Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Office of Secretary Of Defense											DATE: April 2013	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*					R-1 ITEM NOMENCLATURE PE 0603665D8Z: *Biometrics Science and Technology*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	-	10.342	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
P665: *Biometrics Science and Technology*	-	10.342	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

This program ends in FY 2012.

A. Mission Description and Budget Item Justification

Biometric technologies are revolutionizing critical military operations by providing the warfighter with the ability to verify an individual's claimed identity; and, when combined with additional intelligence and/or forensic information, establish an unknown individual's identity, which strips away his anonymity. These emerging technologies provide Department of Defense (DoD) warfighters and commanders with an important capability that supports such missions as base access, force protection, maritime intercept and counter-piracy operations, counterintelligence screening, humanitarian assistance and displaced persons management. Additionally, the biometrics and identity information collected during DoD missions are shared with the Department of Homeland Security, the Department of State, and the Department of Justice, to support homeland defense, law enforcement, and other national interests.

In October 2006, the Deputy Secretary of Defense designated the Assistant Secretary of Defense for Research and Engineering (ASD(R&E)) as Principal Staff Assistant (PSA) for biometrics. In April 2011, the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) was designated as the PSA for forensics. The PSAs for biometrics and forensics have the responsibility to fully address and exercise control over all facets of the DoD's biometrics and forensics programs, initiatives and technologies. A central role of the Biometrics and Forensics Science & Technology Program is to support each respective PSA in addressing the technology gaps that preclude our ability to quickly and accurately identify anonymous individuals who threaten our interests and provide the ability to attribute enemy activity to a specific individual.

The Biometrics and Forensics Program develops an annual comprehensive science and technology (S&T) plan and implements multiple projects to advance capabilities in both biometrics and forensics. This S&T plan includes a portfolio of emerging technologies that will support the evolving capabilities required by the commanders and warfighters in ongoing and future military operations.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Office of Secretary Of Defense	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603665D8Z: *Biometrics Science and Technology*

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	10.406	0.000	0.000	-	0.000
Current President's Budget	10.342	0.000	0.000	-	0.000
Total Adjustments	-0.064	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.061	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustments	-0.003	-	-	-	-

Change Summary Explanation

This program is terminated in FY 2012 as part of DoD priorities and adjustments.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Office of Secretary Of Defense			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603665D8Z: *Biometrics Science and Technology*	PROJECT P665: *Biometrics Science and Technology*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
P665: *Biometrics Science and Technology*	-	10.342	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

Note

This program ends in FY 2012.

A. Mission Description and Budget Item Justification

Biometric technologies are revolutionizing critical military operations by providing the warfighter with the ability to verify an individual's claimed identity; and, when combined with additional intelligence and/or forensic information, establish an unknown individual's identity, which strips away his anonymity. These emerging technologies provide Department of Defense (DoD) warfighters and commanders with an important capability that supports such missions as base access, force protection, maritime intercept and counter-piracy operations, counterintelligence screening, humanitarian assistance and displaced persons management. Additionally, the biometrics and identity information collected during DoD missions are shared with the Department of Homeland Security, the Department of State, and the Department of Justice, to support homeland defense, law enforcement, and other national interests.

In October 2006, the Deputy Secretary of Defense designated the Assistant Secretary of Defense for Research and Engineering (ASD(R&E)) as Principal Staff Assistant (PSA) for biometrics. In April 2011, the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)) was designated as the PSA for forensics. The PSAs for biometrics and forensics have the responsibility to fully address and exercise control over all facets of the DoD's biometrics and forensics programs, initiatives and technologies. A central role of the Biometrics and Forensics Science & Technology Program is to support each respective PSA in addressing the technology gaps that preclude our ability to quickly and accurately identify anonymous individuals who threaten our interests and provide the ability to attribute enemy activity to a specific individual.

