Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Office of Secretary Of Defense										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*				R-1 ITEM NOMENCLATURE PE 0603942D8Z: *Technology Transfer and Transition*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	13.351	23.310	-	-	-	-	-	-	-	Continuing	Continuing
P942: *Technology Transfer*	13.351	2.153	-	-	-	-	-	-	-	Continuing	Continuing
P949: *Technology Transition Initiative*	-	21.157	-	-	-	-	-	-	-	Continuing	Continuing

Note

FY 2011 changes from FY 2010 reflect realignment of resources from the following program element into Technology Transfer and Transition to benefit management communications, fiscal tracking, budget justification and overall program resource management of Transfer/Transition efforts:
PE 0603826D8Z Quick Reactions Special Projects, Technology Transition Initiative (Transfer into P949).

FY 2012 changes reflect reallocation of funds from TTI to higher priority DoD requirements.

A. Mission Description and Budget Item Justification

The Technology Transfer and Transition (TT&T) program (Program Element 0603942D8Z) has two sub-elements: the Technology Transfer program (P942), and Technology Transition Initiative (P949).

Defense Technology Transfer (P942) was referred to in previous budgets as Defense Technology Link (TechLink). This change serves to distinguish the Technology Transfer program from one of the program's successful contractors, TechLink of Montana State University. Defense Technology Transfer's three-fold mission is (1) integration of advanced commercial-sector technologies into Department of Defense (DoD) systems, particularly from nontraditional defense contractors; (2) spinoff of DoD-developed technologies to industry for product development and to make these technologies available for military acquisition; and (3) establishment of collaborative Research and Development (R&D) projects with the private sector for cost-sharing of new dual-use technology development.

Defense Technology Transfer has been highly successful at helping the Department transfer its technologies to U.S. companies, and making these technologies available for both military and commercial applications. Technology Transfer is highly cost-effective with elements achieving significant Return on Investment (RoI) to DoD. For example, TechLink has provided a RoI to DoD of 4:1 on funds expended to date. This efficiently run organization currently accounts for 50 percent of all DoD patent license agreements (PLA) and has brokered over 650 PLAs, Cooperative Research and Development Agreements (CRADA) and other R&D partnerships involving innovative companies new to DoD.

The fiscal controls above represent the investment of the TT&T Program funding for the TTI Program (P949). The Technology Transition Initiative (TTI), authorized by Title 10 and Section 242 of the FY2003 Defense Authorization Act, facilitates the rapid transition of new technologies from the Department of Defense (DoD) science and technology (S&T) base into DoD acquisition programs. The program addresses the funding gaps that exist between the time a mature technology is demonstrated and the time it can be funded and procured for use in an intended weapons system or operational capability for the warfighter. The TTI program is mandated by Congress and receives high congressional interest.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Office of Secretary Of Defense	DATE: February 2011
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Since the TTI (P949) program inception in FY 2003, 78 projects have been initiated and 50 are complete. Of the 50 completed projects, 35 (70%) have successfully transitioned to DoD Acquisition Programs of Record or procurement contracts for operational use and subsequent fielding; exceeding the objective of 30% for demonstration programs (Strategic Objective 4-3, Office of the Under Secretary of Defense, Acquisition, Technology & Logistics (OUSD (AT&L)).

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	2.219	23.310	20.591	-	20.591
Current President's Budget	13.351	23.310	-	-	-
Total Adjustments	11.132	-	-20.591	-	-20.591
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	0.063	-			
• Funding Realignment of Technology Transition Initiative	-	-	-	-	-
• Other Adjustments	11.069	-	-20.591	-	-20.591

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2010	FY 2011
Project: P942: *Technology Transfer*		
Congressional Add: *FirstLink*	2.400	-
Congressional Add: *MilTech Expansion Program*	1.600	-
Congressional Add: *Center for Innovation at Arlington*	2.700	-
Congressional Add: *National Radio Frequency Research*	4.000	-
Congressional Add: *Program Increase*	0.750	-
Congressional Add Subtotals for Project: P942	11.450	-
Congressional Add Totals for all Projects	11.450	-

Change Summary Explanation

FY 2011 changes reflect realignment of resources from the following program element into Technology Transfer and Transition to benefit aligned management communications, fiscal tracking, budget justification and overall program resource management of Transfer/Transition efforts:

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Office of Secretary Of Defense	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603942D8Z: *Technology Transfer and Transition*

PE 0603826D8Z Quick Reactions Special Projects, Technology Transition Initiative (Transfer into P949).

