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Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force **Date:** February 2020

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 0208097F / <i>Joint Cyber Command and Control (JCC2)</i>
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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	12.553	11.603	38.480	0.000	38.480	51.486	65.601	67.727	61.994	Continuing	Continuing
676045: <i>Foundational Efforts</i>	-	12.553	11.603	38.480	0.000	38.480	51.486	65.601	67.727	61.994	Continuing	Continuing

Note

In FY20, PE 0306250F, Cyber Operations Technology Development efforts were transferred to PE 0208097F, Joint Cyber Command and Control (JCC2) efforts in order to enable Executive Agent oversight and management and to provide adequate oversight and Service stakeholder transparency.

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 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 the Continuous Infrastructure/Continuous Development (CI/CD) Framework (a cyber factory) 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 administration, studies, analysis, pilots, demonstrations; risk reduction for emerging technologies; and development and assessment of operational systems for inclusion into JCC2 to meet capability requirements. The increase in funds will enable greater capacity to react to emerging requirements.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver JCC2 capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605831F.

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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	13.000	11.603	11.602	0.000	11.602
Current President's Budget	12.553	11.603	38.480	0.000	38.480
Total Adjustments	-0.447	0.000	26.878	0.000	26.878
• 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	-0.447	0.000	26.878	0.000	26.878

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Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force										Date: February 2020		
Appropriation/Budget Activity 3600 / 7					R-1 Program Element (Number/Name) PE 0208097F / Joint Cyber Command and Control (JCC2)				Project (Number/Name) 676045 / Foundational Efforts			
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
676045: Foundational Efforts	-	12.553	11.603	38.480	0.000	38.480	51.486	65.601	67.727	61.994	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY20, PE 0306250F, Cyber Operations Technology Development efforts were transferred to PE 0208097F, Joint Cyber Command and Control (JCC2) efforts in order to enable Executive Agent oversight and management, and to provide adequate oversight and Service stakeholder transparency.

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 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 the Continuous Infrastructure/Continuous Development (CI/CD) Framework (a cyber factory) 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 administration, studies, analysis, pilots, 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 JCC2 capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, 0605898F, and 0605833F.

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

	FY 2019	FY 2020	FY 2021
Title: Foundational Efforts	12.553	11.603	38.480
Description: Foundational Efforts are program activities, at multiple operating locations, supporting development and evaluations activities and JCC2 baseline efforts to retain capability. Actions include system and software engineering, risk management, developmental framework management, and the execution of acquisition activities.			
FY 2020 Plans:			
- Develop capabilities and initiate the Cyber Tasking Order used in CMF to conduct cyber operations			
- Expand program office to support JCC2 requirements development packages			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
<ul style="list-style-type: none"> - Build-up DevSecOps teams for continued piloting at CCMDs - Stand up development environment, i.e., hosting services, infrastructure - Integrate optimal Situational Awareness (SA) capabilities to integrate automated threat information sharing and collaboration <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Will incrementally develop JCC2 capabilities using the DevSecOps approach. - Will continue to integrate existing situational awareness and battle management capabilities to the JCC2 solution - Will continue to build the backlog of requirements through Joint Working Groups and the JCC2 Governance Process <p>FY 2020 to FY 2021 Increase/Decrease Statement: Funding increased due to decision to develop JCC2 capabilities from FY20 to FY21.</p>				
Accomplishments/Planned Programs Subtotals		12.553	11.603	38.480
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
<p>JCC2 is pre-Material Development Decision (MDD). JCC2 will apply agile acquisition tenets 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 will transition from a collection of distinct, special-purpose tools to an integrated joint capability to reduce overall lifecycle costs, improve interoperability, and increase information sharing across the CCMDs. JCC2 PMO will seek the new Software Acquisition Pathway as a long-term acquisition strategy. The IT-Box approach instills rigor for capability deployments and documentation for JCC2 while utilizing multiple middle tier acquisition designations allow the program to proceed with the DevSecOps pace. The JCC2 program office will utilize new and existing contract vehicles and concept, development, risk management, production, or deployment plans as part of a streamlined approach. The JCC2 program office will establish 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 initial JCC2 capability will deliver a minimum viable product (MVP) for immediate deployment and operational use. Subsequent build iterations will continue to deliver enhanced capabilities incrementally building the JCC2 capability to match warfighter needs. The JCC2 baseline capability relies on extensive development and evaluation efforts to analyze integration constraints and opportunities of Service-specific cyber capabilities. The decision to develop joint capabilities moved from FY22 to FY21.</p>				

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Air Force **Date:** February 2020

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208097F / Joint Cyber Command and Control (JCC2)	Project (Number/Name) 676045 / Foundational Efforts
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Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JCC2 CI/CD Infrastructure	Various	Multiple : Multiple	-	3.153	Mar 2019	-		5.079	Apr 2021	-		5.079	Continuing	Continuing	-
JCC2 Agile Capability Development	Various	Multiple : Multiple	-	5.500	Mar 2019	9.715	Mar 2020	28.780	Mar 2021	-		28.780	Continuing	Continuing	-
Subtotal			-	8.653		9.715		33.859		-		33.859	Continuing	Continuing	N/A

Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JCC2 Acquisition Support	Various	Multiple : Multiple	-	3.900	Mar 2019	1.888	Nov 2019	4.621	Nov 2020	-		4.621	Continuing	Continuing	-
Subtotal			-	3.900		1.888		4.621		-		4.621	Continuing	Continuing	N/A

Project Cost Totals	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
-	-	12.553	11.603	38.480	-	38.480	Continuing	Continuing	N/A

Remarks
 CI/CD - Continuous Integration/Continuous Development

Transition USCC 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.

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0208097F / <i>Joint Cyber Command and Control (JCC2)</i>	Project (Number/Name) 676045 / <i>Foundational Efforts</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Foundational Events				
Transition USCC pilot systems to USAF	1	2019	4	2021
JCC2 CI/CD Infrastructure	1	2019	3	2025
JCC2 Agile Capability Development	2	2019	4	2025
JCC2 Acquisition Support	1	2019	4	2025

Note

Transition USCC 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.