

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 3: <i>Advanced Technology Development (ATD)</i>	R-1 ITEM NOMENCLATURE PE 0603670D8Z: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>
---	---

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	8.443	10.395	11.510	0.000	11.510	19.187	21.765	22.119	22.513	Continuing	Continuing
P370: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>	8.443	10.395	11.510	0.000	11.510	19.187	21.765	22.119	22.513	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program is focused on demonstrating general-use, cross-domain capabilities/tools to support all HSCB application areas. It will demonstrate: computational modeling capabilities; visualization software toolsets; and training/mission rehearsal systems that provide forecasting capabilities for socio-cultural (human terrain) responses at the strategic, operational and tactical levels. The resulting technologies will provide, 1) cultural understanding/overlays in existing intelligence, influence operations, and operations planning systems; 2) training and mission rehearsal capabilities that go beyond strategic level planning tools (to the operational and tactical levels), providing broader, more in depth training/retention capability. A technical assessment capability is established across all program line items and is a means for assessment of discrete technologies as they are developed. Modeling capabilities generate and technically demonstrate validated adversaries to populate "what if" analyses for forecasting reactions of a defined class of adversaries to U.S./ coalition actions. Strategic decision making tools are technically demonstrated to highlight political, religious, cultural, and related factors. Training/mission rehearsal systems are capable of using flexible underlying cultural models to train at the operational/ tactical level. Integration and demonstration of social, cultural and human behavior/cognition skills training systems for operational and strategic planning personnel in a coalition force context. Visualization software toolsets are used as strategic decision making tools that will account for political, religious, cultural, and other factors. A common architecture visualization tool vertically integrates cultural information into a military operational environment.

UNCLASSIFIED

R-1 Line Item #41

Page 1 of 7

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense	DATE: February 2010
---	----------------------------

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 3: <i>Advanced Technology Development (ATD)</i>	R-1 ITEM NOMENCLATURE PE 0603670D8Z: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>
---	---

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	9.381	11.480	0.000	0.000	0.000
Current President's Budget	8.443	10.395	11.510	0.000	11.510
Total Adjustments	-0.938	-1.085	11.510	0.000	11.510
• 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	-0.231	0.000			
• SBIR/STTR Transfer	-0.170	0.000			
• Other Program Adjustments	-0.537	-1.085	11.510	0.000	11.510

UNCLASSIFIED

R-1 Line Item #41

Page 2 of 7

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 3: <i>Advanced Technology Development (ATD)</i>	R-1 ITEM NOMENCLATURE PE 0603670D8Z: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>	PROJECT P370: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>
---	---	--

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
P370: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>	8.443	10.395	11.510	0.000	11.510	19.187	21.765	22.119	22.513	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program is focused on developing cross-domain capabilities/tools to support all HSCB application areas. It will demonstrate: computational modeling capabilities; visualization software toolsets; and training/mission rehearsal systems that provide forecasting capabilities for socio-cultural (human terrain) responses at the strategic, operational and tactical levels. The resulting technologies will provide, 1) cultural understanding/overlays in existing intelligence, influence operations, and operations planning systems; 2) training and mission rehearsal capabilities that go beyond strategic level planning tools (to the operational and tactical levels), providing both broader and more in depth training/ retention capabilities. Technical assessment processes are established across all program line items and enable for assessment of discrete technologies as they are developed. Modeling capabilities generate and technically demonstrate validated adversaries to populate "what if" analyses for forecasting reactions of a defined class of adversaries to U.S./ coalition actions. Strategic decision making tools are technically demonstrated to highlight political, religious, cultural, and related factors. Training/mission rehearsal systems are capable of using flexible underlying cultural models to train at the operational and tactical levels. Social, cultural and human behavior/cognition skills training systems are integrated and demonstrated for operational and strategic planning personnel in a coalition force context. Visualization software toolsets are used as strategic decision making tools that will account for political, religious, cultural, and other factors. A common architecture visualization tool vertically integrates cultural information into a military operational environment.

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Modeling Capabilities Generation and technical demonstration of validated synthetic adversaries driven by underlying HSCB computational models will be the key to "what if" analyses for forecasting reactions of a defined class of adversaries to U.S./coalition military, economic, or political actions.	2.706	3.575	3.957	0.000	3.957

UNCLASSIFIED

R-1 Line Item #41

Page 3 of 7

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 3: <i>Advanced Technology Development (ATD)</i>	R-1 ITEM NOMENCLATURE PE 0603670D8Z: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>	PROJECT P370: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>
---	---	--

