Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

3600: Research, Development, Test & Evaluation, Air Force

PE 0603789F: C3I Advanced Development

BA 3: Advanced Technology Development (ATD)

_ ·											
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	32.986	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
634072: Dominant Battlespace Awareness	8.102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
634216: Battlespace Information Exchange	14.345	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
634872: Aerospace Information Dominance	10.539	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Note: In FY 2010 efforts in this PE move to PE 0603788F, Global Information Dev/Demo.

A. Mission Description and Budget Item Justification

This program develops and demonstrates Air Force Command, Control, Communications, and Intelligence (C3I) technologies for the warfighter. The technologies address the ability to support the global information exchange of correlated and fused information to ensure the Air Force can plan and execute missions in a dynamic, complex environment. The Dominant Battlespace Awareness project will provide affordable operational data capabilities for personnel to understand militarily relevant situations, on a consistent basis, with the precision and timeliness needed to accomplish the mission. The Battlespace Information Exchange project will develop reliable, secure, jam-resistant, inter-operable worldwide global information enterprise capabilities, providing the Air Force assured communications and reach-back capability in a distributed operational environment. It will also demonstrate offensive cyber operations technologies allowing attack and exploitation of adversary information systems by the Air Force. The Aerospace Information Dominance project provides the technology and demonstrations needed to allow the warfighter to plan, assess, execute, monitor, and re-plan on the compressed time scales required for tomorrow's conflicts, whether in combat or peacekeeping missions. This program is in Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies for existing upgrades and/or new system developments that have military utility and address warfighter needs.

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force

BA 3: Advanced Technology Development (ATD)

R-1 ITEM NOMENCLATURE

PE 0603789F: C3I Advanced Development

B. Program Change Summary (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	33.902	0.000	0.000	0.000	0.000
Current President's Budget	32.986	0.000	0.000	0.000	0.000
Total Adjustments	-0.916	0.000	0.000	0.000	0.000
 Congressional General Reductions 		0.000			
 Congressional Directed Reductions 		0.000			
 Congressional Rescissions 	0.000	0.000			
 Congressional Adds 		0.000			
 Congressional Directed Transfers 		0.000			
Reprogrammings	0.000	0.000			
SBIR/STTR Transfer	0.000	0.000			
 Other Adjustments 	-0.916	0.000	0.000	0.000	0.000

Change Summary Explanation

Note: In FY 2010, Congress added \$4.0 million for Cyber Attack and Security Environment and \$2.9 million for MPOI for Battlespace Information Exchange. These efforts were transfered to PE 0603788F, Global Information Dominance, via Form 1414. The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. A detailed explanation of changes between the two budget positions is not provided because it cannot be made in a relevant manner. C. Performance Metrics Under Development.

Exhibit R-2A, RDT&E Project Jus	tification: Pl	B 2011 Air F	orce						DATE: Feb	ruary 2010		
APPROPRIATION/BUDGET ACTIVATION: 3600: Research, Development, Tes BA 3: Advanced Technology Development	t & Evaluatio	,			IOMENCLA 9F: <i>C3I Adva</i>		opment	PROJECT 634072: <i>Do</i>	PROJECT 634072: Dominant Battlespace Awarene			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost	
634072: Dominant Battlespace Awareness	8.102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing	

Note

Note: In FY 2010 this effort moves to PE 0603788F, Project 5321, Global Battlespace Awareness.

A. Mission Description and Budget Item Justification

This project develops, integrates, and demonstrates advanced technologies to achieve Dominant Battlespace Awareness (DBA) and Predictive Battlespace Awareness using information from all sources. DBA is the information required to support dynamic planning and execution with the accuracy, fidelity, and timeliness needed to dominate the battlespace. Technology development includes: tasking information collectors (intelligence, surveillance, and reconnaissance platforms, national intelligence sources, etc.); correlating and geo-registering the collected data; exploiting the data to extract information of military significance; fusing information from multiple sources to create a digital n-dimensional representation of the battlespace; assessing the situation; predicting adversary courses of action (COA); and archiving the results for ready use by decision makers. This is a dynamic, complex process that involves technologies for information access, extraction, fusion, processing, storage, and retrieval, as well as technologies for machine reasoning, pattern recognition, and timeline analysis.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop and demonstrate advanced signal and data exploitation technologies for detection, tracking, identification, and targeting of time-critical targets.	2.215	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: In FY 2009: Demonstrated a real-time signal processing and geolocation capability for emerging commercial communications used by military and asymmetrical threats. Demonstrated airborne-cued ground-based signal processing. Developed multi-sensor exploitation tools to enable characterization and assessment of adversary satellites. Integrated intelligence data and analysis products to produce anticipatory ground to space awareness picture.					

