



## Homeland Security

September 16, 2010

Rachel Gozhansky  
EPIC.org  
1718 Connecticut Ave NW, Suite 200  
Washington, DC 20009

**Re: DHS/MGMT 10-202/Gozhansky**

Dear Ms. Gozhansky:

This is the final response to your Freedom of Information Act (FOIA) request to the Privacy Office, dated June 15, 2010, and seeking records related to biometrics produced in response to HSPD 24. While processing your request, the Privacy Office located records that fall under the purview of the Department of Homeland Security (DHS) Management Directorate. Accordingly, your request and several pages of responsive records were referred to this office for processing and direct response to you. Your request was received in this office on July 13, 2010.

A search of the Office for Procurement Operations for documents responsive to your request produced a total of 64 pages. Of those pages, I have determined that all 64 pages are partially releasable, pursuant to Title 5 U.S.C. § 552 (b)(2)(high), (b)(4), and (b)(6).

Enclosed are 64 pages with certain information withheld as described below.

You have a right to appeal the above withholding determination. Should you wish to do so, you must send your appeal and a copy of this letter, within 60 days of the date of this letter, to: Associate General Counsel (General Law), U.S. Department of Homeland Security, Washington, D.C. 20528, following the procedures outlined in the DHS regulations at 6 C.F.R. § 5.9. Your envelope and letter should be marked "FOIA Appeal." Copies of the FOIA and DHS regulations are available at [www.dhs.gov/foia](http://www.dhs.gov/foia).

The Office of Government Information Services (OGIS) also mediates disputes between FOIA requesters and Federal agencies as a non-exclusive alternative to litigation. If you are requesting access to your own records (which is considered a Privacy Act request), you should know that OGIS does not have the authority to handle requests made under the Privacy Act of 1974. If you wish to contact OGIS, you may email them at [ogis@nara.gov](mailto:ogis@nara.gov) or call 1-877-684-6448.

Provisions of the FOIA allow us to recover part of the cost of complying with your request. In this instance, because the cost is below the \$14 minimum, there is no charge. 6 CFR § 5.11(d)(4).

If you have any questions regarding this matter, you may contact me at (202) 447-3106 or via email: [foia.mgmt@dhs.gov](mailto:foia.mgmt@dhs.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Dorgan", with a long horizontal flourish extending to the right.

Mark Dorgan  
FOIA Officer

Enclosures: Responsive Documents for release



**Statement of Work for Human Factors Program**  
**U.S. Department of Homeland Security**  
**Science and Technology Directorate**  
*Test & Evaluation/Standards*

**PR No. RSTS-09-00019**

## **Background / Overview**

The U.S. Department of Homeland Security (DHS) is committed to using cutting-edge technologies and scientific talent in its quest to make America safer. The DHS Science and Technology Directorate (S&T) is tasked with researching and organizing the scientific, engineering, and technological resources of the United States and leveraging these existing resources into technological tools to help protect the homeland. The *Human Factors Program* supports this effort.

This program focuses on standards related to explosives detection, including standards for detectors and protective equipment, body scanning systems, and cargo scanning.

### **TASK I: (b) (6)**

#### **I. Scope of Work**

**(b) (6)** will lead the following tasks described in the SOW:

**1. Summary of capability resulting from execution of the work specified in this deliverable:** Our goals for this work are (i) enhanced performance for fingerprint searches of known and unknown subjects in federal, state, and local repositories (e.g. terror watch-lists, and criminal master files); (ii) a standard for the creation and interchange of enhanced latent fingerprint and palmprint feature sets; (iii) novel work-flow optimization methods for latent fingerprint examiners; and (iv) reduced reliance on latent fingerprint examiners. All major FY09 funding outputs and deliverables are discussed below, along with the expected "downstream" results of this work (i.e. post FY09 results) occurring over the life of the program.

#### **Standards Development and Technical Report**

The major FY09 funding deliverable – as referenced in the sixth row – is technical report *Analysis of Latent Fingerprint Matcher Performance* which ultimately informs the creation of the standards development effort, referenced in the first row of the table. The technical report will document the results of a test and evaluation effort we conduct using state-of-the-art latent fingerprint matchers. The technical report informs the standardization effort by (a) rigorous testing of its usefulness for enhancing matcher performance, and (b) providing critical technical feedback and recommendations to the standards specification process. The standards development effort (major deliverable #2, in out year FY10) *ANSI Data Format for the*

***Interchange of Extended Fingerprint and Palmprint Features (An Addendum to ANSI/NIST-ITL 1-2007 Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information)***, is currently a working draft of the ANSI/NIST CDEFFS committee. It improves and expands upon the current ANSI/NIST – ITL 1-2007 standard – which forms the basis of those used by DHS, FBI, Interpol, and many others – by defining a broader and more complete set of features along with methods for obtaining and exchanging those features. The standard was initiated in response to a technological gap existing in contemporary biometric systems that limits their performance and interoperability by failing to provide an adequately defined set of features beyond simple “minutiae.” This technology gap may result in missed identifications and “false alarms” in many identification scenarios, as well as limiting cross-system and cross-jurisdictional exchange of fingerprint and palmprint feature information. In addition, a standardized system does not currently exist which enables one fingerprint examiner to communicate feature correspondence (i.e. which features they believe to be shared between two prints) to another examiner, or simply as a matter of record.

In addition, as it is recognized that fully automated “lights-out” latent fingerprint matchers are complementary to human examiner based systems, therefore their successful deployment will require image-quality-based classification methods for deciding when to use them. In general, image quality metrics for latent fingerprints are not available, as they are for non-latent fingerprints (e.g. live-scan device captured “plain” prints). Effective image quality metrics permit capabilities such as (a) elimination of “bad” prints from databases or watch-lists (i.e. those which cannot be matched; or generate “false-alarms”), and (b) quality directed “level-of-effort” processing (e.g. performing additional processing where needed, widening the search space, selecting additional features, etc.). Because currently no quality metrics exist for latent fingerprints, we intend to assist in closing this technological gap by providing critical test data in support of latent fingerprint quality efforts, as proposed to DHS under the separate fingerprint quality program. The data will come from the outputs of the testing and evaluation efforts mentioned above.

Ultimately, our goal is to advance the state of the art in fingerprint and palmprint identification systems by addressing these technological gaps through our testing and standardization efforts. This end result is faster and more accurate identification of KST (Known and Suspected Terrorists), which is a critical component of the nation’s homeland security infrastructure.

### **Guidance Document**

Based on lessons learned over the lifecycle of the NIST latent program, as well as those learned during the new test and evaluation effort proposed above, we intend to publish a guidance document as a contribution towards future standardization with ***Latent Fingerprint Matcher Testing Interfaces and Methods***, as referenced in the fifth row. This guideline will inform efforts by ISO JTC 1/SC 37 working group 5 to standardize biometric testing interfaces (e.g. standard testing APIs) by rigorous examination of latent fingerprint testing interfaces used by NIST and their usefulness for evaluating the performance of latent fingerprint identification systems.



## **Reference data**

A critical input to the testing and development process is standard reference data. Our deliverable – referenced in the fourth row – ***Latent Fingerprint and Enhanced Feature Standard Reference Set***, is a by-product of conducting the test and evaluations mentioned above during the period of performance and previous tests. Through analysis of test results, we intend to isolate the images which are problematic to either of the primary search modalities (image-only or image-with-features). By creating a standard reference consisting of images and features we can provide critical feedback to matcher developers by (a) highlighting areas of technological weakness, and (b) providing a “ground truthed” set of features which are compliant with the standard discussed above.

## **Major Deliverables/Outcomes**

- Test Method
- Test & Evaluation Protocol
- Reference Material, Data; Test Article  
***Latent Fingerprint and Enhanced Feature Standard Reference Set***
- Guide, Guidance Document  
***Latent Fingerprint Testing Interfaces and Methods***
- Technical Report, supporting development of standard, test method, etc.  
***Report: Analysis of Latent Fingerprint Matcher Performance***

## **2. Requirements:**

### **a. Statement of need:**

The requirement exists to *increase* the speed and accuracy of latent fingerprint based identifications; *decrease* reliance on human experts, and *share* data across agency and system boundaries. Agencies charged with homeland security employ watch-lists populated with data coming from varied sources. Existing systems rely heavily on human fingerprint examiners using proprietary systems, which ultimately limits their throughput, accuracy, and interoperability – due to manual processing and deficiencies of current standards. Optimization of examiner workload by image quality-directed selection of appropriate image-only (“lights-out”) or image-with-features (manual) processing (in the latter case standardized enhanced features are used) will enable processing of much larger volumes of latent fingerprints, and with greater accuracy. In addition, standardized enhanced feature markup will lead to easier sharing of information between cooperating agencies, reducing system/examiner biases and removing the need to re-encode features from system to system.

### **b. Source of requirement:**

The need to more fully investigate latent fingerprint technology applied to the identification of KST (Known and Suspected Terrorists) was specifically pointed out by Secretary M. Chertoff. In addition the current project addresses the following DHS Capability Gaps:

- PS-01 — Real-time, positive verification of an individual's identity using multiple biometrics
- PS-02 — Improved biometrics matching algorithm and hardware
- PS-06 — Mobile biometrics screening capabilities

In addition to the above (primary relevance Gaps) the following gaps also have relevance: CS-011, CS-025, BS-003A, BS-006, PS-05 (secondary relevance).

This work also supports the T&E and Standards Division Program, *Latent Fingerprint Analysis*. SR-09.

3. **Justification and assumptions:** This work is essential for homeland security and criminal justice by addressing critical technological deficiencies of current latent fingerprint identification systems -- the FBI estimates only 3% of latent searches lead to identifications, and a detection rate of 62% where known "mate" prints exist (this is with respect to the FBI IAFIS system). The failure to adequately identify terrorists or other undesirable elements, and inability to share biometric information (e.g. "connecting the dots") -- for the reasons outlined in the previous section above -- have potentially catastrophic consequences.

Of course it is not feasible to complete a project of this scope in a single year. During calendar year 2008 we successfully demonstrated the viability of ELFT framework "lights out" latent matching with operational data. During FY09 we plan to conduct more detailed and intensive testing. This will allow NIST to communicate critical information to the latent community, which in turn will result in algorithmic and software improvements. In addition the project is bifurcating into two branches: "lights out" and extended feature sets. The latter branch addresses current operational ("lights on") technology gaps, with a focus on near term standardization. This effort will be expanded in out-years, when new aspects to the project will be added such as standardization of latent fingerprint matcher performance testing interfaces and methods.

4. **Users of the capability resulting from execution of the work specified in this plan and user engagement in this planning process:** The stakeholders of this project include a significant number of Government agencies, including DHS, DoJ (including FBI), DoD, and DoS. The project is also of significant interest to the greater law-enforcement community. International Association for Identification (IAI), and AFIS vendors.

This project engages and coordinates with the latent community via a number of communication channels, including regularly scheduled government meetings such as US-VISIT/IDENT, IAI AFIS committee, NIST-sponsored workshops, and the through official standards bodies such as ANSI and ISO.

## 5. Plan to achieve this deliverable:

- a. Conceptual and technical approach to be used in executing this work:  
There are four steps involved: 1) understanding the needs of the latent community and the challenges in latent fingerprint identifications; 2) assessing the current state of the art, with an emphasis on discovering the weaknesses; 3) analyzing the weaknesses and presenting these to the community in a form best suited for rapid technology improvements; and 4) providing and refining standards.
- b. NIST maintains strong communication with DHS/US-VISIT, FBI/CJIS, a large AFIS vendor base, IAI, and academia.
- c. This project leverages NIST experiences in other evaluation efforts, particularly MINEX (Minutiae Interoperability Exchange Test), PFT (Proprietary Fingerprint Template Matcher Test), and Biometric Image Quality Standards.

6. **Metric(s) of success:** Successful development of a measurement service with the needed data available to the customers of the materials from commercial and government repositories.

NIST will monitor performance of industry software through periodic evaluation and testing to chart reduction of error rates over time. Feedback on testing and evaluation programs will be solicited from stakeholders through NIST sponsored workshops. Performance increases due to inclusion of new feature or algorithms will be noted. NIST will continue to increase the size and integrity of its sequestered latent fingerprint and palmprint testing corpus.

## II. Background

### 1. List of milestones

FY 09 Description	Milestone	FY09 Major Milestone Dates (months after receipt of funding)											
		1	2	3	4	5	6	7	8	9	10	11	12
Milestone 1 — Technical comments provided to CDEFFS, the ANSI/NIST Committee to Define an Extended Fingerprint Feature Set, authors of <i>ANSI Data Format for the Interchange of Extended Fingerprint and Palmprint Features (working draft)</i>									X				
Milestone 2 — Working draft (0.5) of <i>ANSI Data</i>													X



<i>Format for the Interchange of Extended Fingerprint and Palmprint Features</i>													
Milestone 3 — Receipt of Latent Matcher Software			X										
Milestone 4 — Completion of Testing and Evaluation of Latent Matcher Software						X							

## 2. List of Deliverables

FY09 Description	Deliverable	FY09 Major Deliverable Dates (months after receipt of funding)											
		1	2	3	4	5	6	7	8	9	10	11	12
Deliverable 1 — Report: Analysis of Latent Fingerprint Matcher Performance										X			
Deliverable 2 — Reference data: Latent Fingerprint and Enhanced Feature Standard Reference Set													X
Deliverable 3 — Guidelines for Latent Fingerprint Testing Interfaces and Methods				X									

## III. Other Details

1. Period of performance. The period of performance for the FY09 funding will be 12 months from the date of award. The entire effort may have an agreement for up to five years, with annual incremental funding for subsequent periods of 12 months, based on an assessment conducted each year. DHS may give notices in writing to modify the period of performance, scope or other aspects of the project as required.
2. Travel. Travel may be required in the performance of the duties listed herein. It is anticipated that travel will be limited to CONUS. The DHS S&T Technical Representative must approve all additional travel. If foreign travel is required, the DHS S&T Technical Representative and the DHS S&T Special Assistant for International Policy must approve all foreign travel in advance.

- a. Will foreign travel be required to execute this project?

\_\_\_\_\_ Yes                        X   No                      (Check one)

b. If yes, indicate approximate dates and countries which will be visited.

3. Travel cost estimate. Provide estimates of travel costs associated, including foreign and domestic travel in Section IV.

4. Equipment Procurement: Procurement of any individual equipment item required supporting technical tasks outlined in this proposal equal to or exceeding \$50,000 must be approved in advance by the DHS S&T Technical Representative. The DHS S&T Technical Representative may lower or raise the aforementioned \$50,000 threshold at his/her discretion and on written notice to the performer. If the DHS S&T Technical Representative consents to such purchase, such item shall become the property of DHS. The performer will maintain any such items according to currently existing property accountability procedures. The DHS S&T Technical Representative will determine the final disposition of any such items at the end of the period of performance of this project.

a. Is it anticipated that any individual equipment items equal to or exceeding \$50,000 will be procured for this effort?

\_\_\_\_\_ Yes                        X   No                      (Check one)

b. If yes, list the item and estimated cost, and quarter in which it will be procured in the tables below, the first for this year's funding and the second for projected out year procurements.

