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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207697F / <i>Distributed Training and Exercises</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	3.260	4.007	4.628	0.000	4.628	4.722	4.810	4.912	5.021	Continuing	Continuing
675190: <i>JFCOM Wargaming</i>	-	3.260	4.007	4.628	0.000	4.628	4.722	4.810	4.912	5.021	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Funding supports the CSAF Title 10 wargaming efforts to test concepts, capabilities, programming choices, and plans using simulation and other techniques, otherwise known as wargaming. Based on the Department and Air Force direction, there is a concerted effort in these periods of fiscal restraint to reinvigorate, institutionalize, and systematize wargaming across the Department. This effort requires continued funding to maintain the level of effort to most effectively pursue an innovative strategy, avoid operational and technical surprise and make best use of limited resources. The Air Force continues to refine the wargame process and design to better integrate and synergize those efforts in support of the Air Force Strategy, Planning, Programming, Budget, and Execution (SPPBE) process. Specifically, in addition to maintaining a robust Title 10 Wargame series, Global Engagement, servicing Chief of Staff of the Air Force (CSAF) objectives. The HAF Wargaming Enterprise is executing on-call Wargaming in support of the AF/A5/7, the Agile series, along with quick-turning wargame support to the USAF Enterprise Capability Collaboration Team (ECCT) requirements, the Enterprise series, Plan Blue, and to service AF/A5/7 strategy and concept development objectives; all to better address the requirements of the Strategy, Planning, Programming, Budget, and Execution (SPPBE) process and cycles. Additionally, HAF Wargaming provides and coordinates Air Force representation at other Service and Joint wargames as they execute across the department. These efforts are providing decision support to senior Air Force leaders involving investment strategies and develop concepts to best employ U.S. forces in future conflicts.

The Wargame Information Environment (WIE) is a continually evolving system that provides an array of services to game players which enables the accomplishment of game objectives. The backbone of the WIE is GameNet, a deployable, standalone, Local Area Network (LAN) with servers and laptops that host applications to support virtual battlespace collaboration, decision making, three-dimensional visualizations & mapping, and services. Behind these applications are cutting edge technologies and database architectures from both commercial off-the-shelf and government developed software that assures relevance to the wargame. The modeling, simulation, and analysis applications allow participants, adjudicators, and control team members to effectively and efficiently collaborate, make decisions, present those decisions, and execute moves within the wargame; documenting each step in the process. This information capture enables discovery during the wargame and permits postgame analysis. These findings inform portfolio rebalancing exercises, concept and strategy development, and very senior leader decision making.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2021 \$0 Million was expended for civilian pay expenses in this program element, and in FY2022 \$0 Million is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	3.384	4.007	0.000	0.000	0.000
Current President's Budget	3.260	4.007	4.628	0.000	4.628
Total Adjustments	-0.124	0.000	4.628	0.000	4.628
• 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	0.000	0.000			
• Other Adjustments	-0.124	0.000	4.628	0.000	4.628

Change Summary Explanation

The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
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Title: Develop/ Upgrade Modeling & Simulation (M&S) Tools for Wargaming Information Environment (WIE)	1.192	1.560	1.777
Description: Develop air, space and cyber space wargaming specific functionality in existing modeling and simulation and analysis tools and integrate into the latest version of the WIE			
FY 2022 Plans:			
<ul style="list-style-type: none"> • Continue developing and assimilating tools that capture consequences of alternative force structures and capabilities employed in wargames to inform Department of the Air Force (DAF) budgeting and programming choices. • Continue to expand and develop the Headquarters USAF (HAF) Wargaming Information Environment (WIE) by integrating the latest technology and tools that will support of a more flexible, robust, and agile wargaming enterprise that is quicker to respond and tailorable for a wider range of wargaming. This will require analysis of the utility and functionality of additional models and analytical tools used in other wargames, and creation of custom interfaces to allow interaction within the WIE (for example, the latest iteration of Air Force Materiel Command's Integrated Sustainment and Wargaming Analysis Toolkit (ISWAT3), which assesses and reports changing logistics and supply levels across wargame moves, battle damage, resupply etc.). • Seek to improve the ease and effectiveness of wargame execution by developing new WIE visualizations and user/ participant interfaces in the FY23 HAF "Title 10" wargame series comprised of Futures Game 22 (FG 22) and Global Engagement 22 (GE 22) 			

