Department of Defense
Fiscal Year (FY) 2023 Budget Estimates

April 2022

The Joint Staff

Defense-Wide Justification Book Volume 5 of 5

Research, Development, Test & Evaluation, Defense-Wide

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Table of Volumes

Volume 5 Table of Contents

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Department of Defense
FY 2023 President's Budget
Exhibit R-1 FY 2023 President's Budget
Total Obligational Authority
(Dollars in Thousands)

05 Apr 2022

Appropriation	FY 2021 (Base + OCO)	FY 2022 Less Supplementals Enactment	FY 2022 Division B Division C P.L.117-43 Enactment*	FY 2022 Division B P.L.117-70 Enactment**	FY 2022 Division A P.L. 117-86 Enactment***	FY 2022 Division N P.L. 117-103 Enactment****
Research, Development, Test & Eval, DW	115,034	109,061				
Total Research, Development, Test & Evaluation	115,034	109,061				

Department of Defense
FY 2023 President's Budget
Exhibit R-1 FY 2023 President's Budget
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(Dollars in Thousands)

05 Apr 2022

Appropriation	FY 2022 Total Supplemental Enactment	FY 2022 Total Enactment	FY 2023 Request
Research, Development, Test & Eval, DW		109,061	148,613
Total Research, Development, Test & Evaluation		109,061	148,613

R-123PBP: FY 2023 President's Budget (Total Base Published Version), as of April 5, 2022 at 09:07:48

Department of Defense
FY 2023 President's Budget
Exhibit R-1 FY 2023 President's Budget
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(Dollars in Thousands)

05 Apr 2022

Summary Recap of Budget Activities	FY 2021 (Base + OCO)	FY 2022 Less Supplementals Enactment	FY 2022 Division B Division C P.L.117-43 Enactment*	FY 2022 Division B Division B P.L.117-70 Enactment**	FY 2022 Division A P.L. 117-86 Enactment***	FY 2022 Division N P.L. 117-103 Enactment****
Advanced Component Development & Prototypes	18,115	17,439				
Management Support	93,880	91,622				
Operational Systems Development	3,039					
Total Research, Development, Test & Evaluation	115,034	109,061				

Summary Recap of FYDP Programs

General Purpose Forces	6,097	977				
Intelligence and Communications	545					
Research and Development	79,100	78,554				
Training Medical and Other	29,292	29,530				
Total Research, Development, Test & Evaluation	115,034	109,061				

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Management Support		91,622	107,914
Operational Systems Development			
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Summary Recap of FYDP Programs			
General Purpose Forces		977	4,332
Intelligence and Communications			
Research and Development		78,554	106,429
Training Medical and Other		29,530	37,852
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Defense-Wide
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05 Apr 2022

Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2021 (Base + OCO)	FY 2022 Less Supplementals Enactment	FY 2022 Division B Division C P.L.117-43 Enactment*	FY 2022 Division B P.L.117-70 Enactment**	FY 2022 Division A P.L. 117-86 Enactment***	FY 2022 Division N P.L. 117-103 Enactment****	S e c
109	0604826J	Joint C5 Capability Development, Integration and interoperability Assessments	04	18,115	17,439					U
		Advanced Component Development & Prototypes		18,115	17,439					
143	0603829J	Joint Capability Experimentation	06	10,730	8,444					U
150	0605126J	Joint Integrated Air and Missile Defense Organization (JIAMDO)	06	50,255	52,671					U
182	0204571J	Joint Staff Analytical Support	06	3,058	977					U
187	0303166J	Support to Information Operations (IO) Capabilities	06	545						U
192	0804768J	COCOM Exercise Engagement and Training Transformation (CE2T2) - non-MHA	06	29,292	29,530					U
		Management Support		93,880	91,622					
204	0208043J	Planning and Decision Aid System (PDAS)	07	3,039						U
		Operational Systems Development		3,039						
		Total Research, Development, Test & Eval, DW		115,034	109,061					

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The Joint Staff
FY 2023 President's Budget
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Program Element Table of Contents (by Budget Activity then Line Item Number)

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Program Element Table of Contents (Alphabetically by Program Element Title)

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 The Joint Staff											Date: April 2022	

Appropriation/Budget Activity
0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*

R-1 Program Element (Number/Name)
PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*