Projected Equipment Procurement for Items Equal to or Exceeding \$50K	1Q FY09 (\$K)	2Q FY09 (\$K)	3Q FY09 (\$K)	4Q FY09 (\$K)
Equipment Item 1				
Equipment Item 2				
Totals				
Out Year Equipment Procurement >\$50K	FY10	FY11	FY12	FY13
Out Year Equipment Item				
Out Year Equipment Item				
Totals for Out Year Equipment Items				

#### IV. Cost

##### 1. Time Phased Cost Estimate by Deliverable.

Time Phased Cost Estimate per Deliverable	1Q FY09 (SK)	2Q FY09 (SK)	3Q FY09 (SK)	4Q FY09 (SK)
FY09 Deliverable 1 — Report: <i>Analysis of Latent Fingerprint Matcher Performance</i>		\$50K	\$150K	
FY09 Deliverable 2 — Reference data: <i>Latent Fingerprint and Enhanced Feature Standard Reference Set</i>				\$25K
FY09 Deliverable 3 — Guidelines for <i>Latent Fingerprint Testing Interfaces and Methods</i>	\$75K			
Totals	\$75K	\$50K	\$150K	\$25K

##### 2. Time Phased Cost Estimate by Category of Expenditure:

Time Period	Labor (SK)	Equipment (SK)	Travel (SK)	Total (SK)
FY09 Q1	\$75K			
FY09 Q2	\$50K			
FY09 Q3	\$150K			
FY09 Q4	\$25K			
FY09 Totals	\$300K			

Financial data, as reflected through organization financial reports, will be reported on monthly basis to DHS and incorporated into the DHS project management system.

#### TASK II: (b) (6)

##### I. Scope of Work

(b) (6) will lead the following tasks described in the SOW:

**1. Summary of capability resulting from execution of the work specified in this deliverable:** The work is directed at standards in four related domains: interoperable biometric data, conformance testing methodology for data formats, multimodal and



multisystem fusion, and biometric data quality. The main thrust of the proposed work is contribution to biometric standards in four areas:

- Toward the biometric data interchange standard, ISO/IEC 19794, many parts of which are now under active revision (iris, face, finger), and to which new parts are under development (speaker, DNA). There is an increasing interest within USG in deploying iris recognition technology (US-VISIT Exit program, PIV and FBI-NGI) as well as voice particularly due to its ease of use.
  - On the multipart biometric sample quality standard, ISO/IEC 29794, parts 1 (framework), 4 (finger) and 5 (face) now near completion and initiation of a new part (iris) is anticipated in July 2009. Specifically, WG3 has invited US to submit a new work item proposal to start ISO/IEC 29794 Biometric Sample Quality - Part 6: iris quality as a standard (as opposed to technical report). NIST is anticipated to be the editor of iris image quality standard. The focus in FY09 would be on iris quality, and minutia quality in FY10-13.

Quality measurement algorithms are increasingly deployed in operational biometric systems: US-VISIT, PIV, and EU VIS. Each mandate the measurement and reporting of quality scores of captured images. This standard facilitates the exchange of biometric quality scores in order to ensure quality measurement fulfills its roles in improving biometric system accuracy and efficiency during the capture process (as a control-loop variable to initiate reacquisition), in database maintenance (sample update), in enterprise wide quality-assurance surveying, and in invocation of quality-directed processing of samples.

- To support the biometric testing methodology ISO/IEC 29109 for the biometric interchange format as defined in ISO/IEC 19794. While conformance testing of the syntactic requirements of a biometric record is relatively straightforward and is being formulated in the multipart 29109 standard, no semantic conformance testing has yet been developed. Semantic conformance testing is to verify if the biometric record is a faithful representation of the input image. It is particularly important for applications like PIV to test if a minutia record is an accurate representation of the input finger image in its syntax (i.e. all the required fields exist and their value are internally consistent) and in its content (i.e. the encoded minutia are true minutia and not false minutia). Otherwise, performance and interoperability would be degraded. The Major focus in FY09 would be on defining conformance testing methodologies for syntax and format of biometric records defined in ISO/IEC 19794 parts 2(minutia data), 4(finger image), 5(face image), and 6(iris image) and examining semantic conformance testing of part 2 (minutia data). Study semantic conformance test of iris and face is anticipated in FY 11-13.
- To support the multi-part standard ISO/IEC 29159 Biometric Calibration, Augmentation and Fusion Data. ISO/IEC 29159-1 aims at standardization of

interoperable cross-supplier multimodal and multi-algorithm fusion. The number of very large-scale identity management systems (FBI, US VISIT, UK IPS, EU Passport) requiring multimodal biometric enrollment is rapidly increasing. Within USG alone, systems such as FBI / IAFIS, DHS / IDENT, and DOD / ABIS collect some combination of finger, face, and iris, but these systems are currently limited in their ability to intelligently exploit these multiple biometrics. Very large Federal procurements are in the works (such as FBI / NGI) to expand multimodal capabilities, and as a result there is an immediate and growing need to fill an existing gap in technical knowledge and standards. Further, to improve interoperability of quality and/or comparison scores and facilitate fusion, this project will develop methodology and framework for quality score and comparison score calibration. Calibration provides context to the raw scores by relating the raw scores to performance (or recognition errors). Development of quality score calibration framework is planned for FY09, initiating a new part of ISO/IEC 29159 on quality calibration in FY10. ISO standards efforts generally take three to five years for completion.

The work will involve: production of content and technical contribution and comments towards standard drafts; advocacy for those comments at US Technical Advisory Group (TAG), M1 and JTC 1 SC37, perform studies and experiments such as IREX aiming at developing and assembling content for the above mentioned standards.

The major outcome of this effort will be clear, robust, tested, sufficient and implementable Biometric Data Exchange Format, Biometric Sample Quality, and Conformance Testing Methodologies standards that reflect the operational needs of U.S. government, particularly DHS US VISIT, TSA registered traveler program, Registered Traveler program, PIV and international e-passport. This project will also develop open source reference implementation, standard reference dataset(s) and technical reports/guidance.

#### **Major Deliverables/Outcomes**

- Standard or Specification
- Test Method
- Test & Evaluation Protocol
- Reference Material, Data; Test Article
- Guide, Guidance Document
- Technical Report, supporting development of standard, test method, etc
- Input into Conformity Assessment/Certification/Evaluation Program
- Other (describe) Evaluation of performance of quality assessment algorithms (finger, face, iris, latent) (Final report)

#### **2. Requirements:**

This project supports a broad number of National requirements. The Office of Science and Technology Policy and the Executive Office have identified the need for research on:

- *"Biometrics. Rapid, reliable and accurate biometric-based recognition of individuals is necessary for successful homeland security, counterterrorism, border control, law enforcement, e-commerce and e-government, and identity theft prevention. As directed by the National Security Council's Deputies Committee, agencies are to place emphasis on the priorities outlined in The National Biometrics Challenge and the resulting agenda developed by the NSTC Subcommittee on Biometrics and Identity Management. This will advance systems, methods and tools to achieve real-time, verifiable, interoperable, and privacy-protecting root identification."* (The Joint OMB/OSTP Priorities Memo)

DHS's *Homeland Security Component need – Human Factor Division* document has identified the following gaps:

- People Screening IPT
  - PS-01: Real-time, positive verification of an individual's identity utilizing multiple biometrics. Multimodal biometrics technologies, protocols, standards, and methods for rapidly identifying and tracking known threats and other personnel. Used in conjunction with biographical data, these will provide more accurate and timely identity verification.
  - PS-02: Improved biometrics matching algorithms and hardware. 2 to 3 orders of magnitude enhancement of biometric search and verification capabilities to enable real-time services with large search population.
- Border Security
  - BS-006: Processing enhancements to increase probability of detection and track accuracy while decreasing probability of false alarms.
- Information Sharing
  - IS-008: Technologies, standards, and policies to manage identities, rights, and authorities used in an organization's networks in a highly scalable manner and establish interoperability with multiple, external identity adjudication support systems.

a. Statement of need:

This effort also supports requirement by Border Security IPT for processing enhancements to increase probability of detection and track accuracy while decreasing probability of false alarms. US-VISIT, PIV specification, FBI EBTS all mandate quality assessment and exchange. And have expressed need for achieving interoperability of quality scores with DHS and other government agencies. Deploying iris recognition technology is rapidly gaining acceptance and support in government identity management applications including smart card based applications where



storage is limited and therefore there is a need for a robust, sufficient, and clear Iris data interchange record standard and iris quality standard.

**b. Source of requirement:**

1. The National Biometrics Challenge NSTC, The Executive Office of the President of the United States, August 2006  
<http://ostp.gov/nstc/html/Biometrics%20Challenge%20Document.pdf>
2. USG Policy for Use, Development and Adoption of Biometric Standards (NSTC Subcommittee on Biometrics and Identity Management Standards and Conformity Assessment) August 2007  
[http://www.biometrics.gov/standards/NSTC\\_Policy\\_Bio\\_Standards.pdf](http://www.biometrics.gov/standards/NSTC_Policy_Bio_Standards.pdf)
3. Joint OMB/OSTP Priorities Memo August 14, 2007  
<http://www.ostp.gov/html/FY2009FINALOMB-OSTPRDPriorityMemo.pdf>
4. June 2008 DHS High-Priority Technology Needs (Version 2.0)  
[http://www.dhs.gov/xlibrary/assets/High\\_Priority\\_Technology\\_Needs.pdf](http://www.dhs.gov/xlibrary/assets/High_Priority_Technology_Needs.pdf)
5. DHS S&T People Screening IPTs (as reported in 2007)

3. **Justification and assumptions:** Without interoperable biometric data standards, exchange of biometric data inside DHS, across the USG, and internationally is not possible. Seamless data sharing is essential to Identity Management application when enrollment, capture, searching and screening are done by different agencies, at different times, using different equipment in different environments and/or locations. Neglecting quality measurement will adversely impact accuracy and efficiency of biometric recognition systems (e.g. verification and identification of individuals). Measuring and reporting quality allows processing enhancements to increase probability of detection and track accuracy while decreasing probability of false alarms. The number of very large-scale identity management systems (FBI, US VISIT, UK IPS, EU Passport) requiring multimodal biometric enrollment, is rapidly growing, but these systems are currently limited in their ability to optimally exploit these multiple biometrics. This effort addresses the existing gap in technical knowledge and standards for intelligent fusion of multi-biometrics.

4. **Users of the capability resulting from execution of the work specified in this plan and user engagement in this planning process:** Users of the data format and image quality standards include: Government agencies deploying biometric applications e.g. DHS (TSA, USV, ICE, FAMS, Coast Guard, CBP, OCIO), FBI, DOS, DOD, NCTC PIV, EU national ID cards, international e-passports, and the private sector e.g. integrators, developers, and consumers of biometric applications. To ensure user community engagement in the process, workshops either formal or informal will be convened as appropriate. This might also be done in the context of scheduled standards working group meetings.

**5. Plan to achieve this deliverable:**

**d. Conceptual and technical approach**

- **Serve in, at least, the M1.3, M1.5 and JTC 1 SC 37 WG3 and WG5 standards committees.** This will involve participation in the iterative develop-comment-voting-revision standards-making process by developing content, submitting and advancing comments, identify gaps and outreach. Currently NIST personnel are serving as editor of face image data exchange format, finger image quality, face image quality, fusion, conformance testing of finger image, conformance testing of face image, and performance testing standards.
- **Test performance, interoperability of the standard**
  - **Quality Calibration:** In collaboration with industry, develop quality calibration utility that aims at quality score interpretation and interoperability by relating quality scores to performance in terms of false match rate and false non-match rate. This work is continuation of FY08 effort. In FY09, the applicability of the methodology developed in FY08 for fingerprint would be tested for face and/or iris. Ultimately, the work would be submitted to SC 37 WG3 as a base document for a new part of ISO/IEC 29159. ISO standardization efforts will generally take 3-5 years.
  - **Quality Evaluation:** Quality calibration lends itself to evaluation since calibration is performed by relating quality scores to performance. This project will publish test protocol for evaluating performance of biometric quality measures. Such test protocol should be modality independent. The work would be submitted to SC 37 WG5 in FY10-13.
  - **Iris Quality:** Perform iris covariate study to identify the likely effect of various subject/image covariates on performance in terms of false match rate, false non-match rate, failure to enroll and failure to acquire. Submit a new work item proposal along with a base draft document for ISO/IEC 29794 Biometric Sample Quality – Part 6: Iris image for WG 3 meeting in July 2009. The goal of this standard is to define normative requirement on softwares assessing utility of iris images. Following a test-driven standardization model like IREX, perform studies and experiments to develop content for this standard in FY 10-13. ISO standardization efforts will generally take 3-5 years.
  - **Minutia Quality:** Study the effect of minutia misplacement and false minutia detection on performance, with the goal of addressing semantic conformance testing of ISO minutia record. In collaboration with industry, investigate the utility of minutia quality, particularly for smart-card based applications like PIV. This multi-year effort supports ISO/IEC 19794-2 and ISO/IEC 29109-2.
  - **Extend NIST's existing implementations of standards, publish reference open-source software.**

**e. Participants**

This effort will be likely conducted entirely by NIST personnel, but may include support contractors if required.

NIST maintains strong communication with DHS US-VISIT, FBI/CJIS, and DoD BTF.

Will work with corporate members active in M1 and SC 37 in standard development.

f. Related efforts at NIST or other laboratories:

- NIST has developed ANSI/NIST ITL:2007 data format exchange standard. Previously, work in M1 and SC37 (face, iris) has been migrated into the ANSI/NIST standard, and this is expected to continue.
- NIST has developed NFIQ in 2004 that is yet the only publicly available quality assessment tool and has been widely deployed (FBI EBTS, PIV, etc) and used by research community.
- NIST conducted an evaluation of DoD face and finger quality assessment tools.
- NIST has performed many large-scale testing evaluating performance of finger/face/iris/latent comparison algorithms.
- Currently NIST personnel are serving as editor of face image data exchange format, finger image quality, face image quality, fusion, conformance testing of finger image, conformance testing of face image, and performance testing standards.

6. Metric(s) of success:

1. Progression of

- ISO/IEC 29794 Biometric Sample Quality parts 1(Framework), 4(Finger Image), and 5(Face Image), and 6(iris image) (publication of parts 1,4, and 5 in FY09)
  - ISO/IEC 19794 (revision) Data Interchange Format, parts 2,4,5,6,13.14 minutiae, finger image, face, iris, speaker, and DNA,
  - ISO/IEC 29109 Conformance Testing Methodologies, parts 1,2,4,5,6,13.14 framework, minutiae, finger image, face, iris, speaker, and DNA
  - ISO/IEC 29159 Biometric Calibration, Augmentation and Fusion Data,
2. Technical report on quality calibration,
  3. Technical report on effect of iris image and subject covariate on performance,
  4. Technical report on effect of minute misplacement and false minutia on performance.



