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

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0208097F <i>Joint Cyber Command and Control (JCC2)</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	-	35.060	79.079	80.740	0.000	80.740	13.933	0.000	0.000	0.000	Continuing	Continuing
676045: <i>Foundational Efforts</i>	-	35.060	79.079	80.740	0.000	80.740	13.933	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY 2022, PE 0604250D8Z, Advanced Innovative Technologies, Project IKE requirements and funding were transferred to PE 0208097F, Joint Cyber Command and Control (JCC2), Project 676045, Foundational Efforts, in order to operationalize prototype battlespace management capabilities into JCC2 program.

**A. Mission Description and Budget Item Justification**

Joint Cyber Command and Control (JCC2) provides Combatant Commanders, Joint Force Commanders and Service Component Commanders with enhanced situational awareness and battle management for cyberspace operations missions and forces. JCC2 establishes congressionally directed focal point to provide integrated JCC2 solutions to all echelons for execution of cyberspace operations to enable and accelerate planning/collaboration between Cyber Mission Forces and Combatant Commands (CCMD).

It will integrate Cyber Command and Control (C2) with Joint, Coalition and inter-agency C2 to enhance multi-domain operations, reduce planning time, improve decision quality and speed resulting in a shorter kill chain. Capabilities will be developed to address the Cyber Mission Forces used to conduct cyber operations. Additionally, it will leverage and utilize a Continuous Infrastructure/Continuous Development (CI/CD) Framework to pace development with warfighter need. JCC2 development activities include, but are not limited to: rapid prototyping, development of software/hardware systems; integration and transition of lab developed cyber capabilities to the warfighter; testing and evaluation; program management, studies, analysis, pilots, and demonstrations; risk reduction for emerging technologies; and development and assessment of operational systems for inclusion into JCC2 to meet capability requirements.

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 FY21 \$1.792M was expended for civilian pay expenses in this program element, and in FY22 \$3.700M 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>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	38.410	79.079	0.000	0.000	0.000
Current President's Budget	35.060	79.079	80.740	0.000	80.740
Total Adjustments	-3.350	0.000	80.740	0.000	80.740
• 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	-2.000	0.000			
• SBIR/STTR Transfer	-1.350	0.000			
• Other Adjustments	0.000	0.000	80.740	0.000	80.740

**Change Summary Explanation**

In FY 2021, \$2.000 million were rephased for higher DoD priorities.

In FY 2022, PE 0604250D8Z, Advanced Innovative Technologies, Project IKE requirements and funding were transferred to PE 0208097F, Joint Cyber Command and Control (JCC2), Project 676045, Foundational Efforts, in order to operationalize prototype battlespace management capabilities into JCC2 program.

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.

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<b>Title:</b> Foundational Efforts	35.060	79.079	80.740
<b>Description:</b> Foundational Efforts are program activities, at multiple operating locations, supporting development and evaluations activities and JCC2 baseline efforts to provide capability. Actions include system and software engineering, risk management, developmental framework management, and the execution of acquisition activities.			
<b>FY 2022 Plans:</b>			
- Develop application programming interfaces for development and integration of data sources			
- Enhance threat detection and network awareness for Combatant Commands			
- Enhance automation for mapping/monitoring of mission relevant terrain at all domains			
- Migrate capabilities to cloud service to streamline scaling and support faster delivery			
- Prototype tools that automate cyber threat data sharing			

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<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0208097F <i>I Joint Cyber Command and Control (JCC2)</i>
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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<ul style="list-style-type: none"> <li>- Develop, integrate, and build training current mission threads, such as, user-defined operational picture, incident response, significant activity reporting, Defensive Cyber Operations threat indicator and scoring tools, and J3 operational mission requirements</li> <li>- Complete Situational Awareness and Battle Management Minimum Viable Capability Releases and begin integration</li> <li>- Develop a framework for expedient and flexible requirements gathering, processing, and capability delivery</li> <li>- Scale and deliver capability through an agile development model, delivering operational capabilities as determined by governance process</li> </ul> <p><b><i>FY 2023 Plans:</i></b></p> <ul style="list-style-type: none"> <li>- Will develop Mission Relevant Terrain in Cyberspace</li> <li>- Will create, deliver, and integrate the Force Readiness/Presentation capability</li> <li>- Will develop/improve tools to increase shared situational/battle space awareness, cyber ops planning and cyber sensing capabilities based on real-world use during offensive/defensive cyber operations</li> <li>- Will develop a capability to use a common framework for cyber risk assessments</li> <li>- Will create and execute support contract for Help Desk and IT Service Management services</li> <li>- Will continue to develop API interface for development and integration of data sources</li> <li>- Will continue to develop a framework for expedient and flexible requirements gathering, processing, and capability delivery</li> <li>- Will continue to migrate capabilities to cloud service to streamline scaling and support faster delivery</li> <li>- Will continue to enhance automation for mapping/monitoring of mission relevant terrain at all domains</li> <li>- Will continue to integrate Situational Awareness and Battle Management Minimum Viable Capability Releases coupled with the incorporation of JCWA components</li> <li>- Will continue to scale and deliver capability through an agile development model, delivering operational capabilities as determined by governance process</li> </ul> <p><b><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i></b> Funding increased due to inflationary adjustments.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	35.060	79.079	80.740

**D. Other Program Funding Summary (\$ in Millions)**  
N/A

**Remarks**

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**E. Acquisition Strategy**

JCC2 is in the Software Acquisition Execution Phase which enables continuous integration and delivery of software capability at the speed of relevance. JCC2 will apply agile acquisition tenants to the programmatic, design/engineering, test, and delivery aspects to provide an ability to deliver Situational Awareness/C2 capabilities to the warfighter in a rapid manner. JCC2 is transitioning from a collection of distinct, special-purpose tools to an integrated joint C2 capability to reduce overall lifecycle costs, improve interoperability, and increase information sharing across the CCMDs.