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	111.465	18.115	17.439	40.699	-	40.699	29.457	30.430	30.139	30.817	-	-
001: *C5 Assessments and Analyses*	56.903	7.973	9.208	9.780	-	9.780	4.454	4.441	4.287	3.619	-	-
002: *C5 Capability Development*	31.837	5.119	4.750	13.951	-	13.951	9.584	9.576	9.498	9.610	-	-
003: *Joint Fires C2 Interoperability*	22.725	5.023	3.481	6.968	-	6.968	5.419	5.413	5.354	5.588	-	-
004: *Rapid Defense Experimentation Reserve*	-	-	-	10.000	-	10.000	10.000	11.000	11.000	12.000	-	-

A. Mission Description and Budget Item Justification

Lead command, control, communications, computers, and cyber (C5) assessments, analyses, capability development, and joint fires command and control (C2) interoperability efforts required to achieve an effective, integrated, and interoperable joint force. Efforts include C5 requirements determination, C5 architectures development and integration, C5 data standardization, joint fires C2 interoperability, and C5 integration and interoperability assessments. The Joint Staff has recently been designated the DoD's lead for the integration of Joint All-Domain Command & Control (JADC2) capabilities and development efforts across the Department. The Joint C5 program is the Joint Staff focal point for this responsibility, and DoD's only program directly attributable to JADC2. The Joint C5 R&D projects collectively provide the analytical basis and action arm of the JADC2 Cross Functional Teams charged with execution of the DoD JADC2 Strategy and Implementation Plan.

B. Program Change Summary ($ in Millions)

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	18.115	17.439	0.000	-	0.000
Current President's Budget	18.115	17.439	40.699	-	40.699
Total Adjustments	0.000	0.000	40.699	-	40.699
• Congressional General Reductions	0.000	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Year	-	-	40.699	-	40.699

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 1 of 26

R-1 Line #109

Volume 5 - 1

Exhibit R-2, **RDT&E Budget Item Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding. FY 2023 includes one-year funding of 11.001M to accelerate Joint All-Domain C2 (JADC2) cross-functional team capabilities. FY 2023 also includes 10M in Rapid Defense Experimentation Reserve (RDER) funds.

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 2 of 26

R-1 Line #109

Volume 5 - 2

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff											Date: April 2022	
Appropriation/Budget Activity 0400 **/** 4					**R-1 Program Element (Number/Name)** PE 0604826J **/** *Joint C5 Capability Development, Integration, and Interoperability Assessments*				**Project (Number/Name)** 001 **/** *C5 Assessments and Analyses*			
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**
001: *C5 Assessments and Analyses*	56.903	7.973	9.208	9.780	-	9.780	4.454	4.441	4.287	3.619	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

As the new DoD lead for the integration of Joint All-Domain Command and Control (JADC2) capabilities and development efforts, conduct analysis and assessment activities to inform and enhance joint warfighter capabilities in support of national security requirements. Provide timely, facts-based findings and recommendations to DoD decision-making processes that validate operational requirements and fund interoperable capabilities. Conduct interoperability assessments and analyses that evaluate capability and interoperability of fielded and emerging command, control, communications, computers, and cyber (C5), and systems in response to operational issues and shortfalls. Conduct integration assessment efforts focused on emerging capabilities in wireless devices and security, operational and tactical command and control, networking, satellite communications, advanced secure digital datalinks, and allied/coalition data exchanges.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Title: C5 Assessments and Analyses *Description:* Support the Chairman's statutory requirement to advise the Secretary of Defense on development of joint command, control, communications and cyber capability, including integration and interoperability of such capability through requirements, integrated architectures, data standards and assessments. Also supports the Chairman's focus area of improving joint warfighting capability and the Secretary's line of effort to strengthen alliances and attract new partners. Interoperability is assessed and integrated solutions are developed to improve C5 system performance by providing recommendations based on operational architectures and evolving standards and data products. Combatant Commands, Services, Agencies and Allies/Coalition partners are provided a laboratory, exercise and assessment venue for the warfighter and capability developer to identify and solve interoperability, integration, and cyber issues. *FY 2022 Plans:* Support National Military Strategy and Globally Integrated Operations (GIO) by conducting quantifiable analysis, assessment, and integration activities that inform and enhance Joint warfighter capabilities and interoperability. Activities utilize actual and replicated operational environments and networks to conduct capability development, support joint and coalition experimentation, and support acquisition and systems employment decisions. Continue to address warfighter needs across all domains by conducting activities in rapidly reconfigurable C5ISR laboratories replicating joint and coalition system of systems operational environments as well as in operational venues such as exercises. Employ a deployable assessment capability supporting	7.973	9.208	9.780