FY 2012 changes from FY 2011 reflect reallocation of funds to higher priority DoD requirements and subsequent program termination.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603942D8Z: *Technology Transfer and Transition*	PROJECT P942: *Technology Transfer*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
P942: *Technology Transfer*	13.351	2.153	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Defense Technology Transfer was referred to in previous budgets as Defense Technology Link (TechLink). This change serves to distinguish the Technology Transfer program from one of the program's successful contractors, TechLink of Montana State University.

Defense Technology Transfer is an element in the Department's technology transfer, transition, and acquisition activities. Its three-fold mission is (1) integration of advanced commercial-sector technologies into Department of Defense (DoD) systems, particularly from nontraditional defense contractors; (2) spin-off of DoD developed technologies to industry to make these technologies available for military acquisition; and (3) establishment of collaborative Research & Development (R&D) projects with the private sector for cost-sharing of new dual-use technology development.

Defense Technology Transfer has been highly successful at helping the Department transfer its technologies to U.S. companies, and first responders making these technologies available for both military and commercial applications.

Technology Transfer is highly cost-effective with elements achieving significant Return on Investment (ROI) to DoD. For example, TechLink has provided a ROI to DoD of 4:1 on funds expended to date. This efficiently run organization currently accounts for 50 percent of all DoD patent license agreements (PLA) and has brokered over 650 Patent License Agreements (PLAs), Cooperative Research and Development Agreements (CRADAs) and other R&D partnerships involving innovative companies new to DoD.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: Marketing of DoD technologies	1.037	1.270	-
Description: Actively market DoD-developed technologies to US companies to establish Patent License Agreements to commercialize these technologies for both civilian and military applications. The multiple objectives of this technology marketing activity are to (1) accelerate the transition of DoD-developed technologies to the warfighter; (2) lower the cost of DoD technology acquisition by developing a larger commercial market for dual-use technologies; (3) provide a return of revenue to DoD labs from commercial spin-off of defense technologies; and (4) fulfill DoD's Congressionally mandated technology transfer directives.			
FY 2010 Accomplishments: Actively marketed DoD-developed technologies to US companies to establish Patent License Agreements to commercialize these technologies for both civilian and military applications. As an example, TechLink, DoD's Technology Transfer "Partnership Intermediary," facilitated two licensing agreements for a tactical biological sensor (TAC-BIO) developed by the US Army Edgewood Chemical and Biological Command. TAC-BIO meets a pressing need for low-cost, man-portable sensors with real-time responses for detection of aerosolized biological agents. Additional advantages over current technology are the sensor's			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