The Biometrics and Forensics Program develops an annual comprehensive science and technology (S&T) plan and implements multiple projects to advance capabilities in both biometrics and forensics. This S&T plan includes a portfolio of emerging technologies that will support the evolving capabilities required by the commanders and warfighters in ongoing and future military operations.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: Biometric and Forensic Engineering Analysis	1.372	0.000	0.000
Description: The Biometrics and Forensics Program sponsored two projects that assessed elements of the biometric and the forensic enterprises from an engineering perspective. The Biometric Information Technology Evaluation (BITE) assessed the current use of biometrics in support of force protection missions and has built a metrics framework for the Defense Forensics			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Office of Secretary Of Defense		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603665D8Z: *Biometrics Science and Technology*	PROJECT P665: *Biometrics Science and Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Enterprise. The Biometric and Forensic Information Services Model-Based Systems Engineering (MBSE) effort provided enterprise and solutions-level architecture development, collaboration and review support. ***FY 2012 Accomplishments:*** The BITE program delivered a report on the actual and potential use of biometrics in support of force protection missions as well as the Defense Forensics Enterprise metrics dashboard and supporting database capability. The MBSE effort evaluated the enterprise architectures at the solutions level and provided recommendations for future technology implementations to support the warfighter.			
Title: Emerging Forensic Projects ***Description:*** The Forensics Program sponsored five projects that developed emerging forensic technologies. The Aptamer Selection and Integration in Nanoparticle-Based Detection Systems is delivering a selection method for aptamers that can be used to detect multiple chemicals. The Single-use Sensor Strips for Reliable Field Analysis of Gunshot Residues project investigated the ability to immediately identify individuals that fired a weapon in a battlefield environment using electrochemical stripping voltammetry. The Real-Time Synthetic Cannabinoid Detection Platform is developing a compact prototype to detect cannabiniods. The Statistical Analysis of Firearms/Toolmarks project has developed a system to evaluate impressions generated by discharge of a firearm for use in an expeditionary environment. The Comprehensive Ribonucleic Acid (RNA)-based Bodyfluid Identification Assay project is developing a Deoxyribonucleic Acid (DNA)/RNA co-extraction isolation protocol that permits the simultaneous identification of all forensically relevant biological fluids. ***FY 2012 Accomplishments:*** The Single-use Sensor Strips project delivered the sensor design and a prototype of the sensor strip for demonstration and testing. The Real-Time Synthetic Cannabinoid Detection Platform demonstrated the initial capability; the Statistical Analysis of Firearms/Toolmarks project delivered an initial software prototype; the Aptamer Selection and Integration in Nanoparticle-Based Detection Systems project demonstrated multi-target detection; and, the Comprehensive RNA-based Bodyfluid Identification Assay project delivered technical manuals and analysis macros along with initial reagents and consumables.	1.703	0.000	0.000
Title: Fingerprint Capture and Processing ***Description:*** The Fingerprint Capture and Processing Program sponsored three projects to assess and develop new technologies for fingerprint capture and the processing of latent prints. The Four Finger Mobile Capture Platform project investigated the feasibility of developing a solid state four finger slap capture system based on thin film technology. The Advanced Fingerprint Card Scanning project is developing an automated fingerprint card scanning prototype that can quickly and accurately process a wide variety of paper-based fingerprint cards, extract both the biometric and biographical information, and populate a transmission	1.272	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Office of Secretary Of Defense		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603665D8Z: *Biometrics Science and Technology*	PROJECT P665: *Biometrics Science and Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
file. The Forensic Science Validation of Latent Fingerprint Analysis effort examined the scientific basis of latent fingerprint validation techniques to inform the development of improved procedures and requirements for latent fingerprint examiners. ***FY 2012 Accomplishments:*** The Four Finger Mobile Capture Platform delivered an initial specification document and development plan. The Advanced Fingerprint Card Scanning project has demonstrated an initial capability and continues to develop a prototype device in FY 2013. The Forensic Science Validation of Latent Fingerprint Analysis project delivered an initial analysis of the variability and quantification of uncertainty in latent fingerprints.			