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 3 of 26

R-1 Line #109

Volume 5 - 3

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff		Date: April 2022
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0604826J **/** *Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 001 **/** *C5 Assessments and Analyses*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
the collection and analysis of decision quality data for command and control operations from the operational to lowest tactical echelons of command, in field conditions, in real time to provide immediate feedback on the data being collected. Projects include: Bold Quest (BQ) 2022 Coalition Interoperability Demonstrations – Support the design, plan, and execution of the BQ events which address close air support, Mission Partner Environment (MPE) / Federated Mission Networking (FMN) development/assessments, counter Unmanned Aircraft Systems (UAS), Identification, Friend or Foe (IFF) testing, and cyber effects on operations for U.S. forces and coalition partners. Support includes accredited exercise networks, associated Command and Control (C2) systems, and data collection and analysis capabilities. Cyber Guard (CG)/Cyber Flag (CF) - Provide assessment and technical support to cyber exercises to include C2 information systems, while conducting assessments of cyber effects on systems integrated into the DoD Information Network. Counter-UAS (CUAS) – Data collection and analysis during Research, Development, Test, and Evaluation (RDT&E) test events as well as in support of urgent operational needs in active operational theaters. Analysis covers all aspects of CUAS defense, including lethal engagements. Joint Tactical Integration - Integrate, refine, and accelerate the migration of Special Operating Forces (SOF) battle-proven capabilities to rapidly improve the Joint warfighting capabilities and lethality of general purpose forces in accordance with governing instructions. Capabilities include integrated secure radio networks, tactical data links, tactical cellular, enroute satellite communications, enhanced situational awareness, fratricide prevention, and a more efficient kill-chain. Coalition Interoperability and Assurance Validation (CIAV) - Assess US and coalition systems support in-theater operations by ensuring C5 capabilities adequacy before current operational employment in the Afghan and Iraq areas of operations. Conduct CIAV projects in the INDOPACOM area of responsibility. Joint Network Integration Environment – Integrate advanced C5 technologies to improve the capabilities and resiliency of US Force Korea's warfighting networks. Improve information sharing between U.S., Republic of Korea, and planned mission partner forces.			

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff		Date: April 2022	
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / *Joint C5 Capability Development, Integration, and Interoperability Assessments*	Project (Number/Name) 001 / *C5 Assessments and Analyses*	

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Joint All-Domain Command and Control (JADC2) – Provide the joint hub for an integrated wide-area experimental network and conduct supporting interoperability assessments and integration activities. Contribute to wargames, exercises and experiments that explore current and future warfighting C2 concepts with coalition partners including Mission Partner Environments. *FY 2023 Plans:* Support National Military Strategy and Globally Integrated Operations (GIO) by conducting quantifiable analysis, assessment, and integration activities that inform and enhance Joint warfighter capabilities and interoperability. Activities utilize actual and replicated operational environments and networks to conduct capability development, support joint and coalition experimentation, and support acquisition and systems employment decisions. Continue to address warfighter needs across all domains by conducting activities in rapidly reconfigurable Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) laboratories replicating joint and coalition system of systems operational environments as well as in operational venues such as exercises. Employ a deployable assessment capability supporting the collection and analysis of decision quality data for command and control operations from the operational to lowest tactical echelons of command, in field conditions, in real time to provide immediate feedback on the data being collected. Projects include: Bold Quest (BQ) Coalition Interoperability Demonstrations – Support the design, plan, and execution of the BQ events which address close air support, Mission Partner Environment (MPE) / Federated Mission Networking (FMN) development/assessments, counter Unmanned Aircraft Systems (UAS), Identification, Friend or Foe (IFF) testing, and cyber effects on operations for U.S. forces and coalition partners. Support includes accredited exercise networks, associated Command and Control (C2) systems, and data collection and analysis capabilities. Cyber Guard (CG)/Cyber Flag (CF) - Provide assessment and technical support to cyber exercises to include C2 information systems, while conducting assessments of cyber effects on systems integrated into the DoD Information Network. Counter-UAS (CUAS) – Data collection and analysis during RTD&E test events as well as in support of urgent operational needs in active operational theaters. Analysis covers all aspects of CUAS defense, including lethal engagements. Joint Tactical Integration - Integrate, refine, and accelerate the migration of Special Operating Forces (SOF) battle-proven capabilities to rapidly improve the Joint warfighting capabilities and lethality of general purpose forces in accordance with governing instructions. Capabilities include integrated secure radio networks, tactical data links, tactical cellular, enroute satellite communications, enhanced situational awareness, fratricide prevention, and a more efficient kill-chain.			