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			DATE: Feb	uary 2010	
R-1 ITEM NOMENCLATURE PE 0603789F: C3I Advanced Develo	opment	PROJECT 634072: <i>Do</i>	ominant Battl	reness	
		'			
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
development efforts for determination xtual tracking, target-feature-aided reasoning and cued exploitation. Intel data with real time streaming leveloped a synthetic assessment ogies to include basic correlation tion with C2 systems. Investigated y to extract events of interest form	5.887	0.000	0.000	0.000	0.000
	R-1 ITEM NOMENCLATURE	R-1 ITEM NOMENCLATURE PE 0603789F: C3I Advanced Development FY 2009 FY 2009 5.887 development efforts for determination extual tracking, target-feature-aided reasoning and cued exploitation. Intel data with real time streaming leveloped a synthetic assessment ogies to include basic correlation extical with C2 systems. Investigated by to extract events of interest form	R-1 ITEM NOMENCLATURE PE 0603789F: C3I Advanced Development FY 2009 FY 2010 FY 201	R-1 ITEM NOMENCLATURE PE 0603789F: C3I Advanced Development FY 2009 FY 2010 FY 2011 Base Ty 2009 FY 2010 FY 2010 FY 2011 Base Ty 2010 FY 2011 Base Ty 2010 FY 2011 Base Ty 2010 FY 2011 Base	R-1 ITEM NOMENCLATURE PE 0603789F: C3I Advanced Development FY 2009 FY 2010 FY 2011 FY 2011 FY 2011 Base O.000 0.0000 0.0000 0.0000 0.00

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force

BA 3: Advanced Technology Development (ATD)

R-1 ITEM NOMENCLATURE

PE 0603789F: C3I Advanced Development

PROJECT

634072: Dominant Battlespace Awareness

B. Accomplishments/Planned Program (\$ in Millions)

		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.						
	Accomplishments/Planned Programs Subtotals	8.102	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

			FY 2011	FY 2011	FY 2011					Cost To	
<u>Line Item</u>	FY 2009	FY 2010	<u>Base</u>	OCO	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	Complete	Total Cost
• PE Not Provided (12597):	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Activity Not Provided											
• PE 0602702F: Command,	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Control, and Communications.											
• PE 0603203F: Advanced	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aerospace Sensors.											

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

Exhibit R-2A, RDT&E Project Just	tification: Pl	3 2011 Air F	orce						DATE: Feb	ruary 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)								PROJECT 634216: Battlespace Information Exchange			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
634216: Battlespace Information Exchange	14.345	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Note: In FY 2010 this effort moves to PE 0603788F, Project 5320, Assured Worldwide Connectivity.