## II. Background

### 1. List of milestones

FY 09 Milestone Description	FY09 Major Milestone Dates (months after receipt of funding) assuming funding is received in April – shift by n if receipt of funding is n months after April											
	1	2	3	4	5	6	7	8	9	10	11	12
JTC SC 37 Meetings				X						X		
INCITS M1 Meetings	X		X				X		X			
SC37 Ballot /NWIP (ISO/IEC 29794-6 Iris Quality in April 09) submission		X						X				
Publication of ISO/IEC 29794-1,4,5												X

### 2. List of Deliverables

FY09 Deliverable Description	FY09 Major Deliverable Dates (months after receipt of funding) assuming funding is received in April – shift by n if receipt of funding is n months after April											
	1	2	3	4	5	6	7	8	9	10	11	12
Base Document ISO/IEC 29794-6	X											
Technical contribution/comments towards ISO/IEC 29794-x (framework, finger, face, iris)		X				X		X				
Technical contribution/comments towards revision of ISO/IEC 19794-x (minutia, finger, face, iris, speaker, DNA)		X				X		X				
Technical contribution/comments towards ISO/IEC 29109-x (minutia, finger, face, iris,		X				X		X				

speaker, DNA)												
Technical contribution/comments towards ISO/IEC 29159-x (fusion)		X				X		X				
Technical Report on Quality Calibration												X
Technical Report on effect of iris image and subject covariate on performance									X			
Technical report on effect of minute misplacement and false minutia on performance.												X
Test protocol + metric for quality evaluation												X

### III. Other Details

1. **Period of performance.** The period of performance for the FY09 funding will be 12 months from the date of award. The entire effort may have an agreement for up to five years, with annual incremental funding for subsequent periods of 12 months, based on an assessment conducted each year. DHS may give notices in writing to modify the period of performance, scope or other aspects of the project as required.

2. **Travel.** Travel may be required in the performance of the duties listed herein. It is anticipated that travel will be limited to CONUS. The DHS S&T Technical Representative must approve all additional travel. If foreign travel is required, the DHS S&T Technical Representative and the DHS S&T Special Assistant for International Policy must approve all foreign travel in advance.

a. Will foreign travel be required to execute this project?

  X   Yes        No (Check one)

b. If yes, indicate approximate dates and countries which will be visited.

Russian Federation – July 2009  
Malaysia or Singapore January 2010  
Europe 2009

3. **Travel cost estimate.** Provide estimates of travel costs associated, including foreign and domestic travel in Section IV.

4. **Equipment Procurement:** Procurement of any individual equipment item required supporting technical tasks outlined in this proposal equal to or exceeding \$50,000 must be approved in advance by the DHS S&T Technical Representative. The DHS S&T Technical Representative may lower or raise the aforementioned \$50,000 threshold at his/her discretion and on written notice to the performer. If the DHS S&T Technical Representative consents to such purchase, such item shall become the property of DHS. The performer will maintain any such items according to currently existing property accountability procedures. The DHS S&T Technical Representative will determine the final disposition of any such items at the end of the period of performance of this project.

- a. Is it anticipated that any individual equipment items equal to or exceeding \$50,000 will be procured for this effort?

- \_\_\_\_\_ Yes        X   No      (Check one)
- b. If yes, list the item and estimated cost, and quarter in which it will be procured in the tables below, the first for this year's funding and the second for projected out year procurements.

Projected Equipment Procurement for Items Equal to or Exceeding \$50K	1Q FY09 (\$K)	2Q FY09 (\$K)	3Q FY09 (\$K)	4Q FY09 (\$K)
Equipment Item 1				
Equipment Item 2				
Totals				

#### IV. Cost

##### 1. Time Phased Cost Estimate by Deliverable.

Time Phased Cost Estimate per Deliverable	1Q FY09 (\$K)	2Q FY09 (\$K)	3Q FY09 (\$K)	4Q FY09 (\$K)
Base Document ISO/IEC 29794-6	20	0	0	0
Technical contribution/comments towards ISO/IEC 29794-x (framework, finger, face, iris)	22	15	15	15
Technical contribution/comments towards revision of ISO/IEC 19794-x (minutia, finger, face, iris, speaker, DNA)	13	15	15	15

Technical contribution/comments towards ISO/IEC 29109-x (minutia, finger, face, iris, speaker, DNA)	15	15	15	15
Technical contribution/comments towards ISO/IEC 29159-x (fusion)	0	10	10	10
Technical Report on Quality Calibration	10	10	10	10
Technical Report on effect of iris image and subject covariate on performance	15	25	30	25
Technical report on effect of minute misplacement and false minutia on performance.	20	20	20	20
Test protocol + metric for quality evaluation	10	15	10	15
<b>Total</b>	<b>125</b>	<b>125</b>	<b>125</b>	<b>125</b>

2. Time Phased Cost Estimate by Category of Expenditure:

Time Period	Labor (\$K)	Equipment (\$K)	Travel (\$K)	Total (\$K)
FY09 Q1	105	13	7	125
FY09 Q2	110	5	10	125
FY09 Q3	110	7	8	125
FY09 Q4	110	3	12	125
FY09 Totals	435	25	40	500

Financial data, as reflected through organization financial reports, will be reported on monthly basis to DHS and incorporated into the DHS project management system.

**TASK III: (b) (6)**

**I. Scope of Work**

(b) (6) will lead the following tasks described in the SOW:

**1. Summary of capability resulting from execution of the work specified in this deliverable:** A "biometric client" represents the hardware, software, and user interface that collects biometric data (i.e., fingerprint, face photos, iris scans) and prepares it for processing (such as matching). As the system "frontline," it is the bridge between human (operators, subjects), sensors (fingerprint scanners, iris & face cameras), and systems (personal computers, laptops, handhelds).

This proposal represents an evolution of NIST's previous work on the Multimodal Biometric Application Resource Kit (MBARK) —a public domain, open source, biometric client framework. (Although MBARK will still play a key role in this work, it will serve more as an enabling technology than as the sole focus of the work.)

Although MBARK facilitates "plug-and-play" interoperability, it currently requires an operating system which provides the .NET runtime (a runtime is a special form of a software library). Similarly, BioAPI is designed to run within a "C" runtime. Removing this runtime dependency is a difficult, tedious, and often system-specific task. That is, developers typically must use the same programming language and environment that the sensor manufacturer uses. In addition, physical separation of the device from the system used to drive the device requires that developers invent their own communications protocols. A biometric sensor that can communicate over the network might work with one system, but not easily with another.

To date, there exists no standard specifically targeting biometric *sensor* interoperability in a platform-neutral manner. This gap was brought to the attention of ANSI/INCITS M1.2, by the MBARK team, in the winter of 2007. At the meeting, it was identified that an ideal interface would be runtime independent, but there was no external validation that such an interface was even possible. Over a year later, such an interface still does not exist. However, the proposers suspect that the common run-time technology now in place (web services) is mature enough to warrant building a proof-of-concept interface.

An interface that facilitates this sort of plug-and-play capability would allow for a higher degree of interoperability than we have now. To address this gap, we will **design and develop a software interface that would serve as a basis for *platform- and runtime-neutral* biometric sensor interoperability**. We will prove the validity of the interface by developing a system that implements this interface. This reference system could serve as proven guidance, and ultimately, perhaps the basis for the SDO groups that desire this capability.

For example, imagine being able to control the same fingerprint scanner not just from a wide variety of desktop computers, but from a web browser or a mobile device (such as an iPhone). Such an enabling technology could accelerate the adoption of biometrics in mobile identification operations. As long as the biometric sensor supported the common interface, system owners would not be locked in to a particular combination of interface and sensor.

This decoupling of form and function typifies a concept in computer science known as the *separation of concerns*. A sensor vendor does not need to be "concerned" with supporting a



wide variety of operating systems and platforms if there is a neutral interoperability layer. Likewise, system integrators and biometric client developers can target a well-defined interface, not a particular piece of hardware.

#### **Major Deliverables/Outcomes**

- Standard or Specification
- Test Method
- Test & Evaluation Protocol
- Reference Material, Data; Test Article
- Guide, Guidance Document
- Technical Report, supporting development of standard, test method, etc.
- Input into Conformity Assessment/Certification/Evaluation Program

## **2. Requirements:**

This project supports a broad number of National requirements. These can be divided into three broad areas—those identified by DHS directorates, Standards Development Organizations, and priorities of the Executive Office of the President.

#### **DHS Directive Support**

The proposed work directly supports a variety of high-priority gaps identified by DHS S&T in coordination with their partner directorates. The following needs are quoted directly from the latest DHS High-Priority Technology Needs document.

#### **Statements of Need**

1. *"Capability in real time for positive verification of an individual's identity, using multiple biometrics—in particular, face, fingerprint, and iris biometrics (Human Factors Division)"*
2. *"Mobile biometrics screening capabilities, including handheld, ten-fingerprint-capture, environmentally hardened, wireless, and secure devices (Human Factors Division)"*
3. *"Remote, standoff biometrics detection for identifying individuals at a distance (Human Factors Division)"*

#### **Source of Requirements**

**June 2008 DHS High-Priority Technology Needs (Version 2.0)**

[http://www.dhs.gov/xlibrary/assets/High\\_Priority\\_Technology\\_Needs.pdf](http://www.dhs.gov/xlibrary/assets/High_Priority_Technology_Needs.pdf)

#### **DHS S&T People Screening IPT Needs**

The proposed work also directly supports the highest priority gap identified by the DHS S&T People Screening IPTs (as reported in 2007).

### **Statements of Need**

Gap PS-01—"Real-time, positive verification of individual's identity using multiple biometrics." Specifically, this gap seeks to exploit "multimodal biometrics technologies, protocols, standards, and methods for rapidly identifying and tracking known threats and other personnel."

### **ISO/IEC**

The proposed work also supports needs identified by the international standards development community.

*"[...] a reference model for the architecture and operation of biometric systems in order to identify the standards that are needed to support multi-vendor systems and their application."*

### **Source of Requirements**

Standing Document 14-2 (SD 14-2), Draft Roadmap for SC37/WG 2—Biometric Technical Interfaces

The ISO community has also recognized that an implementation-based approach provides critical insight into identifying gaps and building standards.

### **Executive Office of the President (OSTP / NSTC)**

The Executive Office of the President has recently identified, in several key policy documents, the need for the investment in not only biometrics, but multimodal biometric technologies. Note the adaptive capabilities requested in the National Biometric Challenge. Specifically:

**The National Biometrics Challenge, National Science and Technology Council on Biometrics and Identity Management, August 2006.**

<http://ostp.gov/nstc/html/Biometrics%20Challenge%20Document.pdf>

*"Biometric sensors that automatically recognize the operating environment" and "communicate with other systems to automatically adjust settings to deliver optimal data."*

*"Ability to determine which components are most appropriate for a given application."*

*"Automated assessment of which modalities and sensors should be used in a given operational environment."*

*"Biometric sensors that can be integrated into existing systems easily."*

*"Middleware techniques/standards that will permit 'plug-and-play' capability of biometric sensors."*

*"Standard sensor-system communications to ensure collection of usable data."*

**US Government Policy for Use, Development and Adoption of Biometric Standards (NSTC Subcommittee on Biometrics and Identity Management Standards and Conformity Assessment) August 2007**

[http://www.biometrics.gov/standards/NSTC\\_Policy\\_Bio\\_Standards.pdf](http://www.biometrics.gov/standards/NSTC_Policy_Bio_Standards.pdf)

*"Agencies should support the development of harmonized conformance, interoperability, performance, security, human factors, and operational scenario testing programs in support of procurement actions for biometric products, programs and services."*

**Joint Office of Management and Budget/Office of Science and Technology Policy Priorities Memo. August 14, 2007.**

<http://www.ostp.gov/html/FY2009FINALOMB-OSTPRDPriorityMemo.pdf>

*"As directed by the National Security Council's Deputies Committee, agencies are to place emphasis on the priorities outlined in The National Biometrics Challenge and the resulting agenda developed by the NSTC Subcommittee on Biometrics and Identity Management. This will advance systems, methods and tools to achieve real-time, verifiable, interoperable, and privacy-protecting root identification."*

**3. Justification and assumptions:** Without an investment in this work, the Government would have no freely available baseline biometric client implementation. Only NIST can provide this technology that may be used for (a) proof-of-concept demonstrations, (b) a common platform for testing & evaluating biometric sensors, (c) a foundation for building externally deployable data collection systems or (d) a proven basis upon which to establish wider guidance and to inform standards.

In the realm of biometric clients, it is critical that standards follow from proven implementations, as opposed to trying to make an implementation fit into a standard that may not meet a particular operational need. To illustrate this assumption, consider the example in which an existing standard (BioAPI) was deemed inadequate for meeting a particular DHS requirement (10-print capture). Not only did it not meet the needs of US-VISIT, but ISO/IEC also established a group to 'extend' BioAPI to properly support 10-print capture. An interface already proven to support a wide variety of biometric sensors capture would not have this problem.

**4. Users of the capability resulting from execution of the work specified in this plan and user engagement in this planning process:** A runtime-independent, biometric sensor interface, along with a reference implementation will benefit all biometric system developers, integrators, and evaluators. Specific customers immediately depending on MBARK capabilities include DHS S&T, DHS US-VISIT, FBI/CJIS and the NIST Biometrics Usability project.

**5. Plan to achieve this deliverable:**

- a. Through an iterative, implementation-based approach, extend software engineering processes already in place to develop a *platform-neutral* biometric sensor interface.

- b. Collaborate with NIST standards coordinators to provide input and potential directions to national and international SDOs.
- c. Extend and evolve NIST expertise in the MBARK project
- d. Capitalize on existing relationships with existing stakeholders (DHS US-VISIT, FBI CJIS) to identify and guide deliverables of particular value for their end applications.
- e. Support stakeholder large-scale multimodal biometric collection efforts.

**6. Metric(s) of success:**

Success will be achieved if

- a. A demonstration of a heterogeneous system that uses a common biometric sensor interface. (Ideally, such a system would include multiple desktop and handheld devices, but it is likely that only interoperability among desktops would be feasible in the current timeframe)
- b. Lessons learned constructively influence the standards development process

## **II. Schedule**

### **1. List of milestones**

Note that given the R&D nature of the project, milestones are likely to change as we gain better insight into the ultimate feasibility of the project.

#### **Milestone 1**

Develop a .NET-native interface that leverages a platform independent runtime (this is likely to be web services, but may change depending on its ability to support the required sensor operations.)

#### **Milestone 2**

Extend or evolve the .NET interface into include a non-windows desktop operating system (i.e., Mac OS, Linux, or FreeBSD). Implement a prototype system that demonstrates true runtime interoperability among biometric clients and sensors running on these disparate operating systems.

#### **Milestone 3 / 4**

Extend or evolve the interface developed in Milestone 2 to include a mobile device (such as an iPhone) and/or (Milestone 4) a Rich Internet Application (RIA) framework (such as Flash or Silverlight). Implement a prototype system that demonstrates true runtime interoperability among biometric clients and sensors running on these disparate operating systems. Depending on the rate of progression, such milestone may be completed in outyears.

FY 09 Description	Milestone	FY09 Major Milestone Dates (months after receipt of funding)											
		1	2	3	4	5	6	7	8	9	10	11	12
Milestone 1				X									
Milestone 2								X					
Milestone 3												X	

## 2. List of Deliverables

### Milestone 1

Through publication as a website or as a contribution to an SDO, publish a complete description of the interface that allowed the demonstrated interoperability achieved for Milestone 2

### Milestone 2

Through publication as a website or as a contribution to an SDO, publish a complete description of the interface, *accompanied by source code*, that allowed the demonstrated interoperability achieved for Milestone 3

### Milestone 3 (for outyears?)

Through publication as a website or as a contribution to an SDO, publish a complete description of the interface, *accompanied by source code*, that allowed the demonstrated interoperability achieved for Milestone 4

FY09 Description	Deliverable	FY09 Major Deliverable Dates (months after receipt of funding)											
		1	2	3	4	5	6	7	8	9	10	11	12
Milestone 1									X				
Public release of Milestone 2 interface													
Milestone 2													X
Public release of Milestone 3 interface and supporting softwareS													

## III. Other Details

1. Period of performance. The period of performance for the FY09 funding will be 12 months from the date of award. The entire effort may have an agreement for up to five years,



with annual incremental funding for subsequent periods of 12 months, based on an assessment conducted each year. DHS may give notices in writing to modify the period of performance, scope or other aspects of the project as required.

