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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Office of Secretary Of Defense **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)				PE 0604670D8Z: Human Social Culture Behavior (HSCB) Modeling Research and Engineering							
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	6.295	7.459	10.309	-	10.309	12.926	13.181	13.440	13.878	Continuing	Continuing
P670: Human Social Culture Behavior (HSCB) Modeling Research and Engineering	6.295	7.459	10.309	-	10.309	12.926	13.181	13.440	13.878	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Program will create transition-ready software tools that will help intelligence analysts, operations analysts, operations planners, and wargamers represent, understand, and forecast socio-cultural behavior at the strategic, operational and tactical levels. This program focuses on maturing, hardening, and validating human, social, culture, and behavior modeling (HSCB) related software for transition to meet the needs of the warfighter, integration into the architectures of existing programs of record, and/or maturing software via open architectures to allow broad systems integration. The 6.4 program provides a development to product transition pathway for socio-cultural models, tools, and visualization technologies and products. The work supports the testing, validation, and transition of HSCB model-based technology into existing and developing systems in coordination with Program Executive Offices/Program Managers, Combatant Commanders, Joint and Service organizations, warfighters in need, and other transition customers. The program will transition social cultural relevant data and tools from technologies to capabilities to provide essential forecasting capabilities at the strategic, operational and tactical levels. It will mature and integrate technologies that provide training and mission course of action analysis and preview/rehearsal capabilities at the strategic to tactical level.

B. Program Change Summary (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	6.950	7.459	12.206	-	12.206
Current President's Budget	6.295	7.459	10.309	-	10.309
Total Adjustments	-0.655	-	-1.897	-	-1.897
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-0.498	-			
• SBIR/STTR Transfer	-0.146	-			
• Other Program Adjustments	-0.011	-	-	-	-
• Defense Efficiency - Baseline Review	-	-	-1.101	-	-1.101
• Defense Efficiency - Reports, Studies, Boards and Commissions	-	-	-0.781	-	-0.781
• Economic Assumptions	-	-	-0.015	-	-0.015

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APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 4: Advanced Component Development & Prototypes (ACD&P)	R-1 ITEM NOMENCLATURE PE 0604670D8Z: Human Social Culture Behavior (HSCB) Modeling Research and Engineering	
<p><u>Change Summary Explanation</u></p> <p>Defense Efficiency – Baseline Review. As part of the Department of Defense reform agenda, implements a zero-based review of the organization to align resources to the most critical priorities and eliminate lower priority functions.</p> <p>Defense Efficiency – Report, Studies, Boards and Commissions. As part of the Department of Defense reform agenda, reflects a reduction in the number and cost of reports, studies, DoD Boards and DoD Commissions below the aggregate level reported in the previous budget submission.</p>		

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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 4: Advanced Component Development & Prototypes (ACD&P)				R-1 ITEM NOMENCLATURE PE 0604670D8Z: Human Social Culture Behavior (HSCB) Modeling Research and Engineering				PROJECT P670: Human Social Culture Behavior (HSCB) Modeling Research and Engineering			
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
P670: Human Social Culture Behavior (HSCB) Modeling Research and Engineering	6.295	7.459	10.309	-	10.309	12.926	13.181	13.440	13.878	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

The program will create transition-ready software tools that will help intelligence analysts, operations analysts, operations planners, and wargamers represent, understand, and forecast socio-cultural behavior at the strategic, operational and tactical levels. This program focuses on maturing, hardening, and validating human, social, culture, and behavior modeling (HSCB) related software for transition to meet the needs of the warfighter, integration into the architectures of existing programs of record, and/or maturing software via open architectures to allow broad systems integration. The 6.4 program provides a development to product transition pathway for socio-cultural models, tools, and visualization technologies and products. The work supports the testing, validation, and transition of HSCB model-based technology into existing and developing systems in coordination with Program Executive Offices/Program Managers, Combatant Commanders, Joint and Service organizations, warfighters in need, and other transition customers. The program will transition social cultural relevant data and tools from technologies to capabilities to provide essential forecasting capabilities at the strategic, operational and tactical levels. It will mature and integrate technologies that provide training and mission course of action analysis and preview/rehearsal capabilities at the strategic to tactical level.