low power requirements and minimal need for consumables. The companies that licensed the TAC-BIO technology are Research International of Monroe, WA, and General Dynamics of Charlotte, NC. TAC-BIO promises to help protect US warfighters as well as to significantly enhance homeland defense and security. As another example, TechLink facilitated a licensing agreement between the Walter Reed Army Institute of Research (WRAIR) and Avanti Polar Lipids of Alabaster, AL, for a method of making membrane-specific antibodies that can be used to develop vaccines for deadly viral diseases. Examples include AIDS and hepatitis C. No vaccines currently exist for these two infectious diseases. Over 200 million people worldwide are infected with hepatitis C and 34 million people with HIV. The WRAIR technology also has good potential for treatment of chronic diseases such as cancer. Both military and civilian populations will benefit from commercialization of the WRAIR-developed technology. ***FY 2011 Plans:*** Continue active marketing of DoD-developed technologies to US companies to establish Patent License Agreements to commercialize these technologies for both civilian and military applications. The multiple objectives of this technology marketing activity are to (1) accelerate the transition of DoD-developed technologies to the warfighter; (2) lower the cost of DoD technology acquisition by developing a larger commercial market for dual-use technologies; (3) provide a return of revenue to DoD labs from commercial spin-off of defense technologies; and (4) fulfill DoD's Congressionally mandated technology transfer directives.			
Title: Dual Use Technology Development ***Description:*** Actively promote and broker Cooperative Research and Development Agreements (CRADAs) between DoD labs and industry for development of technology with both commercial and military applications. This activity will particularly focus on nontraditional defense contractors and is intended (1) to help lower the expense of new defense-related technology development through cost-sharing with industry, and (2) to help DoD benefit from private-sector technology investments and innovations. As an example TechLink facilitated a CRADA and a PLA between the Army Edgewood Chemical Biological Center (ECBC) and BVS, Inc. of Missoula, Montana for an advanced integrated virus screening detection system. This system can rapidly screen for a wide variety of viruses that affect humans, wildlife, and livestock such as avian influenza in chickens. The CRADA provides for BVS to contribute to development of a comprehensive viral database at ECBC. ***FY 2010 Accomplishments:*** Continued to actively promote and broker Cooperative Research and Development Agreements (CRADAs) between DoD labs and industry for development of technology with both commercial and military applications. Broker new CRADAs between DoD labs and industry, thereby enabling DoD and industry to leverage technology development efforts by both parties. ***FY 2011 Plans:***	0.564	0.574	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Continue to execute program plan with objective to achieve program goals of an equal or higher output than the previous year.			
Title: Spin-In of Advanced Commercial-Sector Technologies	0.300	0.309	-
Description: Actively promote the DoD Small Business Innovation Research (SBIR) (focus on Phase III contracts) and Independent Research and Development (IR&D) programs to companies throughout the United States in order to help DoD identify, fund, acquire, and integrate private-sector innovations and advanced commercial technologies into DoD systems. ***FY 2010 Accomplishments:*** Continue to actively promote the DoD Small Business Innovation Research (SBIR) (focus on Phase III contracts) and Independent Research and Development (IR&D) programs to companies throughout the United States in order to help DoD identify, fund, acquire, and integrate private-sector innovations and advanced commercial technologies into DoD systems. ***FY 2011 Plans:*** Continue to execute program plan with objective to achieve program goals of an equal or higher output than the previous year.			
Accomplishments/Planned Programs Subtotals	1.901	2.153	-