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Integrate and demonstrate decision making support tools useful within programs of record and operational user Planning/Execution/Re-Planning systems for political, religious, cultural and other factors. Develop tools and software products to integrate socio-cultural models and information into existing intelligence, training, operational planning, and Command and Control systems.</p> <p><i>FY 2009 Accomplishments:</i> Synthetic forces are useful for doing 'what if' exercises for planning purposes during Phase 0, and during ongoing contingency planning. The synthetic forces used for these wargames/planning exercises are often not an accurate representation of adversary or green forces, and their reactions to U.S./coalition actions. In FY09, to overcome the limitations of synthetic forces the program demonstrated regional/cultural models in planning exercises through the use of a comprehensive technology evaluation plan tied to warfighter relevant mission threads.</p> <p><i>FY 2010 Plans:</i> Support specific operational planning tasks for selected government partners via limited technical demonstration in user settings and by leveraging: other models; work performed in visualization; cultural understanding; the development of specific and generalized cultural models. Demonstrate the work done in the development of data frameworks to demonstrate a partial end to end process that uses the aspects described above. In addition, working with operational partners HSCB models will be tested in realistic environments by representative users.</p> <p><i>FY 2011 Base Plans:</i> Integrate and demonstrate decision making support tools within Planning/Execution/Re-Planning systems, and socio-cultural models and information into existing intelligence, training, operational planning, and Command and Control systems.</p>					
Training/Mission Rehearsal Systems	2.049	2.352	2.614	0.000	2.614

UNCLASSIFIED

R-1 Line Item #41

Page 4 of 7

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 3: <i>Advanced Technology Development (ATD)</i>	R-1 ITEM NOMENCLATURE PE 0603670D8Z: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>	PROJECT P370: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>
---	---	--

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

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>Current methods and procedures for integrating cultural information into military operations do not satisfy the requirements for ongoing operations and are not flexible enough to rapidly deliver just-in-time training for complex new regions of interest, and relatively new mission areas (e.g. transition and reconstruction). Training systems capable of using flexible underlying cultural models to train at the operational/tactical level is a requirement. When combined with socio-cultural operational planning tools, they allow users to understand the socio-cultural environment. It is then possible to plan, and potentially rehearse non-kinetic actions prior to execution and make changes based on outcomes.</p> <p><i>FY 2009 Accomplishments:</i> Demonstrated training technologies to deliver socio-cultural understanding and skills needed by individuals, small units, and coalitions in current and future military operations. Initiated socio-cultural theory based training tool projects that leverage commercial investments in Internet-based technologies and DoD investments in training technologies to support HSCB training and mission rehearsal objectives.</p> <p><i>FY 2010 Plans:</i> Demonstrate distributed training technologies to speed the development of socio-cultural skills in coalitions in current military operations.</p> <p><i>FY 2011 Base Plans:</i> Demonstrate socio-cultural training directly supported by hybrid modeling approaches. Capabilities to include automated scenario generation for red, white, gray side experimentation, based on validated mission rehearsal content.</p>					
<p>Visualization Software Toolsets</p> <p>This program demonstrates a first generation decision-making toolset that includes HSCB factors. Visualization software toolsets and integration of a common architecture visualization tool that will</p>	3.688	4.468	4.939	0.000	4.939

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 3: <i>Advanced Technology Development (ATD)</i>	R-1 ITEM NOMENCLATURE PE 0603670D8Z: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>	PROJECT P370: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<p>be used in operational/strategic decision making is the goal. These tools are required to account for political, religious, cultural, and other factors as well as to vertically integrate cultural information into a military operational environment.</p> <p><i>FY 2009 Accomplishments:</i> Developed an implementation plan for prototype geospatial/socio-cultural collection; modeling and visualization technologies that focus on automated extraction of cultural data demonstration in support of operational users. Developed a visualization tool to support enhanced visualization of hybrid intelligence and socio-cultural data.</p> <p><i>FY 2010 Plans:</i> Common, generalized (strategic to tactical) tools for visualization of Diplomatic Infrastructure Military Economic - Political Military Economic Social Information Infrastructure (DIME-PMESII) or HSCB factors on the battlefield, or during Security, Stability, Transition and Reconstruction phases do not exist. HSCB will focus on providing visualization capabilities that support a richer understanding of socio-cultural data in concert with other warfighter data.</p> <p><i>FY 2011 Base Plans:</i> Demonstrate visualization tool sets that can access underlying geospatial and socio-cultural data, evidentiary information, and associated uncertainty in the same visualization. Demonstrate visualization methods that can deal with sparse data sets.</p>						
Accomplishments/Planned Programs Subtotals		8.443	10.395	11.510	0.000	11.510

UNCLASSIFIED

R-1 Line Item #41

Page 6 of 7

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 3: <i>Advanced Technology Development (ATD)</i>	R-1 ITEM NOMENCLATURE PE 0603670D8Z: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>	PROJECT P370: <i>Human, Social and Culture Behavior (HSCB) Modeling Advanced Development</i>
---	---	--

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

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE 0602670D8Z BA 2: <i>HSCB Applied Research</i>	8.063	7.882	9.499		9.499	15.843	17.991	18.322	18.662	Continuing	Continuing
• PE 0604670D8Z BA 4 : <i>HSCB Research & Engineering</i>	5.392	6.950	7.459		7.459	12.206	14.759	14.983	15.206	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

UNCLASSIFIED

R-1 Line Item #41

Page 7 of 7