A. Mission Description and Budget Item Justification

This project develops and demonstrates advanced communications technologies for the Air Force that implement a secure environment for worldwide information exchange of near-real-time multimedia (i.e., voice, data, video, and imagery) information. This secure environment will be rapidly deployable, mobile, interoperable, and seamless between Air and Space Operations Centers (AOC) and aircraft, either en route or in theater. It will: a) provide interoperability across echelons, services, coalition, and multi-national force boundaries; b) support mobile information superiority, sensor-to-shooter operations, and the battle management decision process; and c) provide in-transit visibility of en route aircraft, cargo, mission status, and reachback capabilities for aircraft to operations centers in the continental United States (e.g., updating information and mission changes to en route aircraft). Technology developments include an information assurance decision support system, advanced information management, multi-level/secure communications, secure survivable networks, mission and content-based routing, quality-of-service mechanisms, communications transmission systems, cyber situational awareness, and offensive cyber operations capabilities to attack and exploit adversary information and information systems.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop and demonstrate secure wideband assured networking between weapon platforms, ground facilities and Special Operations teams.	1.087	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: In FY 2009: Developed small form-factor networking and reachback capability. Began certification of the capability in preparation for transition to the Special Operations Forces.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: Febr	uary 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603789F: C3I Advanced Develo	opment	PROJECT 634216: <i>Ba</i>	PROJECT 634216: Battlespace Information Exch		
B. Accomplishments/Planned Program (\$ in Millions)	,		1			
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: In FY 2010: Not Applicable.						
FY 2011 Base Plans: In FY 2011: Not Applicable.						
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.						
MAJOR THRUST: Proactively defend cyberspace through cyber situal defeating cyber threats, and surviving through adaptation and self-rege		2.599	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: In FY 2009: Developed technology demonstration plans for active reconnaissance defense on wired networks. Conducted cyber situ Developed secure data sharing to prevent the disclosure of sensitiusers.	uational awareness demonstration.					
FY 2010 Plans: In FY 2010: Not Applicable.						
FY 2011 Base Plans: In FY 2011: Not Applicable.						
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.						
MAJOR THRUST: Design, develop, demonstrate, test, and validate ar and simulating the Air Force's extension of the Global Information Grid		1.318	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: Feb	ruary 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603789F: C3I Advanced Devel	opment	PROJECT 634216: <i>Ba</i>	CT : Battlespace Information Exchange				
B. Accomplishments/Planned Program (\$ in Millions)			'					
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total		
FY 2009 Accomplishments: In FY 2009: Conducted the validation of the enhanced modeling support tool suite and make it usable by an operational person ir the limitations of the modeling capability and applied the model t environments.	stead of programmers. Exercised							
FY 2010 Plans: In FY 2010: Not Applicable.								
FY 2011 Base Plans: In FY 2011: Not Applicable.								
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.								
MAJOR THRUST: Design, develop, and demonstrate the enterprise paper policy and translate that into network policy.	management capability to accept on-	0.991	0.000	0.000	0.000	0.000		
FY 2009 Accomplishments: In FY 2009: Developed and demonstrated reconfiguration of net strategic, tactical, and network events (e.g., changes in informatic condition (THREATCON), defense condition (DEFCON), malicio	on condition (INFOCON), threat							
FY 2010 Plans: In FY 2010: Not Applicable.								
FY 2011 Base Plans: In FY 2011: Not Applicable.								

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: Febr	uary 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603789F: C3I Advanced Develo	R-1 ITEM NOMENCLATURE PE 0603789F: C3l Advanced Development 634216: Battle				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.						
MAJOR THRUST: Develop and demonstrate offensive cyber operation experimental cyber craft technology demonstrations.	s capabilities in a series of	2.042	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: In FY 2009: Analyzed development of selected offensive cyber operations planning and execution capabilities, ar (Cyber C2) operations functions.						
FY 2010 Plans: In FY 2010: Not Applicable.						
FY 2011 Base Plans: In FY 2011: Not Applicable.						
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.						
MAJOR THRUST/CONGRESSIONAL ADD: Develop and demonstrate management technology to provide assured, seamless battlespace con		6.308	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: In FY 2009: Completed improvements in the battle management of communications networked collaborative capability by demonstrating in a coalition and multi-service environment, enabling aircraft to accommunication, and reconnaissance airborne and ground information investigation to provide assured access (anti-jam) covert high capa	ng Air Force airborne networking, cess each other's intelligence, environments. Conducted					

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force

BA 3: Advanced Technology Development (ATD)

R-1 ITEM NOMENCLATURE

PE 0603789F: C3I Advanced Development

PROJECT

634216: Battlespace Information Exchange

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
networking, while denying the adversary the same. Conducted Congressionally directed effort for Massively Parallel Optical Interconnects for Battlespace Information Exchange.					
FY 2010 Plans: In FY 2010: Not Applicable.					
FY 2011 Base Plans: In FY 2011: Not Applicable.					
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.					
Accomplishments/Planned Programs Subtotals	14.345	0.000	0.000	0.000	0.000

C. Other Program Funding Summary (\$ in Millions)

			FY 2011	FY 2011	FY 2011					Cost To	
<u>Line Item</u>	FY 2009	FY 2010	Base	OCO	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	Complete	Total Cost
PE Not Provided (12844):	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Activity Not Provided											

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)								PROJECT 634872: Aerospace Information Dominance			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
634872: Aerospace Information Dominance	10.539	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

Note

Note: In FY 2010 efforts moves to PE 0603788F, Project 5321, Global Battlespace Awareness, Project 5322, Knowledge Management and Computing and Project 5319, Anticipatory Ops Intent and Response.