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 001 *I C5 Assessments and Analyses*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Coalition Interoperability and Assurance Validation (CIAV) - Assess US and coalition systems support in-theater operations by ensuring C5 capabilities adequacy before current operational employment in the Afghan and Iraq areas of operations. Conduct CIAV projects in the INDOPACOM area of responsibility. Joint Network Integration Environment – Integrate advanced C5 technologies to improve the capabilities and resiliency of US Force Korea's warfighting networks. Improve information sharing between U.S., Republic of Korea, and planned mission partner forces. Joint All-Domain Command and Control – Provide the joint hub for an integrated wide-area experimental network and conduct supporting interoperability assessments and integration activities. Contribute to wargames, exercises and experiments that explore current and future warfighting C2 concepts with coalition partners including Mission Partner Environments. *FY 2022 to FY 2023 Increase/Decrease Statement:* Adjustments to travel funds and non-pay, non-fuel inflation adjustment, and other minor adjustments.			
Accomplishments/Planned Programs Subtotals	7.973	9.208	9.780

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 Biannual review of C4/Cyber resources includes an examination of the current and future Budget/Spend Plan, Lines of Effort, Acquisition Strategy and current Execution.

 The award of a Multi Award Contract (MAC) seeks efficiencies in the performance of requirements for C4/Cyber and Information services, and promotes contractor teaming to provide critical technical and management support. The MAC approach also seeks to reduce the costs of current contract support through the elimination of multiple fees for service contracts, and through the competitive award of contract services.

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff   **UNCLASSIFIED**
Page 6 of 26   R-1 Line #109   **Volume 5 - 6**

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 The Joint Staff												**Date:** April 2022	
Appropriation/Budget Activity 0400 **/** 4							**R-1 Program Element (Number/Name)** PE 0604826J **/** *Joint C5 Capability Development, Integration, and Interoperability Assessments*				**Project (Number/Name)** 001 **/** *C5 Assessments and Analyses*		

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract Management and Engineering Technical Services	C/CPFF	Various : Norfolk, Suffolk, Eglin	56.903	7.973	Oct 2020	9.208		9.780		-		9.780	Continuing	Continuing	-
Subtotal			56.903	7.973		9.208		9.780		-		9.780	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	56.903	7.973		9.208		9.780		-		9.780	Continuing	Continuing	N/A

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 001 *I C5 Assessments and Analyses*

	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
Joint C5I																												
C5 Assessments and Analyses								■	■	■	■	■	■	■														

Exhibit R-4A, **RDT&E Schedule Details:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 001 *I C5 Assessments and Analyses*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Joint C5I				
C5 Assessments and Analyses	4	2022	3	2024

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 9 of 26

R-1 Line #109

Volume 5 - 9

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff												**Date:** April 2022	

Appropriation/Budget Activity 0400 *I* 4			R-1 Program Element (Number/Name) PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*						Project (Number/Name) 002 *I C5 Capability Development*				

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
002: *C5 Capability Development*	31.837	5.119	4.750	13.951	-	13.951	9.584	9.576	9.498	9.610	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Command, Control, Computers, Communications, Cyber (C5) capability development functions as the DoD requirements lead for the joint command and control family of programs, Joint cyber, and requirements lead for mission partner environment (MPE). The program also develops joint context, containers, components, and code (C4) architectures, joint common systems functions, joint mission threads, leads analysis and reviews architectures and standards in joint capability development systems. C5 development enables warfighter access to authoritative data sources and improves data interoperability by establishing common command and control (C2) data and service standards.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: C5 Capability Development *Description:* Lead C2 capability development and integration in order to achieve an interdependent joint force. Supports Chairman's focus to improve joint warfighter capability and enhance global integration. This will be accomplished through four focus areas: capability development, C4 architectures, data and services, and interoperability and integration. *FY 2022 Plans:* Capability Development - Analyze/coordinate out-year C2 integrated priority lists, capability gaps, and Joint C2 operational priorities. Create C2 requirements in concert with DoD's Digital Modernization Strategy. Specifically, address Global Command and Control System - Joint (GCCS-J) replacement by Global Command and Control System - Joint Enterprise (GCCS-JE) to include robust functionality during disconnected operations. Pursue joint capability development/integration for Joint All Domain C2 (JADC2), Command and Control of the Information Environment (C2IE), Joint Force Capability Catalog (JFCC)/Global Laydown Server (GLS)/ Project ORION, Joint Planning Services (JPS) Personnel Recovery and Missile Warning in accordance with the Secretary's direction. C5 Architectures - Provide architecture, mission thread, and mission-based analysis development and analysis products as required to support the Chairman's directed focus areas and Chief Information Officer (CIO) lines of operations. Conduct analysis and validate warfighting requirements architectures and engineering designs for continued implementation of the Joint Information Environment (JIE). Update the Joint Common Service/System Function List and Warfighter Mission Area (WMA) Architecture Development Standard to improve WMA architecture integration and interoperability. Continue to improve and expand the quality and amount of architecture information and data available for analysis and reuse on the WMA architecture portal. Conduct	5.119	4.750	13.951