2. Travel. Travel may be required in the performance of the duties listed herein. It is anticipated that travel will be limited to CONUS. The DHS S&T Technical Representative must approve all additional travel. If foreign travel is required, the DHS S&T Technical Representative and the DHS S&T Special Assistant for International Policy must approve all foreign travel in advance.

o Will foreign travel be required to execute this project?

\_\_\_\_\_ Yes \_\_\_\_\_X\_\_\_\_\_ No

o If yes, indicate approximate dates and countries which will be visited.

3. Travel cost estimate. Estimates of travel costs associated, including foreign and domestic travel are in Section IV.

4. Equipment Procurement. Procurement of any individual equipment item required supporting technical tasks outlined in this proposal equal to or exceeding \$50,000 must be approved in advance by the DHS S&T Technical Representative. The DHS S&T Technical Representative may lower or raise the aforementioned \$50,000 threshold at his/her discretion and on written notice to the performer. If the DHS S&T Technical Representative consents to such purchase, such item shall become the property of DHS. The performer will maintain any such items according to currently existing property accountability procedures. The DHS S&T Technical Representative will determine the final disposition of any such items at the end of the period of performance of this project.

o Is it anticipated that any individual equipment items equal to or exceeding \$50,000 will be procured for this effort?

\_\_\_\_\_ Yes \_\_\_\_\_X\_\_\_\_\_ No (Check one)

o If yes, list the item and estimated cost, and quarter in which it will be procured in the tables below, the first for this year's funding and the second for projected out year procurements.

N/A (Table deleted)

## V. Cost

### 1. Time Phased Cost Estimate by Deliverable.

Time Phased Cost Estimate per Deliverable	1Q FY09 (SK)	2Q FY09 (SK)	3Q FY09 (SK)	4Q FY09 (SK)
--	-----------------	-----------------	-----------------	-----------------

Public release of draft sensor interface	125	125		
Public release of draft sensor interface and reference implementation(s)			125	125
Totals	125	125	125	125

2. Time Phased Cost Estimate by Category of Expenditure:

Time Period	Labor (\$K)	Equipment (\$K)	Travel (\$K)	Total (\$K)
FY09 Q1	100	21.25	3.75	125
FY09 Q2	100	21.25	3.75	125
FY09 Q3	100	21.25	3.75	125
FY09 Q4	100	21.25	3.75	125
FY09 Totals	400	85	15	500

Financial data, as reflected through organization financial reports, will be reported on monthly basis to DHS and incorporated into the DHS project management system.

**TASK IV: (b) (6)**

**I. Scope of Work**

(b) (6) will lead the following tasks described in the SOW:

**1. Summary of capability resulting from execution of the work specified in this deliverable:** Over the last three years the program in biometric usability has grown from a research effort with little visibility in the biometrics community to a research program that now influences the biometric community, their applications, and international standards. This acceptance was evident at the latest Biometrics Consortium Conference and other key biometrics and identity management forums and the ISO biometrics community. The impact of usability was highlighted by several BCC keynote speakers who referenced the research and guidelines from this effort that have resulted in improvement in quality in biometric implementations such as US-VISIT. Further evidence of the importance of usability is the call for new work items for biometric usability standards at the ISO level.

This proposal continues to evolve the biometrics usability guidelines and standards by examining additional human factors that contribute to biometric systems performance. The previous year's efforts have focused primarily on fingerprint interactions, but face and iris applications are now evolving and under consideration for government applications. These applications may have smaller form factors as components of mobile-id. Usability studies that examine the human factors elements

that impact face, iris, and mobile id applications have not yet been addressed. To address this gap, we will examine factors such as ergonomics and anthropometrics, affordance, accessibility, symbols/instructions and user-interfaces on non-traditional form factors and perform usability tests to develop best practice guidelines. These guidelines will ultimately guide a usability testing standard that addresses multiple modalities.

#### **Major Deliverables/Outcomes**

- Standard or Specification
- Test Method
- Test & Evaluation Protocol
- Reference Material, Data; Test Article
- Guide, Guidance Document
- Technical Report, supporting development of standard, test method, etc.
- Input into Conformity Assessment/Certification/Evaluation Program

## **2. Requirements:**

The usability and ease of use of biometric systems is an overarching need and goal for all deployed biometric systems within the Federal government as emphasized by the Executive Office of the President. DHS reports that S&T looks to human factors engineering to improve detection, analysis, and understanding of threats posed by individuals, groups, and radical movements.

### **a. Statement of need:**

The Office of Science and Technology Policy and the Executive Office have identified the need for research on:

- "Biometric Sensors that are easy to use."
- "Biometric systems that have intuitive interfaces for the operators and end users."
- "... development of conformance, performance, interoperability and human factors testing programs in support of USG procurement of biometric applications, and systems."
- "*Biometrics*. Rapid, reliable and accurate biometric-based recognition of individuals is necessary for successful homeland security, counterterrorism, border control, law enforcement, e-commerce and e-government, and identity theft prevention. As directed by the National Security Council's Deputies Committee, agencies are to place emphasis on the priorities outlined in *The National Biometrics Challenge* and the resulting agenda developed by the NSTC Subcommittee on Biometrics and Identity Management. This will advance systems, methods and tools

to achieve real-time, verifiable, interoperable, and privacy-protecting root identification." (The Joint OMB/OSTP Priorities Memo)

DHS documentation indicates that:

- o DHS S&T looks at biometrics, motivation and intent, hostile intent, human factors engineering, and the social/behavioral/economic sciences to improve detection, analysis ...
- o People screening IPT
  - PS-01 Real-time, positive verification of individual's identity utilizing multiple biometrics.
  - PS-06 Mobile biometrics screening capabilities, to include hand-held, wireless, and secure devices

b. Source of requirement:

1. The National Biometrics Challenge NSTC, The Executive Office of the President of the United States, August 2006  
<http://ostp.gov/nstc/html/Biometrics%20Challenge%20Document.pdf>
2. USG Policy for Use, Development and Adoption of Biometric Standards (NSTC Subcommittee on Biometrics and Identity Management Standards and Conformity Assessment) August 2007  
[http://www.biometrics.gov/standards/NSTC\\_Policy\\_Bio\\_Standards.pdf](http://www.biometrics.gov/standards/NSTC_Policy_Bio_Standards.pdf)
3. Joint OMB/OSTP Priorities Memo August 14, 2007  
<http://www.ostp.gov/html/FY2009FINALOMB-OSTPRDPriorityMemo.pdf>
4. June 2008 DHS High-Priority Technology Needs (Version 2.0)  
[http://www.dhs.gov/xlibrary/assets/High\\_Priority\\_Technology\\_Needs.pdf](http://www.dhs.gov/xlibrary/assets/High_Priority_Technology_Needs.pdf)
5. DHS S&T People Screening IPTs (as reported in 2007)

3. **Justification and assumptions:** Within the last year the ISO biometrics community (JTC1/SC37) has identified three areas for biometric usability standards. First there is a call for participation and contributions in SC 37/WG 6 for Icons and Symbols for Use in Biometric Systems (ISO/IEC 24799). Second, there is a new effort to develop a technical report in SC 37/WG 5 for specifying performance requirements to meet security and usability in applications using biometrics (ISO Tr 29156). Finally, SC 37/WG6 is socializing the concept of a standard for usability testing of biometric systems. These three new SC 37 standards efforts demonstrate that the biometrics standards community has recognized the need for specifying usability standards. ISO standards efforts of this kind generally take three to five years for completion.

The rapid proliferation of biometric systems used by the general public emphasizes the need for usability standards. Users may be unfamiliar with particular implementations and they may not understand the local language in which instructions for use are described. It is critical that the systems themselves convey their use to minimize the need for extensive instructions and training. A consistent international standard set of features, design characteristics and testing protocols that provide affordance and feedback for



biometric modalities will reduce the difficulty the wider community experiences interacting with biometric systems.

This S&T effort addresses the Department of Homeland Security's desire to provide guidance on usability and standardize usability of biometric systems. Partnering with US-VISIT and the FBI has allowed the NIST biometric usability team to identify usability concerns and test usability of real world applications in order to develop appropriate guidelines for standardization.

4. **Users of the capability resulting from execution of the work specified in this plan and user engagement in this planning process:** Standardization and consistency of biometric interfaces and usability testing protocols across DHS (US-VISIT, CBP, Coast Guard), DoJ (FBI, state and local law enforcement), DoS will benefit all users (developers, system integrators, system operators and subjects). The NIST biometrics and usability team has partnered with these agencies to test specific usability concerns in their operating environments and to identify and document user requirements for standardization.

**5. Plan to achieve this deliverable:**

- a. Apply the human-centered design process defined in ISO 13407 (1999) Human Centered Design Processes for Interactive Systems. The user-centered design (UCD) process includes the following steps:
  - Defining the Context of Use (Including operational environment, user characteristics, tasks, and social environment)
  - Determining the User & Organizational Requirements (Including business requirements, user requirements, and technical requirements)
  - Developing the Design Solution (Including the system design, user interface, and training materials)
  - Conducting the Evaluation (Including usability, accessibility, and conformance testing)

User-centered design is an approach to the design and development of a system or technology that aims to improve the ability of end users to effectively and efficiently use the product. It seeks to improve the user experience of an entire system from hardware design to software implementation, involving all aspects of a technology, including a system's by-products, such as help documentation and training materials. By involving users in the design, development and evaluation of a biometric system, user-centered design works to create more usable products that meet the needs of its users.

This UCD process provides specific guidance on how to identify and test the usability of applications.



- b. The effort will be coordinated with US-VISIT Facilities and Operations personnel. They have expressed an interest in continuing to partner to address human factors and usability concerns of upcoming deployments and changes in the field.
- c. In a related effort, the NIST Usability and Biometrics team is working with the FBI's Hostage Rescue Team (HRT) and their state and law enforcement partners to identify the human factors and usability requirements of their mobile-ID or Quick Capture Platform. This effort is focused on the user interface of a small screen in a time constrained stressful environment. Little research has been performed on the use of extremely small platforms to collect biometric data in stressful environments. The FBI HRT needs a methodology and design approach to define the user requirements for the user interface on a new small (3 X 5) screen for their mobile biometrics capture platform (QCP). This effort will coordinate with FBI/HRT and their partners to identify user requirements and design guidelines for biometric capture using a small interface.

**6. Metric(s) of success:**

- a. Technical reports on the results of usability testing
- b. Submissions to ISO/IEC JTC1/SC37 on symbols, usability requirements and usability testing.

## II. Schedule

**1. List of milestones**

\*US-VISIT needs with respect to implementation and deployment will drive which modality we examine first. We will iterate through the milestones and deliverables for each modality or need as identified by US-VISIT.

FY 09 Milestone Description	FY09 Major Milestone Dates (months after receipt of funding)											
	1	2	3	4	5	6	7	8	9	10	11	12
Identification of Context of Use for face or iris, or mobile id (priority identified by US-VISIT*)			X									
Identification of User Needs and Requirements						X						
Experimental Design and Instrumentation including IRB								X				

Usability Testing										X		
Update ISO draft based on usability testing												X
JTC SC 37 Meetings				X						X		
INCITS M1 Meetings	X		X					X		X		

## 2. List of Deliverables

FY09 Deliverable Description	FY09 Major Deliverable Dates (months after receipt of funding)											
	1	2	3	4	5	6	7	8	9	10	11	12
Report on Usability Testing of face/iris/ and or mobile id (priority identified by US-VISIT*)											X	
Guidelines resulting from usability testing												X
Submission of findings to ISO/SC 37 for inclusion in draft standard												X

## III. Other Details

1. Period of performance. The period of performance for the FY09 funding will be 12 months from the date of award. The entire effort may have an agreement for up to five years, with annual incremental funding for subsequent periods of 12 months, based on an assessment conducted each year. DHS may give notices in writing to modify the period of performance, scope or other aspects of the project as required.

2. Travel. Travel may be required in the performance of the duties listed herein. It is anticipated that travel will be limited to CONUS. The DHS S&T Technical Representative must approve all additional travel. If foreign travel is required, the DHS S&T Technical Representative and the DHS S&T Special Assistant for International Policy must approve all foreign travel in advance.

o Will foreign travel be required to execute this project?

  X   Yes        No (Check one)

o If yes, indicate approximate dates and countries which will be visited.

JTC1/SC 37 meeting sponsored by Russian Federation (July 2009)

JTC1/SC 37 meeting sponsored by Malaysia or Singapore (January 2010)

3. Travel cost estimate. Provide estimates of travel costs associated, including foreign and domestic travel in Section IV.

4. Equipment Procurement: Procurement of any individual equipment item required supporting technical tasks outlined in this proposal equal to or exceeding \$50,000 must be approved in advance by the DHS S&T Technical Representative. The DHS S&T Technical Representative may lower or raise the aforementioned \$50,000 threshold at his/her discretion and on written notice to the performer. If the DHS S&T Technical Representative consents to such purchase, such item shall become the property of DHS. The performer will maintain any such items according to currently existing property accountability procedures. The DHS S&T Technical Representative will determine the final disposition of any such items at the end of the period of performance of this project.

- Is it anticipated that any individual equipment items equal to or exceeding \$50,000 will be procured for this effort?

\_\_\_\_\_ Yes                        X   No                      (Check one)

- If yes, list the item and estimated cost, and quarter in which it will be procured in the tables below, the first for this year's funding and the second for projected out year procurements.

Projected Equipment Procurement for Items Equal to or Exceeding \$50K	1Q FY09 (\$K)	2Q FY09 (\$K)	3Q FY09 (\$K)	4Q FY09 (\$K)
Equipment Item 1				
Equipment Item 2				
Totals				

#### IV. Cost

##### 1. Time Phased Cost Estimate by Deliverable.

Time Phased Cost Estimate per Deliverable	1Q FY09 (\$K)	2Q FY09 (\$K)	3Q FY09 (\$K)	4Q FY09 (\$K)
Report on Usability Testing of face/iris/ and or mobile id (priority identified by US-VISIT*)	\$125K	\$125K	\$100K	\$50K
Guidelines resulting from usability testing			\$25K	\$25K
Submission of findings to ISO/SC 37 for inclusion in draft standard			\$25K	\$25K
Out Year Deliverable Cost	FY10	FY11	FY12	FY13

<b>Estimates</b>				
Report on Usability Testing of face/iris/ and or mobile id (priority identified by US-VISIT*)	\$475K	\$475K	\$475K	\$475K
Guidelines resulting from usability testing	\$75	\$75	\$75	\$75
Submission of findings to ISO/SC 37 for inclusion in draft standard	\$75	\$75	\$75	\$75
Standard for usability requirements, symbols and testing	\$75	\$75	\$75	\$75

**2. Time Phased Cost Estimate by Category of Expenditure:**

<b>Time Period</b>	<b>Labor (\$K)</b>	<b>Equipment (\$K)</b>	<b>Travel (\$K)</b>	<b>Total (\$K)</b>
FY09 Q1	\$122K		3K	\$125K
FY09 Q2	\$120K		5K	\$125K
FY09 Q3	\$144K		6K	\$150K
FY09 Q4	\$94K		6K	\$100K
FY09 Totals	\$480K		20K	\$500K

Financial data, as reflected through organization financial reports, will be reported on monthly basis to DHS and incorporated into the DHS project management system.