Title: DNA Extraction and Processing ***Description:*** The Biometrics and Forensics Office sponsored two projects to develop new techniques and technologies in the extraction and processing of DNA. The Extraction of DNA from Crude Matrices project developed a new DNA extraction and purification technique to extract human DNA from bone and gum matrices, as well as, extract plant DNA from plant material. The Automated Liquid Handling for DNA Processing project evaluated, selected, and internally validated an automated liquid handling system and sample tracking software capability. ***FY 2012 Accomplishments:*** The first phase of the Automated Liquid Handling for DNA Processing project developed an enhanced DNA extraction protocol that now yields two to three times more DNA than current extraction methods. To further increase extraction yields and productivity, two automated liquid handling systems and associated software were delivered to DoD. Also, the Extraction of DNA from Crude Matrices delivered a final report describing the new DNA extraction and purification technique.	1.092	0.000	0.000
Title: Forensic Technology Test and Evaluation ***Description:*** This project developed and tested a pilot system for aiding in data collection in the process of forensic evidence submission. In addition, this effort is managing a study of the reliability of forensic firearms examiners in comparing fired cartridge casings. The results of this project will lead to more relevant and timely forensic analysis for commanders. ***FY 2012 Accomplishments:*** This project completed a forensic technology needs assessment and will deliver a test plan for evaluating the reliability of forensic firearms examiners which will be implemented in late FY 2013.	1.420	0.000	0.000
Title: Next Generation DNA Sequencing	1.145	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Office of Secretary Of Defense		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603665D8Z: *Biometrics Science and Technology*	PROJECT P665: *Biometrics Science and Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Description: This project is exploring the potential uses of DNA sequencing in biometric and forensic applications. The project is currently establishing the scientific foundation for DNA sequencing techniques to ensure backwards compatibility with existing DNA databases as well as conducting population studies to establish the validity of new analyses. ***FY 2012 Accomplishments:*** This project will developed baseline methods for locus selection, primer design and data analysis and management. In addition, this project developed initial standards for sequence-based analysis for all currently validated DNA identification databases. These baseline methods and standards will be delivered in FY 2013.			
Title: Rapid Biometric for Physical Access Control ***Description:*** This project developed a prototype device to identify individuals in a moving vehicle using facial recognition technology. The technology leverages a series of cameras for face finding and capture of high quality images for matching against a database of enrolled individuals. The system is able to correct for blur, pose and illumination issues of a moving vehicle in an outdoor environment. ***FY 2012 Accomplishments:*** This project delivered an initial prototype system to enable testing and further development. The final prototype integrated into an existing physical access control point for demonstration and testing purposes.	1.272	0.000	0.000
Title: Fingerprint Fragment Fusion ***Description:*** This project addressed the challenge of matching latent fingerprints of varying quality to fingerprints that reside in a fingerprint database. This project leveraged an innovative approach to map the ridge detail on a latent fingerprint and compare the results to a gallery of enrolled fingerprints. This project seeks to improve the number of matches and the confidence in the matches over existing latent fingerprint matching systems. ***FY 2012 Accomplishments:*** This project developed a prototype software solution, with testing against a latent fingerprint database. Army is testing and evaluating in FY 2013.	1.066	0.000	0.000
Accomplishments/Planned Programs Subtotals	10.342	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2014 Office of Secretary Of Defense		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603665D8Z: *Biometrics Science and Technology*	PROJECT P665: *Biometrics Science and Technology*

D. Acquisition Strategy

N/A

E. Performance Metrics

The Defense Biometrics and Forensics Science and Technology (S&T) strategy is to annually assess biometric and forensic technology gaps in DoD's combined S&T portfolio, and sponsor projects that help close those gaps. These projects are designed to advance immature technologies and deliver a prototype.

In FY 2012, nine projects were completed with prototype or final product delivery. Six projects were focused on biometrics and transitioned to the Army as the Executive Agent for Biometrics. Three of the projects were focused on forensics and were transitioned to the Army as the Executive Agent for Forensics. Close coordination between biometrics and forensics operational users and the respective S&T communities helped ensure each delivered product was transitioned to operational use. The Biometrics transition rate of 100 percent for FY 2012 exceeds the 40 percent benchmark established by DoD Strategic Objective 3.5 - 2D.

In addition, project performance metrics specific to each effort are identified in the project plan, and individual project success will be monitored through these metrics. The metrics include items such as target dates from project work break down schedules, production measures, production goals, production numbers and demonstration goals and dates.