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

Title: Modeling Capabilities	FY 2010	FY 2011	FY 2012
Description: Mature and deliver socio-cultural modeling capabilities for integration into existing DoD systems. Conduct validation testing of HSCB model based applications.	2.203	2.551	3.637
FY 2010 Accomplishments: Developed an initial modeling capability targeted to USSOCOM influence operations to support specific transitions including a capability focused on operational planning and intelligence analysis. Inserted capabilities that support target audience analysis, message diffusion and message resonance transition to USSOCOM programs of record. Developed a prototype data collection and modeling methodology for USAFRICOM. Began development of a modeling and analysis capability that allows model outputs to be translated to human decision space and allows the rank ordering and understanding of human actions called TopHAT. Developed an initial modeling capability to support intelligence, economic, and socio-cultural analysis and transitioned it to U.S. Army TRADOC and to an additional programs of record and began planning for transition to TRADOC tactical wargame suite. Implemented a technology integration strategy using awards, federally funded research and development centers, and government laboratories. Implemented and tested modeling capabilities in HSCB development, integration, and test lab as part			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
<p>of HSCB testing and assessment process. Determined specific COCOM requirements and continued targeting development to COCOM, warfighter, and program of record needs. Transitioned a data collection/visualization/social network analysis capability to USPACOM. Transitioned Senturion modeling capability to USPACOM.</p> <p>FY 2011 Plans: Demonstrate models for influence analysis, course of action (COA) analysis, and intelligence/economic/socio-cultural modeling. Continue to refine COCOM and deployed user needs and develop and transition near term technologies to address these needs. Support transition to a wide variety of COCOM and POR targets based on stated and emerging warfighter needs.</p> <p>FY 2012 Plans: Mature and perform integration of models to enable rapid, accurate forecast of primary and higher-order effects of COA on human behavior. Integrate and test HSCB technologies to transition to user needed capabilities. Particular focus shall be on tools and systems that offer integrated, theoretically grounded hybrid modeling capabilities.</p>				
<p>Title: Visualization Software</p> <p>Description: Mature and develop software that will visually and digitally represent cultural factors within existing and emerging command and control systems.</p> <p>FY 2010 Accomplishments: Supported the maturation of Tyton analytic toolset for discovery of non-obvious relationships. Deployed toolset for use on International Security Assistance Force networks. Toolset shall be accredited for use on networks at multiple classification levels and in multiple analytic fusion cells (SPADAC/Bericho). Began development of Canvas, and Oculus visualization capabilities targeted to USSOCOM and other user requirements and programs to support specific transitions. Included capabilities that support the visualization of multi-media data, message diffusion across cultural groups, and message resonance. Visualization capability allows model outputs to be translated to human decision space and allows the rank ordering and understanding of Diplomatic Infrastructure Military Economic (DIME) actions. Developed comprehensive visualization fusion approach and began implementation and testing of visualization capabilities in HSCB development, integration, and test lab as part of HSCB testing and assessment process. Matured HSCB geospatial capabilities within Army Geospatial Enterprise policies, standards, and technology architectures.</p> <p>FY 2011 Plans:</p>		1.574	1.864	2.566

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APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development & Prototypes (ACD&P)</i>	R-1 ITEM NOMENCLATURE PE 0604670D8Z: <i>Human Social Culture Behavior (HSCB) Modeling Research and Engineering</i>	PROJECT P670: <i>Human Social Culture Behavior (HSCB) Modeling Research and Engineering</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
Address operationally requested enhancements to Tyton tools for rapid deployment to users. Continue visualization capability development and develop a non-proprietary visualization and broad technology framework that permits interaction, exploration, and visualization of key elements of HSCB modeling information based on both user and task requirements. FY 2012 Plans: Assess framework capability to support development and integration of third-party visualization components and support models working at multiple operational (and data) levels (e.g., strategic, tactical, sub-tactical). Continue technical assessment process and focused technical testing.				
Title: Data Collection Description: Transition first generation data collection tool and decision support tools. FY 2010 Accomplishments: Began development of second generation tools to support tactical to operational collection, processing, visualization, and dissemination of socio-cultural data and decision support within the "Pathways" program. Leveraged lessons learned from Human Terrain Teams, Provincial Reconstruction Teams, and others to focus the effort to make social cultural data collection and use endogenous to forces. Tool is specifically designed to support tactical to strategic element operations by collecting, processing, and storing data in a way that facilitates knowledge assimilation and transfer. Conducted a proof of concept on behalf of USAFRICOM and transitioned result. Conducted a data collection and processing experiment with Joint Military Information Support Command (Charles River). Inserted prototype data collection tool into USSOCPAC experimental processes. FY 2011 Plans: Continue development of data collection and processing tool. Research and develop automated data collection, management, translation, and extraction tools to service HSCB models to support emergent user requirements. Intent is to facilitate the integration of current and emerging data sets into appropriate data stores; and enable users to discover, extract, and exploit data in forms appropriate for the models they need to use in support of HSCB problem domains and applications. FY 2012 Plans: Demonstrate and test with military users transition-ready automated data collection, management, translation and extraction tools to service HSCB models, in order to facilitate the integration of current and emerging data sets into appropriate data stores and exploit data in forms appropriate for the models users need to address HSCB problem domains and applications.		1.259	1.522	2.053
Title: Risk Reduction		1.259	1.522	2.053