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<p>—where FG is a high-classification deep-dive into capabilities 15-20 years out and GE is an Ally-informed look at military theater competition between now and that period.</p> <p>Justification of work planned for FY22:</p> <ul style="list-style-type: none"> • This work will take place in preparation for, and in support of, FG 22 in the Spring of 2022; a Plan Blue game in Summer '22; and major planning workshops leading up to GE 23 in the Fall. • The HAF is using these wargames as one of its primary means to inform budgeting and programming decisions needed to fully implement and align with the National Defense Strategy. • This is particularly important follow-on work to implement/solidify lessons and best practices learned during the previous Futures Game 21 (FG 21), which will inform the wargaming M&S, analysis, assessments, and adjudication that will be used for FG 22. <ul style="list-style-type: none"> o The WIE used for FG 22, combined with tools brought in and refined by AFWIC and RAND (and integrated with other tools we continue to refine such as ISWAT) will directly underpin the planned follow-on FG 23 wargame—and subsequently GE 23 and FG 24. o Loss of this PE funding for FY22 would drastically undermine both FG 22 and 23, as well as Global Engagement wargaming. The Air Force would lose the robust wargame results (enabled by the WIE and associated M&S, assessments, and analysis tools) on which it relies to inform critical planning decisions on future concepts, capabilities, and force structure—all in support of NDS requirements. <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> • Continue developing and assimilating state of the art tools that capture consequences of alternative force structures and capabilities employed in wargames to inform Department of the Air Force (DAF) budgeting and programming choices. • Continue to expand and develop the Headquarters USAF (HAF) Wargaming Information Environment (WIE) by integrating the latest technology and tools that will support of a more flexible, robust, and agile wargaming enterprise that is quicker to respond and tailorable for a wider range of wargaming. This will require analysis of the utility and functionality of additional models and analytical tools used in other wargames, and creation of custom interfaces to allow interaction within the WIE (for example, the latest iteration of Air Force Materiel Command's Integrated Sustainment and Wargaming Analysis Toolkit (ISWAT3), which assesses and reports changing logistics and supply levels across wargame moves, battle damage, resupply etc.). • Seek to improve the ease and effectiveness of wargame execution by developing new WIE visualizations and user/ participant interfaces in the FY23 HAF "Title 10" wargame series comprised of Futures Game 23 (FG 23) and Global Engagement 23 (GE 23) 				

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
<p>—where FG is a high-classification deep-dive into capabilities 15-20 years out and GE is an Ally-informed look at military theater competition between now and that period.</p> <p>Justification of work planned for FY23:</p> <ul style="list-style-type: none"> • This work will take place in preparation for, and in support of, FG 23 in the Spring of 2023; a Plan Blue game in Summer '23; and major planning workshops leading up to GE 23 in the Fall. • The HAF is using these wargames as one of its primary means to inform budgeting and programming decisions needed to fully implement and align with the National Defense Strategy. • This is particularly important follow-on work to implement/solidify lessons and best practices learned during the previous Futures Game 22 (FG 22), which will inform the wargaming M&S, analysis, assessments, and adjudication that will be used for FG 23. <ul style="list-style-type: none"> o The WIE used for FG 22, combined with tools brought in and refined by AFWIC and RAND (and integrated with other tools we continue to refine, such as ISWAT3, will directly underpin the planned follow-on FG 23 wargame—and subsequently GE 23 and FG 24. o Loss of this PE funding for FY23 would drastically undermine both FG 23 and 24, as well as Global Engagement wargaming. The Air Force would lose the robust wargame results (enabled by the WIE and associated M&S, assessments, and analysis tools) on which it relies to inform critical planning decisions on future concepts, capabilities, and force structure—all in support of NDS requirements. <p>FY 2022 to FY 2023 Increase/Decrease Statement: Increase in requirements</p>				
<p>Title: Joint Concept Development & Experimentation (JCD&E) Tools</p> <p>Description: Develop scenarios and data for future synthetic environment that are grounded in truth to support several wargames and mini-wargames.</p> <p>FY 2022 Plans: HAF Wargaming will execute Global Engagement 23 and lead up events beginning in FY22. HAF Wargaming will continue to design, develop models, research concepts, and conduct workshops for Global Engagement 23 including the Capstone event in the Fall of 2023 including its post-game analysis and report writing(USAF Foundation wargame). HAF Wargaming will continue to</p>		2.068	2.447	2.851