	FY 2010	FY 2011
Congressional Add: FirstLink	2.400	-
FY 2010 Accomplishments: FirstLink - a congressionally added effort - is officially called the Department of Defense's National Center of Excellence for Commercialization and Technology Transfer for First Responder Technologies. FirstLink assessed user needs and priorities, collected and evaluated potential DoD technologies for first responder use, identified non-DoD technologies that address DoD and first responder needs, and created and executed a marketing plan for these technologies. Measures of success include technologies made available for first responder use. As an example, FiirstLink determined that a Cooperative Research and Development Agreement (CRADA) would be the proper tool with which to assist in further development of the technology. FirstLink introduced IQ Corporation to the United States Army Medical Research Institute for Infectious Diseases (USAMRIID). On October 19, 2009, CRADA documentation commenced regarding the testing of IQ Corporation's Anthrax Immunity at USAMRIID. Funding for the CRADA was provided by Biomedical National Institute of Allergy and Infectious Diseases (NIAID), a division of the National Institute of Health (NIH). The CRADA was finalized and research was initiated on April 15, 2010 with USAMRIID. It is titled "Anthrax Therapy".		

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	FY 2010	FY 2011
Under this CRADA USAMRIID will perform subject studies. IQ Therapeutic will provide the antibodies for the adjunct therapy efficacy studies and collaborate on study design. NIAID will provide the funding for the model development and continue to collaborate on study design.		
Congressional Add: MilTech Expansion Program ***FY 2010 Accomplishments:*** MilTech Expansion is a congressionally added effort to facilitate Technology Transfer functions, focused specifically on providing critical engineering, manufacturing, and business development assistance to small companies. MilTech is a non-profit entity of Montana State University. Assisted the transition of technologies from innovative small companies to DoD operational use, supporting the Technology Transfer functions of marketing of DoD technologies, dual use technology deployment, and spin-in of advanced commercial-sector technologies. As an example, MilTech was tasked by the Marine Corps Systems Command to assemble a team of private sector experts to examine every item carried, consumed, or worn by a Marine Expeditionary Rifle Squad (MERS). The purpose was to focus on weight and volume reduction, human factors, and mobility improvements. MilTech assembled a team of 18 material, design, integration, and manufacturing experts. Within four months, the MilTech assembled team identified over 175 specific recommendations grouped by degree of complexity to achieve changes to the gear, produced several first level prototypes, improved weight displacement design to reduce physical stress, and identified collective changes that could reduce overall weight by over 20%. The MERS program office was provided a complete set of specific recommended changes grouped by degree of complexity for adopting changes. The Marine Corps evaluated all recommendations as part of their efforts to further develop and implement changes with greatest benefit.	1.600	-
Congressional Add: Center for Innovation at Arlington ***FY 2010 Accomplishments:*** Center for Innovation at Arlington is a congressionally added effort to facilitate Technology Transfer functions. A Partnerships Intermediary Agreement will be signed by July 30, 2010. ***FY 2011 Plans:*** The Center for Innovation at Arlington will establish a capability to integrate federal, state, regional, and local entities to accelerate transfer of technologies from Research and Development to efficient and affordable production. This will allow DoD purchases from commercial sources.	2.700	-
Congressional Add: National Radio Frequency Research ***FY 2010 Accomplishments:*** The National Radio Frequency Research congressional add was executed via contract with the RF Alliance to develop a consortium of academia, manufacturers, and government laboratories	4.000	-

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	FY 2010	FY 2011
for the purpose of identifying RF Technology ready for transition and developing partnerships. The RF Alliance supports evaluation of proposals and facilitates the transition of projects into government systems. Accomplishments included funding three FY10 projects; Low Temperature Co-fired Ceramics, Active Array Auto-calibration, and Tunable Microwave Filters. Held a successful Conference and Workshop at Purdue University. Transitioned one technology: Polyphase Microwave Quadrature Modulators to upgrade 8 GHz OQPSK Satellite uplinks.		
Congressional Add: Program Increase ***FY 2010 Accomplishments:*** Congressional add for program increase used to increase funding for the TechLink Core	0.750	-
Congressional Adds Subtotals	11.450	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not applicable for this item.

E. Performance Metrics

For FY 2010: establish patent license agreements (PLAs) totaling approximately 40 percent of all DOD PLAs and assist in the brokering of over 400 Cooperative Research and Development Agreements (CRADAs)

For FY 2011: establish patent license agreements (PLAs) totaling approximately 40 percent of all DOD PLAs and assist in the brokering of over 400 Cooperative Research and Development Agreements (CRADAs)

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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
P949: *Technology Transition Initiative*	-	21.157	-	-	-	-	-	-	-	Continuing	Continuing

Note

In FY 2011, TTI resources were transferred from Quick Reaction Special Projects (PE 0603826D8Z) to Technology Transfer and Transition (PE 0603942D8Z) as part of an effort to more effectively align interwoven program efforts that will benefit management communications, budget justification, fiscal tracking and improve overall program resource management of Transfer/Transition efforts.

FY 2011 changes reflect realignment of resources from the following program element into Technology Transfer and Transition to benefit aligned management communications, fiscal tracking, budget justification and overall program resource management of Transfer/Transition efforts.
PE 0603826D8Z Quick Reactions Special Projects, Technology Transition Initiative (Transfer into P949).

FY 2012 changes from FY 2011 reflect reallocation of funds from TTI to higher priority DoD requirements.

A. Mission Description and Budget Item Justification

The Technology Transition Initiative (TTI), authorized by Title 10 and Section 242 of the FY2003 Defense Authorization Act, facilitates the rapid transition of new technologies from the Department of Defense (DoD) science and technology (S&T) base into DoD acquisition programs. The program addresses the funding gaps that exist between the time a mature technology is demonstrated and the time it can be funded and procured for use in an intended weapons system or operational capability for the warfighter. The TTI program is mandated by Congress and receives high congressional interest.

