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Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support					PE 0606017F I Requirements Analysis and Maturation							
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
Total Program Element	-	21.922	129.100	35.453	0.000	35.453	33.578	34.001	34.392	35.095	Continuing	Continuing
666157: Development Planning	-	12.445	38.731	12.946	0.000	12.946	12.025	12.344	12.589	12.846	Continuing	Continuing
666158: INTEGRATED SIMULATION AND ANALYSIS	-	9.477	90.369	22.507	0.000	22.507	21.553	21.657	21.803	22.249	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Requirements Analysis and Maturation (RAM) program funds development planning (DP) to include early systems engineering and integrated simulation and analysis. These activities include requirements analysis, capability decomposition and trade space characterization, concept development (system of systems, air, space, and cyber), cost analysis, modeling and simulation of representative or prototype systems, and costs associated with these activities to include analytical tools and travel. Outcomes of these activities are fiscally and technologically informed requirements, mature concepts that are technically feasible, and areas for science and technology (S&T) investment to reduce technology risks. These activities provide the analytic basis for cost and capability trades driving non-materiel solutions as well as weapon systems requirements, acquisition milestones, decision points, and phases. A number of Department of Defense (DoD), Government Accountability Office (GAO), and independent studies point to a need for more disciplined, early systems engineering and pre-systems acquisition planning and analysis to produce decision-quality acquisition information that previously did not surface until after the initiation of a program. Early-phase systems engineering and technical planning activities funded by this program provide the foundation for informed investment decisions leading to successful acquisition programs. DP efforts have been coordinated with the Air Force Capability Development Council to ensure funding supports the highest Air Force priorities.

This program is in Budget Activity 6, RDT&E Management Support, because this budget activity includes research, development, test and evaluation efforts and funds to sustain and/or modernize the installations or operations required for general research, development, test and evaluation.

B. Program Change Summary (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	22.507	29.100	35.348	0.000	35.348
Current President's Budget	21.922	129.100	35.453	0.000	35.453
Total Adjustments	-0.585	100.000	0.105	0.000	0.105
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.585	0.000			
• Other Adjustments	0.000	100.000	0.105	0.000	0.105

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<u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u>		FY 2016	FY 2017
Project: 666158: <i>INTEGRATED SIMULATION AND ANALYSIS</i> Congressional Add: <i>Program Increase</i>			
Congressional Add Subtotals for Project: 666158		6.000	0.000
Congressional Add Totals for all Projects		6.000	0.000
<u>Change Summary Explanation</u> \$100M FY 2017 Request for Additional Appropriations (RAA) for Planning for Development (PFD) and Joint Simulation Environment (JSE).			

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Exhibit R-2A, RDT&E Project Justification: FY 2018 Air Force										Date: May 2017		
Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0606017F / Requirements Analysis and Maturation				Project (Number/Name) 666157 / Development Planning			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
666157: Development Planning	-	12.445	38.731	12.946	0.000	12.946	12.025	12.344	12.589	12.846	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The Development Planning project funds activities to analyze Air Force capability needs and requirements to identify potential shortfalls and opportunities; formulate candidate concepts and solution options to address Air Force capability needs and shortfalls; and conduct coordinated analysis and assessment activities to address requirements, technology needs, capability trades, schedule, cost, and pre-systems acquisition planning. Emphasis is placed on activities to inform strategic planning, analyzing multi-domain capabilities that look first at non-materiel solutions before generating materiel needs and requirements.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Long-range Capability Analyses								6.847	5.000	5.240	0.000	5.240
Description: Conduct long-range capability analyses by analyzing warfighter capability needs and requirements to identify potential shortfalls and opportunities.												
FY 2016 Accomplishments: Completed Air Superiority (AS) 2030 Enterprise Capability Collaboration Team (ECCT) to develop a roadmap guiding future capability development activities. The resulting AS 2030 Flight Plan addresses materiel and non-materiel actions needed to ensure future air superiority.												
FY 2017 Plans: Identify and assess enduring and future Air Force capability challenges and opportunities. Develop capability roadmaps, advanced concept studies and analyses, and derive technology needs required to realize future solutions to warfighter capability needs.												
FY 2018 Base Plans: Continue to identify and assess enduring and future Air Force capability challenges and opportunities. Continue to develop capability roadmaps, advanced concept studies and analyses, and derive technology needs required to realize future solutions to warfighter capability needs.												
FY 2018 OCO Plans: Not applicable.												
Title: Concept Development								3.963	2.463	4.750	0.000	4.750