A. Mission Description and Budget Item Justification

In order to achieve information dominance, the Air Force must be able to plan, assess, monitor, and replan missions rapidly across the full spectrum of operations (air, space, and cyberspace) at all levels of war (strategic, operational, and tactical) and during all phases of conflict (pre-conflict, conflict, and stability operations). This project develops and demonstrates technologies necessary for dynamic decision making. It provides the technology and demonstrations needed to enable the warfighter to monitor, assess, plan, and execute (MAPE) on the complex and compressed time scales required for tomorrow's conflicts, whether they are combat or operations other than war. It will develop and demonstrate a new generation of planning and assessment technologies that enable a new paradigm of network enabled operations, allowing decision makers to determine the desired operational effects and prosecute the mission accordingly. This project will develop innovative capabilities that will realize a strategy-to-task approach to warfare, exploiting anticipatory environments and agile command and control concepts. It will develop and demonstrate distributed information technologies that provide the decision maker and staff with seamless access to tailored multi-media and multi-spectral data within a mobile, dynamic, scalable, globally distributed Air and Space Operations Center (AOC). This project will also develop knowledge-based intelligent information technologies to support robust, real-time, large-scale Air Force command and control systems.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Develop and demonstrate distributed information technologies that are scalable and reconfigurable and provide seamless access to tailored multi-media and multi-spectral data.	1.453	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: In FY 2009: Initiated the development of capabilities to allow seamless information sharing for enhanced situational awareness and understanding by the decision maker. developed an					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010 **PROJECT** APPROPRIATION/BUDGET ACTIVITY R-1 ITEM NOMENCLATURE 634872: Aerospace Information Dominance 3600: Research, Development, Test & Evaluation, Air Force PE 0603789F: C3I Advanced Development BA 3: Advanced Technology Development (ATD) B. Accomplishments/Planned Program (\$ in Millions) FY 2011 FY 2011 FY 2011 **FY 2009 FY 2010** Base OCO Total initial capability to plan and measure effectiveness of information operations in conjunction with precision munitions to determine successful achievement of command intent in time and location to achieve "self-synchronization." Conducted campaign of experimentation to quantitatively measure transformational command and control concepts enabled by net centric warfare capabilities. Completed the development of polymorphic (adaptable) computing technology for persistent surveillance systems using faster processing and greatly reduced size, weight, and power requirements for processing hardware. Developed an application of MLS/MSLS middleware technologies for persistent surveillance systems to support user access/denial of information at multiple security levels. FY 2010 Plans: In FY 2010: Not Applicable. FY 2011 Base Plans: In FY 2011: Not Applicable. FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable. 0.662 0.000 0.000 0.000 0.000 MAJOR THRUST: Develop and demonstrate the integration of planning tools and information-based intelligent agents for adaptive preplanning and decision support tools. FY 2009 Accomplishments: In FY 2009: Initiated development of capabilities to be more agile within a net centric enabled environment. Developed timely option generation selection and coordination capabilities that account for uncertainty and missing and erroneous information, and supports intuitive decision making process between man and machine collaborating on complex, dynamic problems exploiting the respective strengths of machines (process lots of data) and human (analytical reasoning). Developed dynamic

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force **DATE:** February 2010 **PROJECT** APPROPRIATION/BUDGET ACTIVITY R-1 ITEM NOMENCLATURE 634872: Aerospace Information Dominance 3600: Research, Development, Test & Evaluation, Air Force PE 0603789F: C3I Advanced Development BA 3: Advanced Technology Development (ATD) B. Accomplishments/Planned Program (\$ in Millions) FY 2011 FY 2011 FY 2011 **FY 2009 FY 2010** Base OCO Total workflow and workload management capabilities to manage the command and control constellation of resources. FY 2010 Plans: In FY 2010: Not Applicable. FY 2011 Base Plans: In FY 2011: Not Applicable. FY 2011 OCO Plans:

3.153

0.000

0.000

0.000

0.000

In FY 2011 OCO: Not Applicable.