Since the program inception in FY 2003, 78 projects have been initiated and 50 are complete. Of the 50completed projects, 35 (70%) have successfully transitioned to DoD Acquisition Programs of Record or procurement contracts for operational use and subsequent fielding; exceeding the objective of 30% for demonstration programs (Strategic Objective 4-3, Office of the Under Secretary of Defense, Acquisition, Technology & Logistics (OUSD (AT&L)).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: Electronic Image Intensifier for Pilotage (Army)	-	1.100	-
Description: This project will integrate Electronic Image Intensifier (EI2) technology into a lightweight sensor for the Apache Modernized-Pilot's Night Vision System (M-PNVS). Four form-fit, function and flight ready EI2 prototypes will be engineered, built, and delivered to PM Apache for aircraft qualification and users evaluation flights. The EI2 camera will provide performance that is equal to or greater than the current aviator's night vision goggles and at the same time allow for image fusion with the second generation Forward Looking Infrared (FLIR) on the Apache helicopter.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Program Outputs and Efficiencies: meet pilotage requirements for dynamic motion, resolution, and contrast through improved readout electronics and high definition format (1920 x 1080); exit criteria to be met include Aviator's Night Vision Imaging System (ANVIS) performance and $35 thousand per camera cost; four pre-production prototype cameras delivered for operational flight testing in FY 2011. TTI funding accelerates the transition of this capability by two to three years. This project is funded in FY 2010 via the Quick Reaction Special projects program element. ***FY 2011 Plans:*** Integrate prototype into Apache aircraft; complete aircraft qualification, operational flight testing and initiate procurement activities.			
Title: Medium Caliber Cartridge Improvements using Micro Electro-Mechanical Systems and Direct Write Explosive Ink ***Description:*** 40 millimeter (mm) high-explosive, dual-purpose (HEDP) M433 and M430 cartridges have been in service since the 1950's and 1970's respectively, and are used with the M203 low-velocity grenade launcher and the MK-19 grenade machine gun by all services. Both cartridges use point detonating fuzes with mechanical safe and arm (S&A) devices which do not reliably detonate on soft impact targets or high graze angles. The objective of this effort is to improve the reliability of these cartridges through a Micro-Electro-Mechanical (MEMS) fuzing system that incorporates electronic initiation, improved target sensing using paired MEMS impact sensors, self-destruct capability, command arm enable, more accurate arming distance, and automated explosive ink loading. In addition to improved reliability, these design enhancements will reduce volume and cost. Outputs and efficiencies: Incorporate impact sensors that will sense initial impact and electronically send a signal to initiate the explosive train for improved lethality and improved reliability on soft targets (from 50 percent current performance to 90 percent), and also significantly reduce the number of duds on the battlefield and training ranges. The 40mm MEMS Fuze also will require less volume providing room for improvements in lethality or other future alternate applications. TTI accelerates transition of this technology from the Army Armament Research, Development and Engineering Center (ARDEC) to Project-Manager Soldier Weapons (PM-SW) in approximately three years. This project was funded in FY 2010 via the Quick Reaction Special projects program element. ***FY 2011 Plans:*** Award fuze production contract; receive 300 MEMS S&A deliverables from S&A Prime contractor; receive 300 fuze deliverables; conduct fuze qualification testing, complete transition.	-	1.300	-
Title: Precision Fires Image (PFI) Software Suite Handheld Capability (Navy)	-	1.400	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Description: Currently Overseas Contingency Operations (OCO) missions are planned using traditional means and require dismounted operators, (conventional and Special Operations Forces (SOF)), who do not carry laptop computers. The mission set is currently supported by paper. The objective of this project is to integrate Battlespace Awareness (Mission Planning, Force Protection, Direct Action, etc.) capability on a Windows CE/mobile handheld computer by building upon already proven and deployed technology. The availability of these software tools on a handheld computer will immediately advance warfighter capabilities by enhancing situational awareness, precision targeting, and rapid employment at the tactical level. Program Outputs and Efficiencies: This project will generate and transition a software suite that provides image, video, and geographical capabilities on the Army's Pocket Sized Forward Entry Devices (PFED) and compatible Special Operations Forces Windows CE/mobile handheld computers. These forward operating Battlespace Awareness applications will be built around the previously transitioned and deployed Precision Fires Image (PFI), which is a National Geospatial-Intelligence Agency (NGA) validated, Central Command (CENTCOM) approved, image based