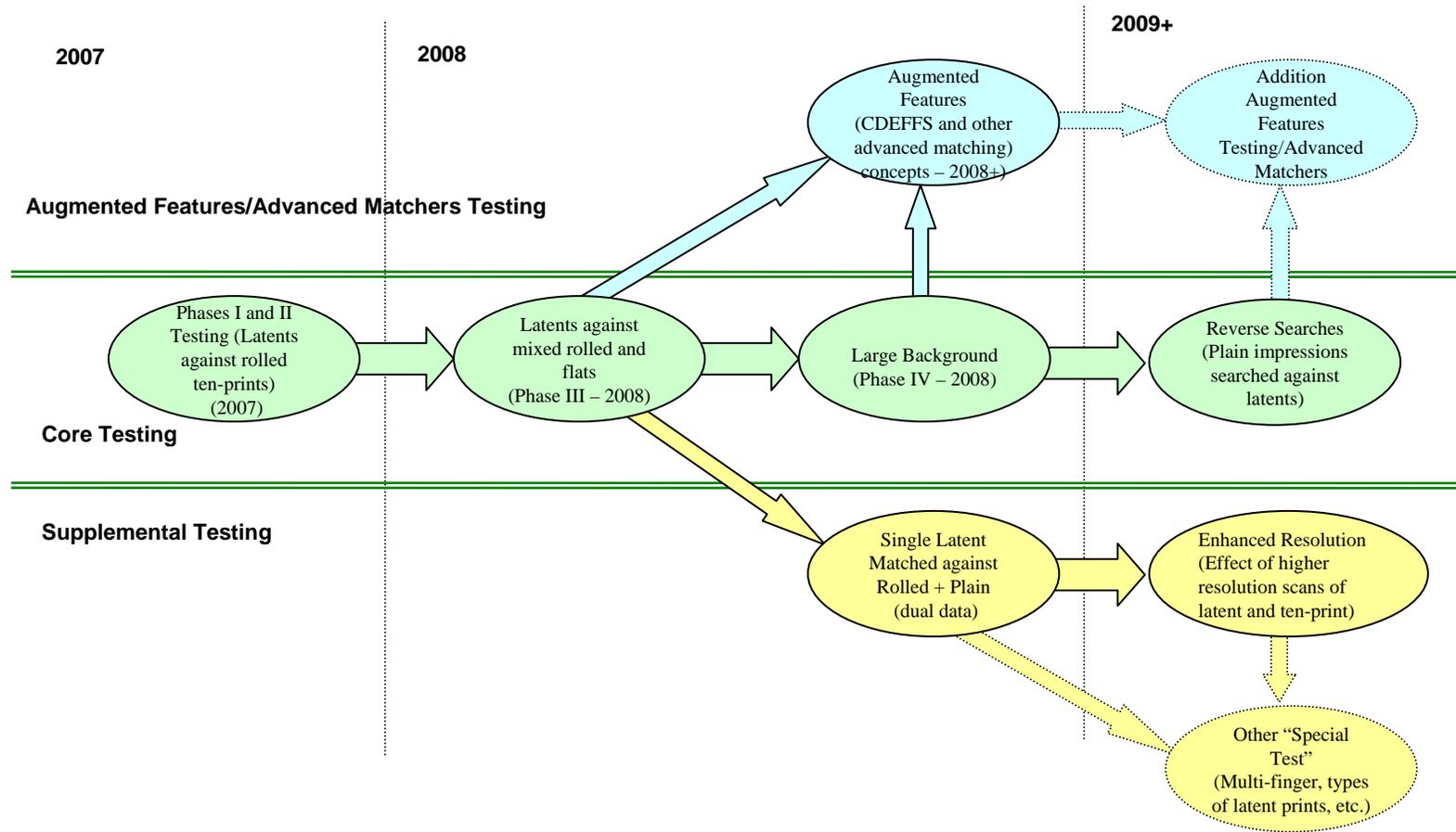**Create/Compile
Latent Test Sets**

**Phases I and II Tests --
Execute submitted
Software (SDK)
using NIST Computers and
Test Sets.**

**Analyze Data.
Conduct Follow-up
Workshop.
Present results.
Discuss future
Work.**

ELFT in Outyears (2008+)

2009+

2007

2008

Augmented Features/Advanced Matchers Testing

Augmented Features (CDEFFS and other advanced matching) concepts – 2008+)

Addition Augmented Features Testing/Advanced Matchers

Core Testing

Phases I and II Testing (Latents against rolled ten-prints) (2007)

Latents against mixed rolled and flats (Phase III – 2008)

Large Background (Phase IV – 2008)

Reverse Searches (Plain impressions searched against latents)

Supplemental Testing

Single Latent Matched against Rolled + Plain (dual data)

Enhanced Resolution (Effect of higher resolution scans of latent and ten-print)

Other "Special Test" (Multi-finger, types of latent prints, etc.)

- **Contributors/Team**
  - **Mike Garris**
  - **Patrick Grother**
  - **Mike Indovina**
  - **Craig Watson**
  - **Stephen Wood**

Addition Information

- Fingerprints ➔ http://fingerprint.nist.gov/
- ELFT ➔ http://fingerprint.nist.gov/latent/elft07/
- Workshop ➔ http://www.itl.nist.gov/iad/894.03/latent/index.html
- vdvorny@nist.gov