MAJOR THRUST: Demonstrate an effects-based approach for the next generation of planning and assessment techniques that enable decision makers to determine the desired operational effects.

FY 2009 Accomplishments:

In FY 2009: Demonstrated technology to meet the needs for effects-based assessment in an operational environment. Designed, developed, and demonstrated the capabilities for continuous effects-based assessment in a dynamic tasking environment. Demonstrated techniques to accomplish up-to-date awareness on whether the execution of the battle plan is meeting the desired effects. Investigated the methods to enable a decision support environment that enables the decision maker to anticipate and shape all aspects of the future battlespace. Initiated development of predictive battlespace awareness tools with the ability to reason over models of the "enemy as a system." Conducted analysis of cascading effects in real-time for diverse courses of action. [Conducted research to forecast actionable futures to support a decision maker's ability to appraise and plan the "best" blue course of action for RDAA. Conducted investigation of ability to forecast potential adversaries and events based on indications of known evidence and projected known and/or anticipated threat(s).] Initiated assured end-to-end Quality of Service and Quality of Assurance integration to the information system enterprise during malicious and non-malicious faults.

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: Febr	uary 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603789F: C3I Advanced Deve	lopment	PROJECT 634872: <i>Ae</i>	rospace Info	rmation Don	ninance
B. Accomplishments/Planned Program (\$ in Millions)	·					
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: In FY 2010: Not Applicable. FY 2011 Base Plans: In FY 2011: Not Applicable. FY 2011 OCO Plans:						
In FY 2011 OCO: Not Applicable. MAJOR THRUST: Develop and demonstrate high performance complimited applications, and emulate older computing components.	uting for size, weight, and power-	1.033	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: In FY 2009: Completed development of high performance compulimited applications. Supported the resulting hardware and software development of reliably autonomic small platforms for unmanned hardware and system/support software that enables complex software.	are transition to the users. Initiated operations. Initiated analysis of					
FY 2010 Plans: In FY 2010: Not Applicable.						
FY 2011 Base Plans: In FY 2011: Not Applicable.						
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.						
MAJOR THRUST: Demonstrate how a publish, subscribe, and query can enable vertical and horizontal integration of Air Force networks.	information management paradigm	4.238	0.000	0.000	0.000	0.000

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Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 3: Advanced Technology Development (ATD)

PATE: February 2010

R-1 ITEM NOMENCLATURE
PE 0603789F: C3I Advanced Development
634872: Aerospace Information Dominance

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: In FY 2009: Developed and demonstrated technologies that enable pub/sub/query information dissemination across multiple security level boundaries. Initiated the study of discovery and filter technology to assess, evaluate, and convert unstructured information into structured information feeds. Demonstrated capability integrating tactical and edge user information management requirements. Developed information transformation services and adaptive information management services that learn, self-configure, self-manage, and are self-healing. Conducted study on collaboration services on demand that will exploit dynamic information services matching end user devices (laptops, cell phones, etc.) with appropriate information formats. Supported context aware collaborative user interfaces and semantic interoperability.					
FY 2010 Plans: In FY 2010: Not Applicable.					
FY 2011 Base Plans: In FY 2011: Not Applicable.					
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.					
Accomplishments/Planned Programs Subtotals	10.539	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force

APPROPRIATION/BUDGET ACTIVITY

BA 3: Advanced Technology Development (ATD)

R-1 ITEM NOMENCLATURE PROJECT

3600: Research, Development, Test & Evaluation, Air Force

PE 0603789F: C3I Advanced Development

634872: Aerospace Information Dominance

C. Other Program Funding Summary (\$ in Millions)

FY 2011 FY 2011 FY 2011 **Cost To** Line Item FY 2009 FY 2010 Base oco Total FY 2012 FY 2013 FY 2014 FY 2015 Complete Total Cost • PE Not Provided (13037): 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

Activity Not Provided

D. Acquisition Strategy

Not Applicable.

E. Performance Metrics

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.