**NIST Points of Contact are as follows:**

**TASK I:**

**NIST Program Manager:**

- Michael D. Indovina, principal investigator  
[mindovina@nist.gov](mailto:mindovina@nist.gov)  
(301) 975-2927  
(301) 975-5287 (fax)

**NIST Technical Point of Contact:**

- Vladimir Dvornychenko, technical team  
[vdorny@nist.gov](mailto:vdorny@nist.gov)  
(301) 975-2939  
(301) 975-5287 (fax)
- Financial POC(s):  
Jennifer Marshall  
[Jennifer.marshall@nist.gov](mailto:Jennifer.marshall@nist.gov)  
(301)975-3396

**NIST** may change the individual designated as a POC upon notice to DHS S&T of such change.

**TASK II:**

NIST Program Manager:

- Elham Tabassi, principal investigator  
[tabassi@nist.gov](mailto:tabassi@nist.gov)  
(301) 975-5292  
(301) 975-5287 (fax)

**NIST** Technical Point of Contact:

- Patrick Grother, technical team  
[pgrother@nist.gov](mailto:pgrother@nist.gov)  
(301) 975-4157  
(301) 975-5287 (fax)

Financial POC(s):

- Jennifer Marshall  
[jennifer.marshall@nist.gov](mailto:jennifer.marshall@nist.gov)  
(301)975-3396

**NIST** may change the individual designated as a POC upon notice to DHS S&T of such change.

**TASK III:**

NIST Program Manager:

- Ross J. Micheals, (Principal Investigator)  
[ross.micheals@nist.gov](mailto:ross.micheals@nist.gov)  
(301) 975-3234  
(301) 975-5287 (fax)

Financial POC(s):

- Jennifer Marshall  
[jennifer.marshall@nist.gov](mailto:jennifer.marshall@nist.gov)  
(301)975-3396

**NIST** may change the individual designated as a POC upon notice to DHS S&T of such change.

**TASK VI:**

NIST Program Manager:



- Mary Theofanos, (Principal Investigator)  
mary.theofanos@nist.gov  
(301) 975-5889  
(301) 975-5287 (fax)

**NIST Researcher:**

- Brian Stanton, (Researcher)  
Brian.stanton@nist.gov  
(301) 975-2103  
(301) 975-5287 (fax)

**NIST Researcher:**

- Yee Yin Choong, (Researcher)  
Yee-yin.choong@nist.gov  
(301) 975-3248  
(301) 975-5287 (fax)

**Financial POC(s):**

- Jennifer Marshall  
jennifer.marshall@nist.gov  
(301)975-3396

**NIST** may change the individual designated as a POC upon notice to DHS S&T of such change.

The DHS POCs are as follows:

- DHS Contracting Officer:  
(b) (6)  
Department of Homeland Security  
ATTN: Science & Technology Acquisitions  
Washington, DC 20528  
(b) (6)  
(b) (6)
- DHS S&T Technical Representative  
(b) (6)  
Department of Homeland Security  
Science and Technology Directorate  
Washington, DC 20528  
(b) (6)  
(b) (6)

- Financial Analyst

(b) (6)

Contractor in Support of the:  
Department of Homeland Security  
Science and Technology Directorate  
Washington, DC 20528

(b) (6)

(b) (6)

DHS S&T may change the individual designated as a POC upon notice to NIST of such change.



**ATTACHMENT NUMBER 2**  
**Interagency Agreement No. HSHQDC-**\_\_\_\_\_

**Department of Homeland Security (DHS) Intellectual Property Conditions for Use  
in Interagency Agreements (IA) with the National Institute of Standards and  
Technology (NIST)**

1. The work to be performed under this IA is sponsored by the DHS. In performing this IA, NIST may award one or more contracts. Should that occur, the intellectual property rights under this IA, including rights to patents conceived or first reduced to practice or the rights in scientific and technical data or computer software first produced, including the right to assert copyright, are governed by the contract(s) awarded by NIST. These additional conditions are necessary to assure that those intellectual property rights are exercised in consonance with the programmatic objectives of the DHS sponsorship of the work under this IA.
2. NIST shall assure that any publication of scientific and technical data or computer software first produced under this IA will contain the following legend or equivalent reflecting DHS sponsorship of the work:

The Department of Homeland Security sponsored the production of this material under an Interagency Agreement with the National Institute of Standards and Technology

3. NIST will not authorize any contractor involved in the performance of this IA to retain or exercise any intellectual property rights not specifically granted under the contract, such as the right of the contractor to assert its copyright in scientific or technical data or computer software first made or produced under this IA, without consulting with and receiving the concurrence of the DHS Intellectual Property Counsel, specified below, or his designee. This requirement does not affect the right of the Contractor to assert copyright as provided under the contract.
4. The NIST shall not and shall not allow any contractor involved in the performance of this IA to include in any items delivered to the Government material that is copyrighted by third parties without the prior concurrence of the DHS Intellectual Property Counsel or his designee.
5. NIST shall require that, whenever any contractor involved in the performance of this IA makes a request to NIST relating to intellectual property matters or provides invention disclosures, the Contractor provide a copy of all such requests or invention disclosures to the DHS Intellectual Property Counsel.
6. Any contractor's merely providing copies of requests or invention disclosures to DHS Intellectual Property Counsel, as provided in paragraph 5, does not in any way obviate the obligations of that contractor to make invention disclosures, submit requests for permission to assert copyright, or provide any other intellectual property notices or requests to Counsel of NIST pursuant to the terms and conditions of its contract.

**DHS Intellectual Property Counsel:**

Assistant General Counsel for Intellectual Property  
Department of Homeland Security  
245 Murray Lane SW  
Washington, D.C. 20825

(b)(2) (b)(6)

**ATTACHMENT NUMBER 1**  
**Interagency Agreement No. HSHQDC-**

**GENERAL PROVISIONS FOR INTER/INTRA-AGENCY AGREEMENT**

**FUNDING:** There will be no exchange of funds between parties unless otherwise agreed. Each party will arrange for fun to discharge its respective responsibilities.

The ability of the parties to carry out their responsibilities under this agreement is subject to their respective funding procedures and the availability of appropriated funds. Should either party encounter budgetary problems in the course of respective internal procedures which may affect the activities to be carried out under this agreement, that party will notify consult with the other party or parties in a timely manner.

**PURPOSE AND SCOPE OF IA:** The purpose and scope of work to be conducted is described in The statement of work (SOW).

**SUPPORT RESPONSIBILITIES.**

**(1) The National Institute of Standards and Technology (NIST) (Servicing Agency) Responsibilities.**

- (a) The servicing agency, NIST, will perform the tasks described in the Statement of Work.

**(2) DHS (Receiver) Responsibilities.**

- (a) Support and comply with all applicable supplier's policies, procedures, and instructions.
- (b) Identify staff personnel to act as liaison for the support.
- (c) Fund the reimbursable services.

**BILLING INSTRUCTIONS/SUPPORT DOCUMENTATION FOR EXPENDITURES:** Billing and reimbursement may be handled through the Intra-governmental Payment and Collection (IPAC) system, or the servicing agency may submit invo when the work is completed or as otherwise authorized. The Payable IA number, the Agency Locator Codes, appropriate accounting code(s), DUNNS #, Tax ID # and associated dollar amounts must be referenced on all IPAC transactions or invoices.

If IPAC is used, the servicing agency shall provide documentation supporting all charges to the requesting agency's COTR/POC. In the event that advance payment is requested and authorized, the servicing agency shall furnish expendit reports to the COTR/POC on a insert frequency (e.g., monthly, quarterly) basis.

If invoices are used, the invoices, along with supporting documentation, shall be submitted to the requesting agency's payment office as shown on the Payable IA form, with a copy furnished to the COTR/POC. Per the Economy Act and Fed Acquisition Regulation 17.505, bills or requests for advance payment will not be subject to audit or certification in advance payment.

Both agencies agree to promptly discuss and resolve issues and questions regarding payments. The servicing agency will promptly initiate year-end and closeout adjustments once final costs are known.

The requesting agency agrees to transfer funds to the servicing agency in the form of progress or periodic payments, on a quarterly basis at minimum. At least quarterly, the parties will reconcile balances related to revenue and expenses for wo performed under the agreement.

**MODIFICATIONS/TERMINATIONS:** The servicing agency may not reduce or end the approved level of support delineat in this agreement without at least 90 calendar days advance written notification of intent, unless agreed upon by the Approving Authorities of both organizations. The DHS will provide the servicing agency with at least 90 calendar days advance written notification when an increase, reduction, or termination in support is expected. If notification is less than 90 calendar days, the DHS may be billed for reimbursement of unavoidable termination or pre-procurement expenses.

When appropriate, a unilateral administrative modification will be issued by the requesting agency, e.g., to add funds with change to the SOW, to change a COTR/POC name. A written bilateral modification (i.e., agreed to and signed by authoriz officials of both parties) will be issued to change the Payable IA, modify the SOW, etc.

If the requesting agency cancels the order, the servicing agency is authorized to collect costs incurred prior to cancellation the order plus any termination costs.

**ATTACHMENT NUMBER 1**  
**Interagency Agreement No. HSHQDC-**

**EXECUTION:** This agreement is effective upon the signature of the requesting and servicing agency representatives.

**AGREEMENT PERIOD:** The agreement shall remain in effect from the effective date of the agreement through the performance specified. Either party may initiate renegotiations at any time. This agreement will terminate upon appointment and transfer of support to a new organization or deactivation of the DHS.

**TRAVEL:** All travel under this Payable IA shall be in accordance with the Federal Travel Regulations.

**PROMPT PAYMENT:** The NIST shall not assess the Department of Homeland Security for any prompt payment interest charged to the servicing agency.

**THIRD PARTY LIABILITY:** With respect to third-party liability for acts arising out of the performance of official duty by a government employee of the servicing agency, the servicing agency undertakes responsibilities for the investigation, adjudication, settlement, and payment of any claim asserted against the United States; except that, in all cases, the responsibility for the investigation, adjudication, settlement, and payment of any claim with respect to thirdparty liability arising out of the use, damage, or destruction of loaned personal property shall be the responsibility of the particular agency that has custody and control of the said personal property. In addition, the servicing agency representative shall have the duty of investigating and reporting, in accordance with the servicing agency's regulations and policies, incidents occurring on, or involving that servicing agency's real property, and the requesting agency agrees to cooperate fully in such investigations.

**METHOD FOR SETTLEMENT OF DISPUTES:** Nothing herein is intended to conflict with current DHS or the NIST directives. If the terms of this agreement are inconsistent with existing directives of either of the agencies entering into this agreement, then those portions of this agreement which are determined to be inconsistent shall be invalid, but the remainder of the agreement, all necessary changes will be accomplished either by an amendment to this agreement or by entering into a new agreement, whichever is deemed expedient to the interest of both parties.

Should disagreement arise on the interpretation of the provisions of this agreement, the dispute shall be resolved pursuant to the Business Rules for Intragovernmental Transactions delineated in the Treasury Financial Manual, Vol.1, Bulletin 2007-Section VII (Resolving Intragovernmental Disputes and Major Differences.)

**TERMINATION:** This agreement will become effective on the date specified in the agreement or, absent that, when signed by all parties. The agreement will terminate as specified in the period of performance, but may be amended at any time by mutual consent of the parties. Any party may terminate this agreement by providing 90 calendar days written notice to the other party. In the event this agreement is terminated, each party shall be solely responsible for the payment of any expenses it has incurred.

**PROJECT COMPLETION AND CLOSEOUT:** When the requesting agency has accepted all deliverables related to the SOW, the servicing agency will provide a written project evaluation and final accounting of project costs to the requesting agency CO. The servicing agency account will then be closed and any remaining funds will be returned to the requesting agency immediately. After final accounting, the remaining balance in the project account will be deobligated by Payable IA modification.

**AUDIT ACCESS:** Representatives of the DHS and its Office of Inspector General shall have access, for the purpose of audit and examination, to any books, documents, papers, and records of any non-governmental party to this agreement that relate to the work conducted under this agreement.

**RETENTION OF RECORDS:** Each non-governmental party to this agreement shall keep such records that relate to work conducted under this agreement as deemed necessary by the DHS, Science and Technology Division. Such records include deliverables and program status reports. These records shall be maintained until satisfactory completion of work under this agreement.



INTERAGENCY AGREEMENT		1. AGENCY HSHQDC-09-X-00457/200001		PAGE OF 1 7	
2. ORDER NO.		3. REQUESTION NO. RSTS-10-00072		4. SOLICITATION NO.	
5. EFFECTIVE DATE See Block 26c		6. AWARD DATE 03/04/2010		7. PERIOD OF PERFORMANCE	
8. SERVING AGENCY NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY ALC 13-08-0001 DUNS 929956050 -1, 0000 NIST 100 BUREAU DRIVE GAITHERSBURG MD 208991624  POC Darlene Hamilton TELEPHONE NO. 301-975-2227		9. DELIVER TO Department of Homeland Security Science and Technology Directorate 245 Murray Lane, SW Building 410 Washington DC 20528			
10. REQUESTING AGENCY Department of Homeland Security-OPO ALC: 70-80-1513 DUNS: 808845262 +4: 245 Murray Lane, SW Building 410 Office of Procurement Operations Washington DC 20528  POC (b) (6) TELEPHONE NO. (b) (6)		11. INVOICE OFFICE Burlington Finance Center PO Box 1000 SAT.Invoice.Consolidation@dhs.gov Williston VT 05495-1000			
12. ISSUING OFFICE U.S. Dept. of Homeland Security Office of Procurement Operations SAT Acquisition Division 245 Murray Lane, SW Building 410 Washington DC 20528		13. LEGISLATIVE AUTHORITY			
14. ACCOUNTING DATA See Schedule		14. PROJECT ID			
		15. PROJECT TITLE BIOMETRICS EQUIPMENT/CREDENTIALING			
17. ITEM NO.	18. SUPPLIES/SERVICES	19. QUANTITY	20. UNIT	21. UNIT PRICE	22. AMOUNT
	DUNS Number: 929956050 Modification to HSHQDC-09-X-00457  Division/PPA: T&E/Standards  Thrust: T&E/Standards  Program: Standards  Project: Biometrics Equipment/Credentialing  Performer: National Institute of Standards and Continued ...				
23. PAYMENT PROVISIONS		24. TOTAL AMOUNT \$0.00			
25. SIGNATURE OF GOVERNMENT REPRESENTATIVE (OFFICIAL) (b) (6)		26. SIGNATURE OF CONTRACTING OFFICER (b) (6)			
27. NAME AND TITLE Sr. Mgmt. Advisor		28. DATE 5/11/10		29. CONTRACTING OFFICER (b) (6)	
				30. DATE 5/11/10	



NAME	CODE	PAGE	OF
NSWQDC-09-X-00467/200001		2	7
<p>Technology (NIST):</p> <p>ALC: 70-08-1513</p> <p>The purpose of this modification is to extend the period of performance from May 14, 2010 to January 14, 2011. Attached as part of this modification are new terms and conditions. All other terms and conditions of this IAA remain in full force and effect.</p> <p>Sender Information:</p> <p>Appropriation: Treasury Account Symbol (TAS): 70X0800</p> <p>Agency Locator Code (ALC): 70-08-1513</p> <p>DCNS: 808845262</p> <p>Business Event Type Code (BETC): DTSB</p> <p>Receiver Information:</p> <p>Appropriation: Treasury Account Symbol (TAS): 13X4650</p> <p>Agency Locator Code (ALC): 13-06-0001</p> <p>DCNS: 929956050</p> <p>Business Event Type Code (BETC): COLL</p> <p>For Block #13 on page 1, The Statutory Authority for this Interagency Agreement modification is the NIST Organic Act 15 U.S.C. 273, 276a, and 278b.</p> <p>DC/DPAS Rating: NONE</p>			

Document #: HSHQDC-09-X-00467/P00001

### INTERAGENCY AGREEMENT TERMS AND CONDITIONS

#### 1. Purpose

The following terms and conditions apply to the above referenced interagency agreement between the Science and Technology Directorate (S&T), hereinafter "the Requesting Agency" and the National Institute of Standards and Technology (NIST), hereinafter "the Servicing Agency."