targeting tool for coordinate seeking weapons. Integration to the handheld computer will be advantageous in achieving advanced mission capability with less weight, space, and provide shorter operational readiness delays. The TTI funding will accelerate the acquisition and integration of this handheld software capability by two to three years. This project was funded in FY 2010 via the Quick Reaction Special projects program element. ***FY 2011 Plans:*** Deliver spiral upgrades to include the following capabilities: (1) Provide Close Air Support (CAS) safety issue capability for requesting operators; (2) Integrate with the Rapid Delivery of Online Geospatial-Intelligence RDOG) NGA program to provide current imagery directly to the warfighter; (3) Integrate Key Length Variable (KLV) data from Unmanned Aerial Systems (UAS) through sensor video feeds, which provides sensor point of interest on precision imagery; (4) Integrate various Laser Range Finder (LRF) data from operator suites for automatic target reporting and visual representation; (5) Incorporate digital communications to support Variable Message Format (VMF) CAS missions from the handheld to various dismounted radio combinations; (6) Transmit Gridded Reference Graphics (GRG) data to other PFI viewers for Situational Awareness (SA) and battlefield updates			
Title: Hellfire Height of Burst (HOB) Sensor (Army) ***Description:*** The Hellfire Height of Burst Sensor is a miniaturized radio frequency (RF) target detection device that will be integrated into the new Electronic Safe and Arm Device (ESAD) being incorporated into the next generation Hellfire missile (Hellfire R). The HOB sensor provides for improved lethality against targets in the open by detonating the warhead at a height above ground optimized for these targets. This TTI project funds the final design and engineering of the HOB sensor optimized for	-	2.300	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Hellfire, provides component and system level environmental and hardware-in-the-loop testing, and allows two flight tests of HOB sensor equipped missiles. Program Outputs and Efficiencies: The HOB sensor will be integrated into the Hellfire missile and undergo hardware-in-the-loop (HWIL), environmental, and flight testing. The final outcome will be two missile flights incorporating the HOB sensor. The first flight will replace the warhead with a telemetry package to record the missile flight data as well as the point at which the HOB sensor triggers the warhead. The second flight will incorporate both the HOB sensor and the Hellfire warhead. Lethality data will be collected to validate the modeled performance against targets in the open. Simulation has shown that the HOB sensor will significantly increase the lethality when fired from platforms that allow a steep angle of impact. TTI accelerates the transition of this capability by two years. This project was funded in FY 2010 via the Quick Reaction Special projects program element. ***FY 2011 Plans:*** Fabricate device verification hardware and integrate into new ESAD for laboratory and HWIL testing. Finalize ESAD modifications to power the HOB sensor and to accept the HOB fire command. Develop system qualification test plans, support pilot line production development and complete transition.			
Title: Hellfire Next Generation Captive Carry Health Monitor (NG-CCHM) ***Description:*** The Hellfire NG-CCHM is a missile health monitoring device that measures and records operational and environmental stresses tailored to the most recent Hellfire missile design, the AGM-114R model. The unit will be a self-powered, low-cost autonomous system capable of measuring and recording key health status parameters. The unit will be an electronic data acquisition device embedded into each missile and will be optimized for long life to automatically monitor temperature exposure, drop shock events and record vibration levels that can cause degradation to the missile over time. Program Outputs and Efficiencies: The primary outputs and efficiencies to be demonstrated in the project are: (1) reduced costs and maintenance burden to Warfighter; (2) increased reliability; (3) enhanced system safety; and (4) increased readiness. TTI accelerates the transition of this capability by two years. This project was funded in FY 2010 via the Quick Reaction Special projects program element. ***FY 2011 Plans:***	-	0.750	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Complete detailed design and build prototype units. Conduct design verification testing and plan captive carry test activities. Conduct captive Carry Testing and begin design update from findings in DVT and captive carry testing. Conduct critical design review and software formal qualification testing.			