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
<p>Description: Conduct the risk reduction activities necessary to ensure that HSCB technologies are validated, accurate, and address user/program of record requirements.</p> <p>FY 2010 Accomplishments: Increased technical engagement with awardees to ensure that developing technologies on track to meet user needs and are technically and theoretically validated. Increased engagement with key government customers to ensure ready venue for empirical validation and user assessment. Developed technology and tactics, techniques, and procedures to accommodate loose integration of HSCB technologies in technical assessment experiments.</p> <p>FY 2011 Plans: Continue testing and validation activities from FY 2010 and refine as necessary. The program will produce software prototypes configured for use by USSOCOM, USEUCOM, USAFRICOM, US ARMY TRADOC, Interagency partners and other end users and programs. The program will be executed by a Broad Agency Announcement (BAA) and a targeted request for proposals (RFP) process. The BAA and RFPs will be issued in the first quarter of FY 2011. Proposals will be solicited from all DoD organizations, other federal agencies, and the commercial sector. Proposals will be competed using review panels.</p> <p>FY 2012 Plans: Conduct the risk reduction activities necessary to ensure that HSCB technologies are validated, accurate, and address user/program of record requirements. Conduct transition focused risk reduction activities designed to ensure that technologies targeted to end user and program of record requirements are brought through a comprehensive systems engineering and technical/theoretical assessment process. Conduct the engineering activities necessary to transition technologies to capabilities to support warfighter, end user, and program of record requirements.</p>			
Accomplishments/Planned Programs Subtotals	6.295	7.459	10.309

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

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• PE 0602670D8Z BA 2: <i>HSCB</i>	7.639	8.854	14.858		14.858	17.057	17.432	17.821	18.359	Continuing	Continuing
<i>Applied Research</i>	9.761	10.834	18.101		18.101	20.743	21.150	21.603	22.252	Continuing	Continuing

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C. Other Program Funding Summary (\$ in Millions)											
Line Item	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
• PE 0603670D8Z BA 3: HSCB Advanced Development											
D. Acquisition Strategy The program will produce software prototypes configured for use in programs such as the Distributed Common Ground System (DCGS). The program will be executed by a BAA and a targeted RFP process. The BAA and RFPs will be issued in the first quarter of FY 2011. Proposals will be solicited from all DoD organizations, other federal agencies, and the commercial sector. Proposals will be competed using review panels.											
E. Performance Metrics N/A											

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Office of Secretary Of Defense **DATE:** February 2011

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Product Development (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Support (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Technical Engineering Services, Research Studies and Analyses	MIPR	Multiple Performers:Multiple	3.914	4.017	Mar 2011	5.433	Jan 2012	-		5.433	Continuing	Continuing	
Subtotal			3.914	4.017		5.433		-		5.433			

Remarks

FY 2011 and FY 2012 Performers TBD

Test and Evaluation (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	MIPR	Multiple Performers:Multiple	0.800	1.200	Jan 2011	3.200	Jan 2012	-		3.200	Continuing	Continuing	
Subtotal			0.800	1.200		3.200		-		3.200			

Remarks

FY 2011 and FY 2012 Performers TBD

Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Office Management and Administrative Processes	MIPR	MITRE:McLean, VA	1.581	-		-		-		-	Continuing	Continuing	

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Management Services (\$ in Millions)				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Office Management and Administrative Processes	TBD	TBD:TBD	-	2.242	Mar 2011	1.676	Jan 2012	-		1.676	Continuing	Continuing	
Subtotal			1.581	2.242		1.676		-		1.676			
Project Cost Totals			6.295	7.459		10.309		-		10.309			

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2012 Office of Secretary Of Defense			DATE: February 2011
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	FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Implement technology integration and demonstration strategy																												
Test and transition tools to support COCOMs, focus on influence operations																												
Conduct proof of concept testing of data collection tool(s) with Combatant Commands																												
Spiral 1 development of modeling and visualization framework																												
Solicitation and selection of new research/development of modeling and data tools																												
Spiral 2 of FY09/FY10 projects for influence analysis modeling, COA analysis, and decision support modeling tools																												
Spiral 2 of modeling and visualization framework																												
Transition-ready automated data collection and management tool																												
Spiral 1 of FY11 projects																												
Spiral 3 of modeling and visualization framework																												
Spiral 3 of FY09/FY10 influence analysis modeling, COA analysis, and decision support modeling tools																												
Spiral 2 of FY11 projects																												
Spiral 3 of FY11 projects																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2012 Office of Secretary Of Defense			DATE: February 2011
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Implement technology integration and demonstration strategy	2	2010	3	2010
Test and transition tools to support COCOMs, focus on influence operations	1	2010	2	2011
Conduct proof of concept testing of data collection tool(s) with Combatant Commands	2	2010	4	2010
Spiral 1 development of modeling and visualization framework	4	2010	2	2011
Solicitation and selection of new research/development of modeling and data tools	1	2011	3	2011
Spiral 2 of FY09/FY10 projects for influence analysis modeling, COA analysis, and decision support modeling tools	2	2011	1	2012
Spiral 2 of modeling and visualization framework	3	2011	3	2012
Transition-ready automated data collection and management tool	1	2011	4	2011
Spiral 1 of FY11 projects	1	2012	1	2013
Spiral 3 of modeling and visualization framework	3	2011	4	2012
Spiral 3 of FY09/FY10 influence analysis modeling, COA analysis, and decision support modeling tools	2	2012	2	2013
Spiral 2 of FY11 projects	2	2013	4	2013
Spiral 3 of FY11 projects	1	2014	4	2014

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