#### 2. Description of Products or Services/Bona Fide Need

This section describes the services that will be acquired by the Servicing Agency to the Requesting Agency under this IAA.

☒ Description of required services is attached. Please see Statement of Work.

#### 3. Period of Agreement

This IAA becomes effective when signed by authorized officials of both agencies and is effective from May 14, 2010 to January 14, 2011, unless amended.

#### 4. Roles, Responsibilities of Servicing Agency and Requesting Agency

The effective management and use of interagency contracts is a shared responsibility of the Requesting Agency and the Servicing Agency. The parties hereby agree to the following roles and responsibilities, which are derived from guidance issued by the Office of Federal Procurement Policy:

<ul style="list-style-type: none"> <li>• Work closely with the Servicing Agency to establish IAA's that are clear and complete.</li> <li>• Be a good steward of the agency's funds by ensuring appropriate internal controls are in place to ensure interagency acquisition activities are consistent with sound project management, contracting, and fiscal practices.</li> <li>• Work in close collaboration with the Servicing Agency throughout the project lifecycle. Make trained and qualified personnel available to support key activities, including the timely preparation and execution of funding documents, compliance with customer-unique laws and policies, acquisition planning, source selection evaluation, and contract administration.</li> <li>• Provide accurate and timely information to support the Servicing Agency in effectively awarding and managing the contract, including evaluation of contractor performance and prompt payment.</li> <li>• Obtain legal review, as needed, for issues related to the development and execution of the IAA, in accordance with any agency procedures.</li> <li>• Review the general terms and conditions of the IAA with the Servicing Agency no less than annually and make amendments as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>• Work closely with the Requesting Agency to establish IAA's that are clear and complete.</li> <li>• Be a good steward of the Requesting Agency's funds by ensuring appropriate internal controls, and applying sound project management, contracting, and fiscal practices.</li> <li>• Manage all phases of the project lifecycle from requirements development through contract closeout, as agreed in the IAA.</li> <li>• Work in close collaboration with the Requesting Agency throughout the project lifecycle, responding promptly to inquiries from the Requesting Agency including matters regarding process, project status, and funds balance.</li> <li>• Enforce contractual terms and conditions to ensure the timely delivery of goods and services.</li> <li>• Maintain accurate records and files associated with acquisition assistance activities.</li> <li>• Obtain necessary legal review for issues arising under the IAA.</li> <li>• Review the general terms and conditions of the IAA with the Requesting Agency no less than annually and make amendments as necessary.</li> </ul>
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#### 5. Billing and Payment

The Requesting Agency will pay the Servicing Agency for costs of each contract or task/delivery order. Billings may include the amounts due under the contract or order plus any assisted service fees identified in the cost estimate. DHS reimbursement of costs incurred in the performance of work described in the attached SOW will be made via the U.S. Treasury Inter-government Payment and Collection System (IPAC).

Reimbursable billings are delinquent when they are ninety (90) or more calendar days old (from the date of the billing). When billings remain delinquent over one hundred and twenty (120) calendar days and the Requesting Agency has not indicated a problem regarding the services, the Servicing Agency may choose not to award any new contract/orders or modifications to existing contract/orders for the Requesting Agency (or client within) and termination of existing services will be considered and negotiated with the Requesting Agency.

The Requesting Agency shall be responsible for interest owed under the Prompt Payment Act except that the Servicing Agency shall be responsible for interest owed to the contractor due to delays created by the actions of the Servicing Agency.

#### 6. Agreement Funding

The estimated cost for this IAA is \$0.00. Funds in the amount of \$0.00 are obligated by this action and estimated to cover performance period from May 14, 2010 to January 14, 2011.

The ability of the parties to carry out their responsibilities under this agreement is subject to their respective funding procedures and the availability of appropriated funds. Should either party encounter budgetary problems in the course of its respective internal procedures which may affect the activities to be carried out under this agreement that party will notify and consult with the other party or parties in a timely manner.

#### 7. Contract Termination, Disputes and Protests

If a contract or order awarded pursuant to this IAA is terminated or cancelled or a dispute or protest arises from specifications, solicitation, award, performance or termination of a contract, appropriate action will be taken in accordance with the terms of the contract and applicable laws and regulations. The Requesting Agency shall be responsible for all costs associated with termination, disputes, and protests including settlement costs, except that the Requesting Agency shall not be responsible to the Servicing Agency for costs associated with actions that stem from errors in performing the responsibilities assigned to the Servicing Agency. The Servicing Agency shall consult with the Requesting Agency before agreeing to a settlement or payments to ensure that the Servicing Agency has adequate time in which to raise or address any fiscal or budgetary concerns arising from the proposed payment or settlement.

#### 8. Amendments

Any amendments to the terms and conditions this IAA shall be made in writing and signed by both the Servicing Agency and the Requesting Agency.

**Document #: HSHQDC-09-X-00467/P00001**

**9. IAA Termination**

This IAA may be terminated upon ninety (90) calendar days written notice by either party. If this agreement is cancelled, any implementing contract/order may also be cancelled. If the IAA is terminated, the agencies shall agree to the terms of the termination, including costs attributable to the failure to give notice.

If the Servicing Agency incurs costs due to the Requesting Agency's failure to give the requisite notice of its intent to terminate the IAA, the Requesting Agency shall pay any actual costs incurred by the Servicing Agency as a result of the delay in notification, provided such costs are directly attributable to the failure to give notice.

**10. Interpretation of the IAA**

If the Servicing Agency and Requesting Agency are unable to agree about a material aspect of the IAA, the parties agree to engage in an effort to reach mutual agreement in the proper interpretation of this IAA, including amendment of this IAA, as necessary, by escalating the dispute within their respective organizations.

If a dispute related to funding remains unresolved for more than thirty (30) calendar days after the parties have engaged in an escalation of the dispute, the parties agree to refer the matter to their respective Agency Chief Financial Officers with a recommendation that the parties submit the dispute to the CFO Council Intragovernmental Dispute Resolution Committee for review in accordance with Section VII of Attachment 1 to the Treasury Financial Manual, Volume 1, Bulletin No. 2007-03, Intragovernmental Transactions, Subject: Intragovernmental Business Rules, or subsequent guidance.

**11. Projected Milestones**

See SOW for Projected Milestones.

**12. Description of Acquisition Assistance**

The Servicing Agency will provide the following services to the Requesting Agency:

See SOW.

**13. Small Business Credit**

The Servicing Agency shall use the following FIPS 95-2 Code to identify the Requesting Agency in FPDS: 7001

**Note:** If the code is not provided, the Servicing Agency will allocate credit to the highest Requesting Agency FIPS 95-2 Code.

**14. Contact Information**

Contact information for Requesting Agency and Servicing Agency personnel may be found on the DHS IAA Form and SOW, attached.

Document #: HSHQDC-09-X-00467/P00001

**15. Signatures**

By signing this document, the Requesting Agency confirms that a bona fide need exists and that funds are for the designated purpose, meet time limitations, and are legally available for the acquisition described in this document; that all unique funding and procurement requirements, including all statutory and regulatory requirements applicable to the funding being provided, have been disclosed to the Servicing Agency; and all internal reviews and approvals required prior to transferring funds to the Servicing Agency have been completed. The Servicing Agency's acceptance of this document creates an obligation on the part of the Requesting Agency.

Requesting Agency Official:

(b) (6)

(b) (6)

Contracting Officer

May 4, 2010  
Date

Servicing Agency Official:

(b) (6)

Name:

Title: Sr. mgmt. Advisor

5/11/10  
Date

The National Institute of Standards and Technology (NIST) Programmatic Authority Code is 15 U.S.C. 272 (b) (10).

**Updated Milestones and Deliverables for  
Interoperable Multimodal Biometric Sensors**

IAA # HSHQDC-09-X-00467/P00001

**Updated Milestones and Deliverables:**

FY 09 Milestone Description	FY09 Major Milestone Dates (months after receipt of funding)											
	9	10	11	12	13	14	15	16	17	18	19	20
Milestone 1			X									
Milestone 2							X					
Milestone 3											X	

**Milestone 1**

Develop a .NET-native interface that leverages a platform independent runtime (this is likely to be web services, but may change depending on its ability to support the required sensor operations.)

**Milestone 2**

Extend or evolve the .NET interface into include a non-windows desktop operating system (i.e., Mac OS, Linux, or FreeBSD). Implement a prototype system that demonstrates true runtime interoperability among biometric clients and sensors running on these disparate operating systems.

**Milestone 3/4**

Extend or evolve the interface developed in Milestone 2 to include a mobile device (such as an iPhone) and/or (Milestone 4) a Rich Internet Application (RIA) framework (such as Flash or Silverlight). Implement a prototype system that demonstrates true runtime interoperability among biometric clients and sensors running on these disparate operating systems. Depending on the rate of progression, such milestone may be completed in outyears.

"Information within this document is intended for use by U.S. Government agencies and will not be disclosed unless permitted by law."



INTERAGENCY AGREEMENT		1. IAA NO. HSHQDC-09-X-00467		PAGE 1 2	
2. ORDER NO.		3. REGISTRATION NO. RSTS-09-00019		4. SOLICITATION NO.	
5. EFFECTIVE DATE 05/12/2009		6. AWARD DATE 05/12/2009		7. PERIOD OF PERFORMANCE 05/13/2009 TO 05/14/2010	
8. SERVICING AGENCY NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY ALC DUNS: 109956050 +4: 0000 NIST FINANCE OFFICE 100 BUREAU DRIVE MAIL STOP 1820 GAITHERSBURG MD 20899-1820  POC: John Quick TELEPHONE NO: 301-975-0261		9. DELIVER TO BHS SAT 245 Murray Lane Building 410 Washington DC 20528			
10. REQUESTING AGENCY Department of Homeland Security-OPO ALC: DUNS: +4: 245 Murray Drive Bldg. 410 Office of Procurement Operations Washington DC 20528  POC: (b) (6) TELEPHONE NO.		11. INVOICE OFFICE BHS ICE Burlington Finance Center PO BOX 1000 Attn: SAT Division Williston VT 05495-1000			
12. ISSUING OFFICE U.S. Dept. of Homeland Security Office of Procurement Operations SAT Acquisition Branch 245 Murray Lane, SW Building 410 Washington DC 20528		13. LEGISLATIVE AUTHORITY Economy Act, 31 U.S.C. 1535 & 1546			
14. PROJECT ID		15. PROJECT TITLE			
16. ACCOUNTING DATA See Schedule					
17. ITEM NO.	18. SUPPLIES/SERVICES	19. QUANTITY	20. UNIT	21. UNIT PRICE	22. AMOUNT
	DUNS Number: 929956050 Division/PPA: T&E/Standards Thrust: T&E/Standards Program: Standards Project: Biometrics Equipment/Credentialing Performer: NIST Appropriation Year: FY09 (9X) Budget Authority: No-Year R&D Funds  ALC: 70-08-1813 APPS: 70X0800  Continued ...				
23. PAYMENT PROVISIONS		24. TOTAL AMOUNT \$1,800,000.00			
25a. SIGNATURE (b) (6)		25b. SIGNATURE GOVERNMENT REPRESENTATIVE (REQUESTING) (b) (6)			
25c. NAME AND TITLE JOHN QUICK Finance Operations Manager		25d. DATE 5/23/09		25e. CONTRACT NUMBER (b) (6) C-10-2009	

IAAWO HSHQDC-C9-X-00467	ORDER NO	PAGE 2 OF 2
<p>Description: The purpose of this IAA is to provide funding in the amount of \$1,800,000.00 to NIST for the Human Factors Program including standards related to explosives detection, including standards for detectors and protective equipment, body scanning systems, and cargo scanning.</p> <p>Please refer to the Statement of Work (SOW) entitled "Statement of Work for Human Factors Program" for specific details.</p> <p>The technical representative for DHS is as follows:</p> <p>(b) (6)</p> <p>(b)(2) (b)(6)</p> <p>The DHS point of contact for return of the executed agreement is as follows:</p> <p>(b) (6)</p> <p>Contracting Officer</p> <p>(b)(2) (b)(6)</p> <p>Delivery: 365 Days After Award</p> <p>0001 Biometrics Equipment 1.762M 1,762,000.00</p> <p>Contracting Fee: 30</p> <p>Accounting Info:          NONE000-000-9X-38-01-05-001-01-00-0000-00-00-00-00          -GE-GE-25-37-000000          Funded: \$1,762,000.00</p> <p>0002 38K for Credentialing. This is a 9.5% adjustment against the original planned amount for this line. 38,000.00</p> <p>Contracting Fee: 30</p> <p>Accounting Info:          NONE000-000-9X-38-01-05-002-01-00-0000-00-00-00-00          -GE-GE-25-37-000000          Funded: \$38,000.00</p> <p>The total amount of award: \$1,800,000.00. The obligation for this award is shown in box 24.</p>		



INTERAGENCY AGREEMENT		1. IAA NO. HSHQDC-09-X-00467	PAGE 1 OF 2	
2. ORDER NO.		3. REQUISITION NO. RSTS-09-00019		4. SOLICITATION NO.
5. EFFECTIVE DATE 05/12/2009		6. AWARD DATE 05/12/2009		7. PERIOD OF PERFORMANCE 05/15/2009 TO 05/14/2010
8. SERVICING AGENCY NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY ALC: DUNS: 929956050 +4: 0000 NIST FINANCE OFFICE 100 BUREAU DRIVE MAIL STOP 1620 GAITHERSBURG MD 20899-1620  POC John Quick TELEPHONE NO 301-975-2261		9. DELIVER TO DHS S&T 245 Murray Lane Building 410 Washington DC 20528		
10. REQUESTING AGENCY Department of Homeland Security-OPO ALC: DUNS: +4: 245 Murray Drive Bldg. 410 Office of Procurement Operations Washington DC 20528  POC (b) (6) TELEPHONE NO.		11. INVOICE OFFICE DHS ICE Burlington Finance Center PO BOX 1000 Attn: S&T Division Williston VT 05495-1000		
12. ISSUING OFFICE U.S. Dept. of Homeland Security Office of Procurement Operations S&T Acquisition Branch 245 Murray Lane, SW Building 410 Washington DC 20528		13. LEGISLATIVE AUTHORITY Economy Act, 31 U.S.C. 1535 & 1536		
		14. PROJECT ID		
		15. PROJECT TITLE		
16. ACCOUNTING DATA See Schedule				
17. ITEM NO.	18. SUPPLIES/SERVICES	19. QUANTITY	20. UNIT	21. UNIT PRICE
	DUNS Number: 929956050 Division/PPA: T&E/Standards Thrust: T&E/Standards Program: Standards Project: Biometrics Equipment/Credentialing Performer: NIST Appropriation Year: FY09 (9X) Budget Authority: No-Year R&D Funds  ALC: 70-08-1513 APPS: 70X0800  Continued ...			
23. PAYMENT PROVISIONS		24. TOTAL AMOUNT \$1,800,000.00		
25a. SIGNATURE OF GOVERNMENT REPRESENTATIVE (SERVICING)		25b. SIGNATURE OF GOVERNMENT REPRESENTATIVE (REQUESTING) (b) (6)		
25c. NAME AND TITLE	25d. DATE	25e. CONTRACTING OFFICE (b) (6)		

5-10-2009

Description: The purpose of this IAA is to provide funding in the amount of \$1,800,000.00 to NIST for the Human Factors Program including standards related to explosives detection, including standards for detectors and protective equipment, body scanning systems, and cargo scanning.

