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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	18.673	22.507	29.100	0.000	29.100	35.348	33.565	33.985	34.388	Continuing	Continuing
666157: <i>Development Planning</i>	-	18.673	13.030	8.731	0.000	8.731	12.906	12.020	12.338	12.587	Continuing	Continuing
666158: <i>INTEGRATED SIMULATION AND ANALYSIS</i>	-	0.000	9.477	20.369	0.000	20.369	22.442	21.545	21.647	21.801	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 to inform weapon systems requirements and 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-phase 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. Specific efforts are determined each year based upon 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 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	16.350	16.507	16.759	0.000	16.759
Current President's Budget	18.673	22.507	29.100	0.000	29.100
Total Adjustments	2.323	6.000	12.341	0.000	12.341
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	6.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	2.800	0.000			
• SBIR/STTR Transfer	-0.477	0.000			
• Other Adjustments	0.000	0.000	12.341	0.000	12.341

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Congressional Add Details (\$ in Millions, and Includes General Reductions)	FY 2015	FY 2016
Project: 666157: <i>Development Planning</i> Congressional Add: <i>Program Increase</i>	2.500	-
Congressional Add Subtotals for Project: 666157	2.500	-
Project: 666158: <i>INTEGRATED SIMULATION AND ANALYSIS</i> Congressional Add: <i>Program Increase</i>	-	6.000
Congressional Add Subtotals for Project: 666158	-	6.000
Congressional Add Totals for all Projects	2.500	6.000

Change Summary Explanation

Increase in FY 2015 for Reprogramming due to increased analysis on future airborne battle management and surveillance capability and cyber resiliency needs.
 Increase in FY 2017 due to emphasis on integrated modeling and simulation capabilities to support Air Force development planning and experimentation.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Air Force **Date:** February 2016

Appropriation/Budget Activity 3600 / 6	R-1 Program Element (Number/Name) PE 0606017F / <i>Requirements Analysis and Maturation</i>	Project (Number/Name) 666157 / <i>Development Planning</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
<i>666157: Development Planning</i>	-	18.673	13.030	8.731	0.000	8.731	12.906	12.020	12.338	12.587	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 materiel 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.

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

	FY 2015	FY 2016	FY 2017
<p>Title: Long-range Capability Analyses</p> <p>Description: Conduct long-range capability analyses by analyzing warfighter capability needs and requirements to identify potential materiel shortfalls and opportunities.</p> <p>FY 2015 Accomplishments: Developed capability roadmaps, advanced concept studies and analyses, and derived technology needs required to realize future materiel solutions to warfighter capability needs.</p> <p>FY 2016 Plans: Continue to develop capability roadmaps, advanced concept studies and analyses, and derive technology needs required to realize future materiel solutions to warfighter capability needs.</p> <p>FY 2017 Plans: Continue to develop capability roadmaps, advanced concept studies and analyses, and derive technology needs required to realize future materiel solutions to warfighter capability needs.</p>	4.539	2.085	2.358
<p>Title: Concept Development</p> <p>Description: Conduct concept development activities, including early-phase systems engineering, by devising candidate materiel solution options to address Air Force air, space, and cyber capability needs and shortfalls.</p> <p>FY 2015 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.</p> <p>FY 2016 Plans:</p>	9.280	8.730	5.105

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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) 666157 / <i>Development Planning</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2015	FY 2016	FY 2017
Continue to execute 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. FY 2017 Plans: Continue to execute 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.				
Title: Pre-systems Acquisition Planning Description: Conduct coordinated pre-systems acquisition planning activities that address requirements, schedule, cost, technology, and acquisition strategy. FY 2015 Accomplishments: Performed pre-systems acquisition planning activities, to include concept refinement, cost estimates, acquisition courses of action, and acquisition milestone documentation. FY 2016 Plans: Continue to perform pre-systems acquisition planning activities, to include concept refinement, cost estimates, acquisition courses of action, and acquisition milestone documentation. FY 2017 Plans: Continue to perform pre-systems acquisition planning activities, to include concept refinement, cost estimates, acquisition courses of action, and acquisition milestone documentation.		2.354	2.215	1.268
Accomplishments/Planned Programs Subtotals		16.173	13.030	8.731
		FY 2015	FY 2016	
Congressional Add: Program Increase FY 2015 Accomplishments: Conducted Congressionally-directed effort.		2.500	-	
Congressional Adds Subtotals		2.500	-	
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				

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D. Acquisition Strategy

All contracts funded in this program element will be awarded using competitive procedures.

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 / <i>Requirements Analysis and Maturation</i>				Project (Number/Name) 666158 / <i>INTEGRATED SIMULATION AND ANALYSIS</i>			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
666158: <i>INTEGRATED SIMULATION AND ANALYSIS</i>	-	0.000	9.477	20.369	0.000	20.369	22.442	21.545	21.647	21.801	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 development of software, 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, and cyber capabilities assessments in support of development planning, experimentation, and related activities.

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

	FY 2015	FY 2016	FY 2017
Title: Integrated Simulation and Analysis	0.000	3.477	20.369
Description: Develop cross-domain system-of-systems modeling, simulation, and analysis capabilities to support development planning, capabilities assessment, and acquisition decisions.			
FY 2015 Accomplishments: N/A			
FY 2016 Plans: Develop and mature models and toolsets to provide integrated simulation capabilities with variable levels of fidelity and realistic representation of battlespace environments.			
FY 2017 Plans: Continue to develop and mature models and toolsets to provide integrated simulation capabilities with variable levels of fidelity and realistic representation of battlespace environments. Develop 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.			
Accomplishments/Planned Programs Subtotals	0.000	3.477	20.369

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	FY 2015	FY 2016
Congressional Add: Program Increase	-	6.000
FY 2016 Plans: Conduct Congressionally-directed effort.		
Congressional Adds Subtotals	-	6.000

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

<u>Line Item</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>FY 2017</u> <u>Base</u>	<u>FY 2017</u> <u>OCO</u>	<u>FY 2017</u> <u>Total</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 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

All contracts will be awarded using competitive procedures.

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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