Title: Joint Service General Purpose Mask (JSGPM) Filter End-of-Service-Life Indicator ***Description:*** An end-of-service-life indicator (ESLI) has been developed for chemical, biological radiological, nuclear (CBRN) protective mask filters that will alert the user to exchange the filter following exposure to acid gas chemical warfare agents (CWAs). The technology to be transitioned consists of thin colorimetric indicator films coated with pondus hydrogenii (pH) sensitive dyes and reagents that target common functional groups and chemical properties of the major classes of blood agents and select Toxic Industrial Chemicals (TICs). The approach is to place the ESLI along the inside wall of the filter in contact with the carbon bed so it can react with the passing agent wave front to produce a color change, thereby alerting the user to replace the filter well before its gas-life capacity is depleted. Program Outputs and Efficiencies: The Joint Service General Purpose Mask (JSGPM) CBRN filter housing will be equipped with a transparent plastic window to view the indicator response. The ESLI will be designed to provide a visual signal when approximately 20 to 60 percent of the filter's service life capacity is expired, depending on the target agent. The ESLI technology will be transitioned to the M50 JSGPM acquisition program as a spiral upgrade (product improvement) to the current primary CBRN filter. TTI funding accelerates this transition by two years. This is a continuing project funded previously via the Quick Reaction Special projects program element. ***FY 2011 Plans:*** This project will complete contract modification, incorporate a Quality Assurance Surveillance Plan (QASP) with a Performance Requirements Summary, complete design optimization, hold a Critical Design Review, complete fabrication of optimized and final ESLI filter prototypes, and conduct contractor Product Verification Testing. Complete Government Test and Evaluation, hold a Transition Readiness Evaluation review, complete Engineering Change Proposal, and submit for joint service approval.	-	0.450	-
Title: Integrated Information Management System (IIMS) Transition (Air Force) ***Description:*** The Integrated Information Management System (IIMS) is a collaborative situational awareness tool which aids in the management of conventional and Chemical, Biological, Radiological, and Nuclear (CBRN) events at fixed, expeditionary and incident response sites. IIMS includes detector/ warning networks, access to CBRN models, and information exchange with civil sector and coalition partner organizations. IIMS is in the base defense component of the AF Theater Battle Management Core System – Unit Level/Unit Command and Control (TBMCS-UL/UC2). It addresses both conventional and CBRN incidents. It is	-	2.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603942D8Z: *Technology Transfer and Transition*	PROJECT P949: *Technology Transition Initiative*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
replacing the Survival Recovery Center (SRC). It improves decision making and battle management activities in the event of a conventional or CBRN incident. The objective of this effort is to transition IIMS into TBMCS-UL/UC2 Increment Two, and subsequently into the final TBMCS-UC2. The additional IIMS capabilities will augment the fielded TBMC-UL/UC2 to extend original capabilities, provide a stand-alone capability, and to incorporate joint CBRN tools. A successful transition of IIMS to TBMCS-UC2 through this spiral development process will significantly increase the base defense/response capabilities available to the warfighter. Program outputs and efficiencies: TTI funding accelerates the SRC replacement with planned upgrades to IIMS that more efficiently identify and respond to issues preventing the flying mission by 1-2 years. The transition of IIMS into the TBMCS-UC2 N-tier Service Oriented Architecture enables transition of new capabilities into TBMCS-UC2 through the IIMS framework and the adjudication of any Priority I or Priority II software trouble reports at the time of transition. The software will adhere to general quality and reliability standards and include standard software product sets upon delivery (i.e. source code, executable code, documentation, test results). TTI funding accelerates upgrades to integrate sensor/detector networks and improve communications with off-base agencies by 4+ years. This project was funded in FY 2010 via the Quick Reaction Special projects program element. ***FY 2011 Plans:*** Transition of the enhanced IIMS framework and capabilities to TBMCS-UL/UC2 Increment Two is scheduled for 2011. The capabilities include: an interface to the Remote Data Relay sensor/detector/warning network; access to reference documents and response plans; integrated CBRN and other models; information exchange with remote DOD and civilian C2 Systems; tools for building and executing National Incident Management System (NIMS) compliant incident response plans; and the initial third party developer documentation and framework. Full transition to the TBMCS-UC2 Increment One N-tier Service Oriented Architecture is scheduled for late 2011. The capabilities include: a generic interface to sensor/detector/warning networks; tools for accessing and processing asset data including operational impact and consequence management assessments; and tools for evaluating incident response plans. Adjudication of integration issues will follow. A successful test and demonstration in an operationally relevant environment such as a TBMCS-UL/UC2 site, the Port of Ash Shuaybah in Kuwait or the Statue of Liberty National Monument; evaluation by the USAF 46th Test Squadron (TS) for Developmental Test (DT), Functional Test (FT) and Information Assurance (IA) testing resulting in a favorable Authority to Connect (ATC) recommendation; and a signed ATC for TBMCS-UC2 with IIMS for the NIPRNet and SIPRNet.			