Please refer to the Statement of Work (SOW) entitled "Statement of Work for Human Factors Program" for specific details.

The technical representative for DHS is as follows:

(b)(6)

(b)(2) (b)(6)

The DHS point of contact for return of the executed agreement is as follows:

(b)(6)

Contracting Officer

(b)(2) (b)(6)

Delivery: 365 Days After Award

0001 Biometrics Equipment 1.762M  
Contracting Fee: \$0

1,762,000.00

Accounting Info:

NONE000-000-9X-38-01-05-001-01-00-0000-00-00-00-00

-GE-OE-25-37-000000

Funded: \$1,762,000.00

0002 38K for Credentialing. This is a 9.5% adjustment against the original planned amount for this line.  
Contracting Fee: \$0

38,000.00

Accounting Info:

NONE000-000-9X-38-01-05-002-01-00-0000-00-00-00-00

-GE-OE-25-37-000000

Funded: \$38,000.00

The total amount of award: \$1,800,000.00. The obligation for this award is shown in box 24.



## ***Statement of Work***

### ***Biometric Sample Quality and Performance Testing Technology Subject Matter Expert***

**U.S. Department of Homeland Security  
Science and Technology Directorate  
Human Factors Division**

**PR#: RSHF-10-00030**

#### **I. Background**

The U.S. Department of Homeland Security (DHS) is committed to using cutting-edge technologies and scientific talent in its quest to make America safer. The DHS Directorate of Science and Technology (S&T) is tasked with researching and organizing the scientific, engineering, and technological resources of the United States and leveraging these existing resources into technological tools to help protect the homeland.

Among the variety of technologies that may be leveraged to support DHS missions, biometrics is a rapidly evolving and maturing technology focus area that may provide significant benefit to protect the homeland. While some facets of biometric technologies are well understood, other aspects require additional research and robust and rigorous scientific review in order to enable DHS components to design and implement enduring biometric screening capabilities to support diverse missions.

The purpose of this statement of work is to requisition specialized services to support the DHS efforts to investigate and advance biometrics recognition technologies through improved understanding of biometric sample assessment and its role in biometric system performance. This effort will include technical review of select biometric studies, participation in technical interchange meetings, and review of technical documents related to sample quality and performance of face and iris recognition technologies.

#### **II. Scope of Work**

The contractor shall provide technical services to review, provide comments, and develop recommendations for DHS efforts to investigate and advance biometrics recognition technologies through improved understanding of biometric sample assessment and its role in biometric system performance. This effort shall include participation in reviews of select biometric studies, participation in technical interchange meetings, and review of technical documents as directed by the DHS S&T Technical Representative. This effort shall also include participation in the development of programs and research studies to improve the understanding of biometric sample assessment and its role in biometric system performance test methodologies and evaluation criteria. It is anticipated that this effort will require a subject matter expert approximately three-quarters of a labor year, per year, to accomplish.

**Tasks:**

**The contractor shall:**

- Participate in select technical interchange meetings as directed by the DHS S&T technical representative.
- Provide technical expertise in DHS supported biometric studies and pilots related to biometrics system performance and biometric sample quality
- Review and provide comments on technical documents as directed by the DHS S&T technical representative. Technical documents may include:
  - o Scientific studies and technical reports
  - o Biometric system performance standards
  - o Biometric technology implementation guidance documents

**III. Other Contract Details**

1. **Period of Performance.** The period of performance for this Statement of Work (SOW) is 36 months from the effective award date, with a base period of one year and two one-year option periods.
2. **Travel.** Travel may be necessary to meet and coordinate exchanges of information on this task. Specific travel requirements will be identified in the Project Plan delivered to DHS. No foreign travel is anticipated.
3. **DHS-Furnished Information.**
  - a. DHS will provide DHS information, materials, and forms unique to DHS to the contractor to support tasks under this SOW. Such DHS-provided information, materials, and forms shall remain the property of DHS, unless otherwise indicated in writing by DHS, and may not be distributed beyond the contractor's project performers without DHS's prior written permission.
  - b. The DHS Task Sponsor identified in this SOW will be the point of contact for identification of any required information to be supplied by DHS.
  - c. The contractor will prepare all documentation (e.g., report deliverables or monthly status reports) according to the guidelines provided by DHS.
4. **DHS-Furnished Facilities, Supplies, and Services.** If work at DHS-provided facilities is necessary for the services being performed under this SOW, such facilities will be provided at S&T's office in Washington, D.C. Parking facilities are not provided, however several commercial parking facilities are located near S&T's office. Basic facilities such as work space and associated operating requirements (e.g., phones, desks, utilities, desktop computers, and consumable and general purpose office supplies) will be provided to contractor personnel working in S&T's office.
5. **Place of Performance.** The contractor will perform the work under this SOW at contractor facilities. The contractor may perform certain work under this SOW at other Federal Government facilities as agreed to by S&T.



6. **DHS-Furnished Property.** DHS property will not be provided to the contractor or any of their performers unless otherwise agreed in a task order issued under this SOW. In such instances, DHS will maintain property records. Before purchasing any individual item equal to or exceeding \$5,000 that is required to support technical tasks performed pursuant to this SOW, the contractor shall obtain the DHS S&T Contracting Officer's prior written consent. If the DHS S&T Contracting Officer consents to such purchase, such item shall become the property of DHS. The contractor will maintain any such items according to currently existing property accountability procedures. The DHS S&T Contracting Officer will determine the final disposition of any such items.
7. **Deliverables.** The contractor will provide all deliverables (including point papers, white papers, briefings, presentations, background studies and interim reports) identified in this SOW directly to the DHS S&T Technical Representative with a copy of the transmittal letter to the Contracting Officer.

Task	Milestone	Deliverables
Participation in select technical interchange	As needed	Documented summary of meeting notes and action items
Provide technical expertise in DHS supported biometric studies and pilots related to biometric sample quality and system performance	As needed	Documented summary of meeting notes, action items, and recommendations
Review and provide comments on technical documents as directed by the DHS S&T technical representative	As needed	Documented technical contributions and comments

8. **Program Status Report.** The contractor will deliver a monthly program status report to the DHS S&T Technical Representative and DHS S&T Resource Manager containing metrics pertaining to financial, schedule, and scope information, risk information, and performance assessment information of all work performed hereunder by the 15<sup>th</sup> of each month delivered in softcopy.
9. **Security Requirements.** All work performed under this SOW is unclassified unless otherwise specified by DHS. All unclassified "Official Use Only" work is expected to occur at the "medium" level per the NIST 800-60 (FIPS Security Categorization) and the Federal Information Security Management Act (FISMA). Any work at the "high" For Official Use Only level per the FISMA, or any work at the classified level, shall be performed on a stand-alone computer system accredited in accordance with the FISMA and applicable DHS policies.

#### **IV. DHS Points of Contact (POCs)**

DHS S&T Technical Representative/Contracting Officer's Technical Representative COTR):

Ms. Patty Wolfhope  
Department of Homeland Security  
Science and Technology Directorate  
Washington, DC 20528  
Phone: (b)(2) (b)(6)  
Email: (b)(2) (b)(6)

DHS S&T Contracting Officer:

Mr. Duane Schatz  
Department of Homeland Security  
Office of the Chief Procurement Officer  
Office of Procurement Operations  
S&T Acquisitions Division  
Washington, DC 20528  
Phone: (b)(2) (b)(6)  
Email: (b)(2) (b)(6)

## **ADDITIONAL DHS AND FAR CLAUSES**

### **DHS CLAUSES**

The following DHS Homeland Security Acquisition Regulation (HSAR) Clauses are hereby incorporated. All terms and conditions incorporated under the awarded DHS EAGLE will remain unchanged and in full force and effect.

#### **HSAR 3027.404 BASIC RIGHTS IN DATA (JUN 2006)**

The DHS will use Alternate IV of the (FAR) 48 CFR clause 52.227-14 in all contracts containing the basic clause, unless the Head of Contracting Activity (HCA) approves an exclusion. Approval at a level above the contracting officer is required for the contract to exclude items or categories of data from Alternative IV.

#### **HSAR 3052.204-71 CONTRACTOR EMPLOYEE ACCESS (JUN 2006)**

(a) *Sensitive Information*, as used in this Chapter, means any information, the loss, misuse, disclosure, or unauthorized access to or modification of which could adversely affect the national or homeland security interest, or the conduct of Federal programs, or the privacy to which individuals are entitled under section 552a of title 5, United States Code (the Privacy Act), but which has not been specifically authorized under criteria established by an Executive Order or an Act of Congress to be kept secret in the interest of national defense, homeland security or foreign policy. This definition includes the following categories of information:

(1) Protected Critical Infrastructure Information (PCII) as set out in the Critical Infrastructure Information Act of 2002 (Title II, Subtitle B, of the Homeland Security Act, Public Law 107-296, 196 Stat. 2135), as amended, the implementing regulations thereto (Title 6, Code of Federal Regulations, Part 29) as amended, the applicable PCII Procedures Manual, as amended, and any supplementary guidance officially communicated by an authorized official of the Department of Homeland Security (including the PCII Program Manager or his/her designee); (2) Sensitive Security Information (SSI), as defined in Title 49, Code of Federal Regulations, Part 1520, as amended, "Policies and Procedures of Safeguarding and Control of SSI," as amended, and any supplementary guidance officially communicated by an authorized official of the Department of Homeland Security (including the Assistant Secretary for the Transportation Security Administration or his/her designee); (3) Information designated as "For Official Use Only," which is unclassified information of a sensitive nature and the unauthorized disclosure of which could adversely impact a person's privacy or welfare, the conduct of Federal programs, or other programs or operations essential to the national or homeland security interest; and (4) Any information that is designated "sensitive" or subject to other controls, safeguards or protections in accordance with subsequently adopted homeland security information handling procedures.

(b) "Information Technology Resources" include, but are not limited to, computer equipment, networking equipment, telecommunications equipment, cabling, network drives, computer drives, network software, computer software, software programs, intranet sites, and internet sites.

(c) Offeror employees working on this contract must complete such forms as may be necessary for security or other reasons, including the conduct of background investigations to determine suitability. Completed forms shall be submitted as directed by the Contracting Officer. Upon the

Contracting Officer's request, the Offeror's employees shall be fingerprinted, or subject to other investigations as required. All Offeror employees requiring recurring access to Government facilities or access to sensitive information or IT resources are required to have a favorably adjudicated background investigation prior to commencing work on this contract unless this requirement is waived under Departmental procedures. (d) The Contracting Officer may require the Offeror to prohibit individuals from working on the contract if the government deems their initial or continued employment contrary to the public interest for any reason, including, but not limited to, carelessness, insubordination, incompetence, or security concerns. (e) Work under this contract may involve access to sensitive information. Therefore, the Offeror shall not disclose, orally or in writing, any sensitive information to any person unless authorized in writing by the Contracting Officer. For those Offeror employees authorized access to sensitive information, the Offeror shall ensure that these persons receive training concerning the protection and disclosure of sensitive information both during and after contract performance. (f) The Offeror shall include the substance of this clause in all subcontracts at any tier where the subcontractor may have access to Government facilities, sensitive information, or resources.

#### **HSAR 3052.209-70 PROHIBITION ON CONTRACTS WITH CORPORATE EXPATRIATES (JUN 2006)**

**(a) Prohibitions.**

Section 835 of the Homeland Security Act, 6 U.S.C. 395, prohibits the Department of Homeland Security from entering into any contract with a foreign incorporated entity which is treated as an inverted domestic corporation as defined in this clause, or with any subsidiary of such an entity. The Secretary shall waive the prohibition with respect to any specific contract if the Secretary determines that the waiver is required in the interest of national security.

**(b) Definitions. As used in this clause:**

*Expanded Affiliated Group* means an affiliated group as defined in section 1504(a) of the Internal Revenue Code of 1986 (without regard to section 1504(b) of such Code), except that section 1504 of such Code shall be applied by substituting 'more than 50 percent' for 'at least 80 percent' each place it appears.

*Foreign Incorporated Entity* means any entity which is, or but for subsection (b) of section 835 of the Homeland Security Act, 6 U.S.C. 395, would be, treated as a foreign corporation for purposes of the Internal Revenue Code of 1986.

*Inverted Domestic Corporation.* A foreign incorporated entity shall be treated as an inverted domestic corporation if, pursuant to a plan (or a series of related transactions)—

(1) The entity completes the direct or indirect acquisition of substantially all of the properties held directly or indirectly by a domestic corporation or substantially all of the properties constituting a trade or business of a domestic partnership;

(2) After the acquisition at least 80 percent of the stock (by vote or value) of the entity is held—

(i) In the case of an acquisition with respect to a domestic corporation, by former shareholders of the domestic corporation by reason of holding stock in the domestic corporation; or

(ii) In the case of an acquisition with respect to a domestic partnership, by former partners of the domestic partnership by reason of holding a capital or profits interest in the domestic partnership; and

(3) The expanded affiliated group which after the acquisition includes the entity does not have substantial business activities in the foreign country in which or under the law of which the entity is created or organized when compared to the total business activities of such expanded affiliated group.

*Person, domestic, and foreign* have the meanings given such terms by paragraphs (1), (4), and (5) of section 7701(a) of the Internal Revenue Code of 1986, respectively. (c) Special rules. The following definitions and special rules shall apply when determining whether a foreign incorporated entity should be treated as an inverted domestic corporation.

(1) *Certain Stock Disregarded.* For the purpose of treating a foreign incorporated entity as an inverted domestic corporation these shall not be taken into account in determining ownership:

(i) Stock held by members of the expanded affiliated group which includes the foreign incorporated entity; or

(ii) stock of such entity which is sold in a public offering related to the acquisition described in subsection (b)(1) of Section 835 of the Homeland Security Act, 6 U.S.C. 395(b)(1).

(2) *Plan Deemed In Certain Cases.* If a foreign incorporated entity acquires directly or indirectly substantially all of the properties of a domestic corporation or partnership during the 4-year period beginning on the date which is 2 years before the ownership requirements of subsection (b)(2) are met, such actions shall be treated as pursuant to a plan.

(3) *Certain Transfers Disregarded.* The transfer of properties or liabilities (including by contribution or distribution) shall be disregarded if such transfers are part of a plan a principal purpose of which is to avoid the purposes of this section.