The JCC2 program office is utilizing new and existing contract vehicles and concept, development, risk management, production, or deployment plans as part of a streamlined approach. The JCC2 program office has established a continuous integration/continuous development pipeline to facilitate the rapid development, integration, and fielding of capabilities to remain responsive to evolving warfighter requirements. The JCC2 program will execute the agile development requirements provided by the Army, Navy, Marine Corps, Air Force, and USCYBERCOM stakeholders in accordance with the prioritization provided by the multi-Service JCC2 governance structure.

The JCC2 program office is integrating several C2 mission systems for battle management and situational awareness. Most of the programs are using Agile development efforts, making rapid changes and upgrades to the applications and/or prototypes. In addition to converging the contracting efforts, the multiple mission systems, or applications, will eventually converge onto a shared C2 hosting and transit cloud infrastructure created by the PMO under the new Software Acquisition Pathway program. This approach will deliver an integrated JCC2 capability for Battle Management (BM) and Situational Awareness (SA). The JCC2 baseline capability relies on extensive development and evaluation efforts to analyze integration constraints and opportunities of Service-specific cyber capabilities.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force												Date: April 2022			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
3600 / 7				PE 0208097F / Joint Cyber Command and Control (JCC2)						676045 / Foundational Efforts					
<b>Product Development (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JCC2 CI/CD Infrastructure	Various	Multiple : Multiple	-	2.720	Apr 2021	3.604	Mar 2022	4.432	Feb 2023	-		4.432	Continuing	Continuing	-
JCC2 Agile Capability Development	Various	Multiple : Multiple	-	28.768	Mar 2021	69.300	Mar 2022	65.286	Feb 2023	-		65.286	Continuing	Continuing	-
<b>Subtotal</b>			-	31.488		72.904		69.718		-		69.718	Continuing	Continuing	N/A
<b>Support (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Direct Cite Authority Civilian Pay	TBD	USAF : Hanscom AFB, MA	-	1.792	Oct 2020	3.700	Oct 2021	5.992	Oct 2022	-		5.992	Continuing	Continuing	-
<b>Subtotal</b>			-	1.792		3.700		5.992		-		5.992	Continuing	Continuing	N/A
<b>Test and Evaluation (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation	C/CPAF	Not specified. : TBD	-	-		-		2.000	Oct 2022	-		2.000	Continuing	Continuing	-
<b>Subtotal</b>			-	-		-		2.000		-		2.000	Continuing	Continuing	N/A
<b>Management Services (\$ in Millions)</b>				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JCC2 Acquisition Support	Various	Multiple : Multiple	-	1.780	Nov 2020	2.475	Nov 2021	3.030	Nov 2022	-		3.030	Continuing	Continuing	-
<b>Subtotal</b>			-	1.780		2.475		3.030		-		3.030	Continuing	Continuing	N/A
<b>Project Cost Totals</b>			-	35.060		79.079		80.740		-		80.740	Continuing	Continuing	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2023 Air Force							<b>Date:</b> April 2022			
<b>Appropriation/Budget Activity</b> 3600 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0208097F / <i>Joint Cyber Command and Control (JCC2)</i>			<b>Project (Number/Name)</b> 676045 / <i>Foundational Efforts</i>				
	<b>Prior Years</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>	

**Remarks**  
CI/CD - Continuous Integration/Continuous Delivery

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208097F / <i>Joint Cyber Command and Control (JCC2)</i>	<b>Project (Number/Name)</b> 676045 / <i>Foundational Efforts</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
<b>Foundational Events</b>																												
Transition DOD pilot systems to USAF																												
JCC2 CI/CD Infrastructure																												
JCC2 Agile Capability Development																												
- JCC2 Agile Capability Development of Situational Awareness (SA) MVCR																												
- JCC2 Agile Capability Development of Battle Management (BM) MVCR																												
JCC2 Acquisition Support																												

**UNCLASSIFIED**

<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Air Force		<b>Date:</b> April 2022
<b>Appropriation/Budget Activity</b> 3600 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0208097F / <i>Joint Cyber Command and Control (JCC2)</i>	<b>Project (Number/Name)</b> 676045 / <i>Foundational Efforts</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Foundational Events</b>				
Transition DOD pilot systems to USAF	1	2021	4	2023
JCC2 CI/CD Infrastructure	1	2021	4	2024
JCC2 Agile Capability Development	1	2021	4	2024
- JCC2 Agile Capability Development of Situational Awareness (SA) MVCR	1	2021	4	2023
- JCC2 Agile Capability Development of Battle Management (BM) MVCR	1	2021	4	2023
JCC2 Acquisition Support	1	2021	4	2024

**Note**

In response to Section 1507 of the FY22 NDAA, the FY24+ funds for PE 0208097F will be transferred to USCYBERCOM to be responsible for the planning, programming, budgeting, and execution of the resources.

Transition DOD pilot systems to USAF references that the USAF was designated the lead service via being named the Executive Agent. The pilot systems transferred currently have operational users and are being evaluated for best of breed features and architecture to be further developed into the overarching JCC2 capability requirements.

Situational Awareness (SA) Minimum Viable Capability Release (MVCR):

Development of features that enable automation of data between network, mission, and threat domains.

Battle Management (BM) MVCR:

Development of features that enable Planning, Directing, Monitoring and Assessment capabilities in support of cyberspace operations at all levels of war.