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Appropriation/Budget Activity 3600 / 6		R-1 Program Element (Number/Name) PE 0606017F / Requirements Analysis and Maturation		Project (Number/Name) 666157 / Development Planning		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
<p>Description: Conduct concept development activities to inform strategic investment decisions. Formulate and explore multi-domain options (materiel and non-materiel) to better understand operational decision space.</p> <p>FY 2016 Accomplishments: Executed concept development activities, to include requirements support and analysis, early-phase systems engineering, early concept characterization and technical descriptions, market research, budget estimates, and technology assessments for future weapons and live, virtual, and constructive operational training.</p> <p>FY 2017 Plans: Formulate and explore multi-domain options (materiel and non-materiel) to better understand operational decision space.</p> <p>FY 2018 Base Plans: Continue to formulate and explore multi-domain options (materiel and non-materiel) to better understand operational decision space.</p> <p>FY 2018 OCO Plans: Not applicable.</p>						
<p>Title: Pre-systems Acquisition Planning</p> <p>Description: Conduct coordinated pre-systems acquisition planning activities that address requirements, schedule, cost, technology, and acquisition strategy.</p> <p>FY 2016 Accomplishments: Conducted pre-systems acquisition planning activities, to include concept refinement, cost estimates, acquisition courses of action, and acquisition milestone documentation for future tactical warning and attack assessment capability.</p> <p>FY 2017 Plans: Perform pre-systems acquisition planning activities, including concept refinement, cost estimates, acquisition courses of action, and acquisition milestone documentation directed by AS 2030 ECCT Flight Plan and to address other high priority efforts.</p> <p>FY 2018 Base Plans:</p>		1.635	31.268	2.956	0.000	2.956

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B. Accomplishments/Planned Programs (\$ in Millions)						
		FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Continue to perform pre-systems acquisition planning activities, including concept refinement, cost estimates, acquisition courses of action, and acquisition milestone documentation.						
FY 2018 OCO Plans: Not applicable.						
Accomplishments/Planned Programs Subtotals		12.445	38.731	12.946	0.000	12.946
C. Other Program Funding Summary (\$ in Millions) N/A						
Remarks						
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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Appropriation/Budget Activity 3600 / 6					R-1 Program Element (Number/Name) PE 0606017F / Requirements Analysis and Maturation				Project (Number/Name) 666158 / INTEGRATED SIMULATION AND ANALYSIS			
COST (\$ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
666158: INTEGRATED SIMULATION AND ANALYSIS	-	9.477	90.369	22.507	0.000	22.507	21.553	21.657	21.803	22.249	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
The Integrated Simulation and Analysis project provides system-of-systems synthetic environments for modeling, simulation, and analysis of systems and concepts under assessment. This effort accomplishes system performance representations and models, environments, architectures, and tools that underpin variable fidelity; stand-alone, interactive, and distributed simulations; and virtual prototyping using high performance computing for rapid assessment of warfighting capabilities. Integrated simulation and analyses combines real-time and constructive simulations, operators-in-the-loop, experimental and operational software and hardware engineered in synthesized environments to conduct air, space, cyber, and multi-domain capabilities assessments in support of development planning, experimentation, and related activities.												
B. Accomplishments/Planned Programs (\$ in Millions)								FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: Integrated Simulation and Analysis								3.477	90.369	22.507	0.000	22.507
Description: Develop cross-domain system-of-systems modeling, simulation, and analysis capabilities to support development planning, capabilities assessment, and acquisition decisions.												
FY 2016 Accomplishments: Reconfigured and matured models and toolsets to provide integrated simulation capabilities with variable levels of fidelity and realistic representation of battlespace environments.												
FY 2017 Plans: Continue to reconfigure and mature models and toolsets to provide integrated simulation capabilities with variable levels of fidelity and realistic representation of battlespace environments. Provide a core set of composable models and a common suite of cross-domain, reusable frameworks at the engineering, engagement, mission, and campaign levels that can be used to support robust development planning and experimentation for high-priority capability gaps, needs, and warfighting challenges identified by Air Force leadership. Begin development of advanced system-of-systems, multi-domain, anti-access, area denial simulation environment to conduct developmental and operational test, advanced training, and experimentation support for current and future advanced platforms.												
FY 2018 Base Plans:												

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Appropriation/Budget Activity 3600 / 6		R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>		Project (Number/Name) 666158 / <i>INTEGRATED SIMULATION AND ANALYSIS</i>	

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Continue to reconfigure and mature models and toolsets to provide integrated simulation capabilities with variable levels of fidelity and realistic representation of battlespace environments. Provide a core set of composable models and a common suite of cross-domain, reusable frameworks at the engineering, engagement, mission, and campaign levels that can be used to support robust development planning and experimentation for high-priority capability gaps, needs, and warfighting challenges identified by Air Force leadership.					
FY 2018 OCO Plans: Not applicable.					
Accomplishments/Planned Programs Subtotals	3.477	90.369	22.507	0.000	22.507

	FY 2016	FY 2017
Congressional Add: Program Increase	6.000	0.000
FY 2016 Accomplishments: Conducted Congressionally-directed effort.		
FY 2017 Plans: Not applicable.		
Congressional Adds Subtotals	6.000	0.000

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• N/A: N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	-
Remarks											
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.											