Title: Surfactant System for Surface CB Agent Removal	-	0.455	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Description: Mature a multi-purpose surfactant technology to accelerate its transition to the Decontamination Family of Systems (DFoS). There is an immediate and unmet requirement for a cargo aircraft decontaminant. The primary means to decontaminate aircraft is ineffective in decontaminating most Chemical and Biological (CB) hazards and material compatibility issues exist with currently fielded decontaminants and aircraft exteriors. Current decontaminants are single purpose items and carry a significant logistics burden. The surfactant technology will provide the Warfighter with a multi-use, advanced formulation for mitigating CB hazards to operational (threshold) or thorough (objective) levels. MIL-PRF-87937D testing will be conducted to qualify the surfactant system as an aerospace cleaning compound and enable it to be inserted on the Qualified Products List (QPL). The surfactant technology can be used as a routine cleaning compound as well as an aircraft-cleaning compound. TTI accelerates transition by more than two years. Outputs and efficiencies: a) Validate chemical efficacy (via contact and vapor testing) on priority painted materials; b) demonstrate biological efficacy; c) MIL-PRF-87937D qualified product (physical, chemical, toxicological properties, environmental impact). ***FY 2011 Plans:*** Complete CB removal efficacy; Complete MIL-PRF-87937D testing requirements; Submit MIL-PRF-87937D and QPL/General Services Administration (GSA) Registration Package(s) to qualifying authority(s); Complete materials compatibility testing; Prepare and deliver Technology Transition Data package including Manufacturing Readiness Assessment (MRA) report and Technology Readiness Assessment (TRA) report .			
Title: Accelerated Interlocking Mortar Increment Container Technology (Army) ***Description:*** The objective of this program is accelerate the transition of interlocking mortar increment container (MIC) design and fabrication technology to ensure uniform propellant ignition and reduce differential pressures which will eliminate a noted safety critical mechanism and reduce the possibility of critical short rounds <80% of intended range) due to shearing of fin blades and asymmetrical burn. The interlocking MIC design eliminates the potential alignment of the open ends of the propelling charges and will greatly reduce the chances of more propellant being on one side of the mortar fin boom. This eliminates the imbalance of the energetics and associated potential problematic pressure differential within the mortar tube. The warfighter will have no chance of a sheared fin failure due to unexpected alignment of propelling charges which, in turn, will reduce the possibility of a critically short flight 120mm rounds in theater. Accelerating the maturation, transition, and insertion of this interlocking "high hat" mortar increment container technology into the 120mm mortar ammo program of record (PoR) will improve safety and accuracy for our light and dismounted ground forces. It also will lay the foundation for potential subsequent application to 60mm and 81mm mortar ammo if warranted .	-	0.838	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Office of Secretary Of Defense		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Program Outputs and Efficiencies: Provides the warfighter with safer mortar ammunition; further prevents the possibility of unexpected short flight of 120mm mortar rounds in theater; improves soldier safety during training. TTI accelerates the deployment of this capability by 18 months. This project was funded in FY 2010 via the Quick Reaction Special projects program element. ***FY 2011 Plans:*** Generate drawings, specifications, and implement Engineering Change proposal into current 120mm Mortar Propelling Charge Contract.			
Title: Transition Initiatives ***Description:*** Funds will address the funding gaps that exist between the time a mature technology is demonstrated and the time it can be funded and procured for use in an intended weapons system or operational capability for the warfighter. ***FY 2011 Plans:*** FY 2011 new starts proposals from Services, Agencies, and Combatant Commands are under review. Final selection will be determined prior to the start of the fiscal year.	-	10.564	-
Accomplishments/Planned Programs Subtotals	-	21.157	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

Not applicable for this item.

E. Performance Metrics

Project performance metrics are specific to each effort and include measures identified in the project plans identified above as well. In addition, program completion and success are monitored against program schedule and deliverable stated in the proposals. 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. Generic performance metrics applicable to the Technology Transition Initiative (TTI) program includes attainment of Strategic Objective 4-3, "Speed technology transition focused on warfighting needs". The metrics for this objective and the objective of TTI is to transition 30% of completing demonstrations projects per year.