(d) *Special Rule for Related Partnerships.* For purposes of applying section 835(b) of the Homeland Security Act, 6 U.S.C. 395(b) to the acquisition of a domestic partnership, except as provided in regulations, all domestic partnerships which are under common control (within the meaning of section 482 of the Internal Revenue Code of 1986) shall be treated as a partnership.

(e) *Treatment of Certain Rights.*

(1) Certain rights shall be treated as stocks to the extent necessary to reflect the present value of all equitable interests incident to the transaction, as follows:

(i) warrants;

(ii) options;

(iii) contracts to acquire stock;

(iv) convertible debt instruments; and

(v) others similar interests.

(2) Rights labeled as stocks shall not be treated as stocks whenever it is deemed appropriate to do so to reflect the present value of the transaction or to disregard transactions whose recognition would defeat the purpose of Section 835.

(f) *Disclosure.* The offeror under this solicitation represents that [Check one]:

☒ it is not a foreign incorporated entity that should be treated as an inverted domestic corporation pursuant to the criteria of (HSAR) 48 CFR 3009.104-70 through 3009.104-73;

☐ it is a foreign incorporated entity that should be treated as an inverted domestic corporation pursuant to the criteria of (HSAR) 48 CFR 3009.104-70 through 3009.104-73, but it has submitted a request for waiver pursuant to 3009.104-74, which has not been denied; or

☐ it is a foreign incorporated entity that should be treated as an inverted domestic corporation pursuant to the criteria of (HSAR) 48 CFR 3009.104-70 through 3009.104-73, but it plans to submit a request for waiver pursuant to 3009.104-74.

(g) A copy of the approved waiver, if a waiver has already been granted, or the waiver request, if a waiver has been applied for, shall be attached to the bid or proposal.

#### **HSAR 3052.209-72 ORGANIZATIONAL CONFLICT OF INTEREST (JUN 2006)**

(a) Determination. The Government has determined that this effort may result in an actual or potential conflict of interest, or may provide one or more offerors with the potential to attain an unfair competitive advantage. The offeror must provide a statement that no past, present or planned organizational, financial, contractual, or other interests with an organization whose interests may be substantially affected by Departmental activities and which is related to the work under this requirement.

(b) If any such conflict of interest is found to exist, the Contracting Officer may (1) disqualify the offeror, or (2) determine that it is otherwise in the best interest of the United States to contract with the offeror and include the appropriate provisions to avoid, neutralize, mitigate, or waive such conflict in the contract awarded. After discussion with the offeror, the Contracting Officer may determine that the actual conflict cannot be avoided, neutralized, mitigated or otherwise resolved to the satisfaction of the Government, and the offeror may be found ineligible for award.

(c) Disclosure: The offeror hereby represents, to the best of its knowledge that:

☒ (1) It is not aware of any facts which create any actual or potential organizational conflicts of interest relating to the award of this contract, or

☐ (2) It has included information in its proposal, providing all current information bearing on the existence of any actual or potential organizational conflicts of interest, and has included a mitigation plan in accordance with paragraph (d) of this provision. (d) Mitigation. If an offeror with a potential or actual conflict of interest or unfair competitive advantage believes the conflict can be avoided, neutralized, or mitigated, the offeror shall submit a mitigation plan to the Government for review. Award of a contract where an actual or potential conflict of interest exists shall not occur before Government approval of the mitigation plan. If a mitigation plan is approved, the restrictions of this provision do not apply to the extent defined in the mitigation plan. (e) Other Relevant Information: In addition to the mitigation plan, the Contracting Officer may require further relevant information from the offeror. The Contracting Officer will use all information submitted by the offeror, and any other relevant information known to DHS, to determine whether an award to the offeror may take place, and whether the mitigation plan adequately neutralizes or mitigates the conflict. (f) Corporation Change. The successful offeror shall inform the Contracting Officer within thirty (30) calendar days of the effective date of any corporate mergers, acquisitions, and/or divestures that may affect this provision. (g) Flow-down. The Offeror shall insert the substance of this clause in each first tier subcontract that exceeds the simplified acquisition threshold.

#### **HSAR 3052.215-70 KEY PERSONNEL OR FACILITIES (DEC 2003)**

(a) The personnel and facilities specified in this contract are considered essential to the work being performed under this contract and may, with the consent of the contracting parties, be changed from time to time during the course of the contract by adding or deleting personnel or facilities, as appropriate and under the conditions specified below.



(b) Before removing or replacing any of the specified individuals or facilities, the Contractor shall notify the Contracting Officer, in writing, before the change becomes effective. The Contractor shall submit sufficient information to support the proposed action and to enable the Contracting Officer to evaluate the potential impact of the change on this contract. The Contractor shall not remove or replace personnel or facilities until the Contracting Officer approves the change.

The Key Personnel for Facilities under this Task Order:

(b) (4)

**HSAR 3052.242-71 DISSEMINATION OF CONTRACT INFORMATION  
(DEC 2003)**

The Contractor shall not publish, permit to be published, or distribute for public consumption, any information, oral or written, concerning the results or conclusions made pursuant to the performance of this contract, without the prior written consent of the Contracting Officer. An electronic or printed copy of any material proposed to be published or distributed shall be submitted to the Contracting Officer.

**HSAR 3052.242-72 CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE  
(DEC 2003)**

The Contracting Officer may designate Government personnel to act as the Contracting Officer's Technical Representative (COTR) to perform functions under the task order, such as review or inspection and acceptance of supplies, services, including construction, and other functions of a technical nature. The Contracting Officer will provide a written notice of such designation to the Contractor within five working days after contract award or for construction, not less than five working days prior to giving the Contractor the notice to proceed. The designation letter will set forth the authorities and limitations of the COTR under the task order.

The Contracting Officer cannot authorize the COTR or any other representative to sign documents, such as contracts, contract modifications, etc., that require the signature of the Contracting Officer.

COTR Name: Patty Wolfhope

Phone No. (b)(2) (b)(6)

Email Address: (b)(2) (b)(6)

**HSAR 3052.204-70 SECURITY REQUIREMENTS FOR UNCLASSIFIED  
INFORMATION TECHNOLOGY RESOURCES (JUN 2006)**

(a) The Contractor shall be responsible for Information Technology (IT) security for all systems connected to a DHS network or operated by the Contractor for DHS, regardless of location. This clause applies to all or any part of the contract that includes information technology resources or services for which the Contractor must have physical or electronic access to sensitive information contained in DHS unclassified systems that directly support the agency's mission.

(b) The Contractor shall provide, implement, and maintain an IT Security Plan. This plan shall describe the processes and procedures that will be followed to ensure appropriate security of IT resources that are developed, processed, or used under this contract.

(1) Within 5 days after contract award, the contractor shall submit for approval its IT Security Plan, which shall be consistent with and further detail the approach contained in the offeror's proposal. The plan, as approved by the Contracting Officer, shall be incorporated into the contract as a compliance document.

(2) The Contractor's IT Security Plan shall comply with Federal laws that include, but are not limited to, the Computer Security Act of 1987 (40 U.S.C. 1441 et seq.); the Government Information Security Reform Act of 2000; and the Federal Information Security Management Act of 2002; and with Federal policies and procedures that include, but are not limited to, OMB Circular A-130.

(3) The security plan shall specifically include instructions regarding handling and protecting sensitive information at the Contractor's site (including any information stored, processed, or transmitted using the Contractor's computer systems), and the secure management, operation, maintenance, programming, and system administration of computer systems, networks, and telecommunications systems.

(c) Examples of tasks that require security provisions include--

(1) Acquisition, transmission or analysis of data owned by DHS with significant replacement cost should the contractor's copy be corrupted; and

(2) Access to DHS networks or computers at a level beyond that granted the general public (e.g., such as bypassing a firewall).

(d) At the expiration of the contract, the contractor shall return all sensitive DHS information and IT resources provided to the contractor during the contract, and certify that all non-public DHS information has been purged from any contractor-owned system. Components shall conduct reviews to ensure that the security requirements in the contract are implemented and enforced.

(e) Within 6 months after contract award, the contractor shall submit written proof of IT Security accreditation to DHS for approval by the DHS Contracting Officer. Accreditation will proceed according to the criteria of the DHS Sensitive System Policy Publication, 4300A (Version 2.1, July 26, 2004) or any replacement publication, which the Contracting Officer will provide upon request. This accreditation will include a final security plan, risk assessment, security test and evaluation, and disaster recovery plan/continuity of operations plan. This accreditation, when accepted by the Contracting Officer, shall be incorporated into the contract as a compliance document. The contractor shall comply with the approved accreditation documentation.

### **FAR CLAUSES**

The following Federal Acquisition Regulation (FAR) Clauses are hereby incorporated. All terms and conditions incorporated under the awarded DHS EAGLE will remain unchanged and in full force and effect.

#### **52.217-8 OPTION TO EXTEND SERVICES (NOV 1999)**

The Government may require continued performance of any services within the limits and at the rates specified in the contract. These rates may be adjusted only as a result of revisions to prevailing labor rates provided by the Secretary of Labor. The option provision may be exercised

more than once, but the total extension of performance hereunder shall not exceed 6 months. The Contracting Officer may exercise the option by written notice to the Contractor within 1 day of the end of the current period of performance.

**FAR 52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT (MAR 2000)**

(a) The Government may extend the term of this contract by written notice to the Contractor within 1 day prior to the contract expiration date provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least 30 days before the contract expires. The preliminary notice does not commit the Government to an extension.

(b) If the Government exercises this option, the extended contract shall be considered to include this option clause.

(c) The total duration of this contract, including the exercise of any options under this clause, shall not exceed 36 months.

# ORDER FOR SUPPLIES OR SERVICES

PAGE OF PAGES

1 14

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1 DATE OF ORDER 03/05/2010		2 CONTRACT NO. (If any) HSHQDC-06-D-00021		8 SHIP TO	
3 ORDER NO HSHQDC-10-J-00108		4 REQUISITION/REFERENCE NO RSHF-10-00030		a NAME OF CONSIGNEE Department of Homeland Security	
5 ISSUING OFFICE (Address correspondence to) U.S. Dept. of Homeland Security Office of Procurement Operations S&T Acquisition Division 245 Murray Lane, SW Building 410 Washington DC 20528				b STREET ADDRESS 245 Murray Lane Bldg. 410	
				c CITY Washington	d STATE DC
				e ZIP CODE 20528	
7 TO: FERNANDO PIDAL				f SHIP VIA	
a NAME OF CONTRACTOR COMPUTER SCIENCES CORPORATION					
b COMPANY NAME				8 TYPE OF ORDER	
c STREET ADDRESS 15000 CONFERENCE CENTER DRIVE				<input type="checkbox"/> a PURCHASE REFERENCE YOUR  <input checked="" type="checkbox"/> b DELIVERY Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.	
d CITY CHANTILLY		e STATE VA	f ZIP CODE 201513080	Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.	
9 ACCOUNTING AND APPROPRIATION DATA See Schedule				10 REQUISITIONING OFFICE Department of Homeland Security	
11 BUSINESS CLASSIFICATION (Check appropriate box(es))					
<input type="checkbox"/> a SMALL <input checked="" type="checkbox"/> b OTHER THAN SMALL <input type="checkbox"/> c DISADVANTAGED <input type="checkbox"/> d SERVICE-DISABLED VETERAN-OWNED <input type="checkbox"/> e WOMEN-OWNED <input type="checkbox"/> f HUBZone <input type="checkbox"/> g EMERGING SMALL BUSINESS					
12 F O B POINT Destination					
13 PLACE OF		14 GOVERNMENT B/L NO		15 DELIVER TO F.O.B. POINT ON OR BEFORE (Date) 365 Days After Award	
a INSPECTION Destination	b ACCEPTANCE Destination			16 DISCOUNT TERMS Net 30	

## 17. SCHEDULE (See reverse for Rejections)

ITEM NO (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	DUNS Number: 167448161+0000 Division/PPA: Human Factors/Behavioral Sciences Division Thrust: Personal Identification Systems Program: Biometrics Project: Face, Iris Mobile Biometrics SME Continued ...					
18 SHIPPING POINT		19 GROSS SHIPPING WEIGHT		20 INVOICE NO.		17(h) TOTAL (Cont pages)
21 MAIL INVOICE TO						
a NAME DHS ICE		\$200,000.00				17(i) GRAND TOTAL
b STREET ADDRESS (or P.O. Box) Burlington Finance Center PO BOX 1000 Attn: S&T Division						
c CITY Williston		d STATE VT	e ZIP CODE 05495-1000	\$200,000.00		

22. UNITED STATES OF AMERICA BY (Signature)

*Duane Schatz*

23. NAME (Typed)  
Duane Schatz  
TITLE: CONTRACTING/ORDERING OFFICER



**ORDER FOR SUPPLIES OR SERVICES  
SCHEDULE - CONTINUATION**

PAGE NO

2

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER

CONTRACT NO.

ORDER NO

03/05/2010

HSHQDC-06-D-00021

HSHQDC-10-J-00108

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	<p>Performer: Computer Sciences Corporation (CSC)  Appropriations Year: FY10 (02)  Budget Authority: Three-Year Funds  Project Manager: Patty Wolfhope</p> <p>ALC: 70-08-1513  APPS: 70020800</p> <p>The purpose of this action is to award a Cost Plus Fixed Fee (CPFF) task order under CSC's DHS EAGLE contract. Work will be conducted in accordance with the attached Statement of Work (4 pages) and Additional DHS and FAR Clauses (7 pages).</p> <p>Invoices should be emailed to SAT.Invoice.Consolidation@dhs.gov or mailed to the address shown in block 21.</p> <p>This effort will be for one base period of performance of 12 months and two one-year option periods. \$200,000.00 in new funding is provided for the base year of this effort, which will be incrementally funded.</p> <p>All other terms and conditions from CSC's DHS EAGLE contract HSHQDC-06-D-00021 remain in full force and effect.</p> <p>Base Year  Cost: (b) (4)  Fee: (b) (4)  CPFF: \$290,672.74</p> <p>Option Year 1  Cost: (b) (4)  Fee: (b) (4)  CPFF: \$296,748.65</p> <p>Option Year 2  Cost: (b) (4)  Fee: (b) (4)  CPFF: \$303,994.76</p> <p>Total  Continued ...</p>					
TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))					\$0.00	



**ORDER FOR SUPPLIES OR SERVICES  
SCHEDULE - CONTINUATION**

PAGE NO

3

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER  
03/05/2010

CONTRACT NO  
HSHQDC-06-D-00021

ORDER NO  
HSHQDC-10-J-00108

ITEM NO. (a)	SUPPLIES/SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	Cost: (b)(4) Fee: (b)(4) CPFF: \$891,416.15 Admin Office: U.S. Dept. of Homeland Security Office of Procurement Operations S&T Acquisition Division 245 Murray Lane, SW Building 410 Washington DC 20528 Accounting Info: NONE000-000-02-34-01-01-005-01-00-0000-00-00 -00-00-GE-QE-25-37-000000 Period of Performance: 03/05/2010 to 03/04/2011					
0001	Base Year (12 months) Total Line Item Value\$290,672.74				200,000.00	
1001	Option Year 1 (12 months) Amount: \$296,748.65 (Option Line Item)				0.00	
2001	Option Year 2 (12 months) Amount: \$303,994.76 (Option Line Item)  The total amount of award: \$891,416.15. The obligation for this award is shown in box 17(i).				0.00	
TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17(H))						\$200,000.00