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
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<p>conduct quick-turn wargames in support of senior leaders (Agile, ECCT) as directed including support to other service wargames to advocate for Air Force equities.</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> • HAF Wargaming will execute FG 23 and GE 23 lead-up events in FY23. • HAF Wargaming will continue to design, develop models, research concepts, and conduct workshops for FG 23 and GE 23 including post-game assessment, analysis and reporting. • HAF Wargaming will continue to conduct quick-turn wargames in support of senior leaders as directed including support to other service wargames to ensure Air Force interests are incorporated in a realistic manner. <p>Justification of work planned for FY23:</p> <ul style="list-style-type: none"> • The utility and credibility of results from all Air Force Title 10 wargaming described in the FY23 base plan is utterly reliant on the development in each game cycle of plausible and well-informed scenarios, Blue planning & facilitation experts, crack Red teams, and credible Red, Green and Blue baseline data for the future game epochs. • These scenarios, teams, and data—and the wargame plans they generate or underpin—are achievable only through the tailored hiring and the building over time of key persons/teams, and by enabling them with the right tools and collaboration activities to plan and build. • Wargaming access to such individuals, teams and tools, and their development activities that underpin HAF Title 10 wargames large and small, is made possible by this PE. • If this PE were to be defunded for FY23, the experts who build scenarios, develop and man Red teams, and provide the latest credible data on Blue, Red and Green forces and planning, would be lost—to be replaced later only slowly and with difficulty. The people and tools that port such data into the WIE would go away, as well. HAF Title 10 wargaming that depends on these elements—and therefore the vital results from such wargaming—would be significantly impacted, to the detriment of USAF future-force decisions and development. • Additionally, associated joint gaming/experimentation that uses and benefits from USAF Title 10 scenarios and data would be impacted as well (e.g. the Joint Staff's Global Integrated Wargame) 			
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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
OCO funds are not programmed in this PE.				
FY 2022 to FY 2023 Increase/Decrease Statement: Increase in requirements				
Accomplishments/Planned Programs Subtotals		3.260	4.007	4.628
D. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
E. Acquisition Strategy In order to achieve an innovative strategy, avoid operational and technical surprise and make best use of limited resources, wargaming requires an evolutionary acquisition approach for every wargame. Contract support is required as wargame and IT specialized expertise resides with industry and is not available organically. The requirements constantly evolve and a challenge to be accurately defined at the outset of the contract; however, we will continue to pursue a firm fixed price (FFP) contract awarded under a full and open competition.				

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207697F / <i>Distributed Training and Exercises</i>	Project (Number/Name) 675190 / <i>JFCOM Wargaming</i>

	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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

<i>Wargaming Information Environment</i>																												
Develop and Integrate M&S Tools																												
Enhance ViewPoint																												
Improve GamePoint																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207697F / <i>Distributed Training and Exercises</i>	Project (Number/Name) 675190 / <i>JFCOM Wargaming</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Wargaming Information Environment</i>				
Develop and Integrate M&S Tools	1	2021	4	2027
Enhance ViewPoint	1	2021	4	2027
Improve GamePoint	1	2021	4	2027