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff		Date: April 2022
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0604826J **/** *Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 002 **/** *C5 Capability Development*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
analyses and develop architectures and metrics for Joint Capabilities Integration and Development System (JCIDS) C5 capability requirement documents. Data and Services – Develop, promote, and integrate common enterprise data and services requirements, standards, technical specifications, and policy to improve Joint All Domain Command and Control (C2) interoperability and information sharing with Joint, interagency and coalition mission partners. Perform and lead proof of concept activities, including cloud-based data lakes that enables Artificial Intelligence and cybersecurity standardization of the National Information Exchange Model (NIEM) and the North Atlantic Treaty Organization (NATO) Core Data Framework (NCDF) with selected Joint All Domain C2 communities of interest, including robotics and autonomous systems. Conduct one Joint All Domain C2 complex proof of concept demonstration with NATO with interested Services, Agencies and coalition partners to improve warfighter interoperability and enhance operational effectiveness. Continue to lead, align and standardize emerging Joint All Domain C2 tactical data link, symbology (including cyber symbology) and messaging standards to support common enterprise-level information sharing. Continue to support standardization of common warfighter Identity Access Management, robust cyber security, standardized interfaces and common data tagging to promote Joint All Domain C2 interoperability. Coalition Interoperability - International lead for the Coalition Interoperability Assurance and Validation (CIAV) providing interoperability mission-based assessments across the geographic Combatant Commands. Continue to lead mission partner environment (MPE) implementation and support coalition cyber priorities across DoD by leading the MPE cyber security efforts and supporting the federated mission networking (FMN) cyber security working group. Continue to shape North Atlantic Treaty Organization (NATO) federated mission networking (FMN) implementation to ensure it remains aligned with MPE, including related capability development. Provide support to the Combined Communications-Electronics Board to ensure interoperability among the Five Eyes nations (Canada, New Zealand, Australia, UK and U.S.). Lead the NATO-sponsored Coalition Warrior Interoperability Exploration, Experimentation, Examination, Exercises (CWIX) FMN Focus Area to ensure standardized, effective development of Joining, Membership, and Exit Instructions. *FY 2023 Plans:* Capability Development - Analyze/coordinate out-year Command and Control (C2) integrated priority lists, capability gaps, and Joint C2 operational priorities. Create C2 requirements in concert with DoD's Digital Modernization Strategy. Specifically, address Global Command and Control System - Joint (GCCS-J) replacement by Global Command and Control System - Joint Enterprise (GCCS-JE) to include robust functionality during disconnected operations. Pursue joint capability development/integration for Joint All Domain C2 (JADC2), Command and Control of the Information Environment (C2IE), Joint Force Capability Catalog (JFCC)/Global Laydown Server (GLS)/ Project ORION, Joint Planning Services (JPS) Personnel Recovery and Missile Warning in accordance with the Secretary's direction.			

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff		Date: April 2022
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 002 *I C5 Capability Development*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**

C5 Architectures - Provide architecture, mission thread, and mission-based analysis development and analysis products as required to support the Chairman's directed focus areas and Chief Information Officer (CIO) lines of operations. Conduct analysis and validate warfighting requirements architectures and engineering designs for continued implementation of the Joint Information Environment (JIE). Update the Joint Common Service/System Function List and Warfighter Mission Area (WMA) Architecture Development Standard to improve WMA architecture integration and interoperability. Continue to improve and expand the quality and amount of architecture information and data available for analysis and reuse on the WMA architecture portal. Conduct analyses and develop architectures and metrics for Joint Capabilities Integration and Development System (JCIDS) C5 capability requirement documents.

Data and Services – Develop, promote, and integrate common enterprise data and services requirements, standards, technical specifications, and policy to improve Joint All Domain C2 interoperability and information sharing with Joint, interagency and coalition mission partners. Perform and lead proof of concept activities, including cloud-based data lakes that enables Artificial Intelligence and cybersecurity standardization of the National Information Exchange Model (NIEM) and the North Atlantic Treaty Organization (NATO) Core Data Framework (NCDF) with selected Joint All Domain C2 communities of interest, including robotics and autonomous systems. Conduct one Joint All Domain C2 complex proof of concept demonstration with NATO with interested Services, Agencies and coalition partners to improve warfighter interoperability and enhance operational effectiveness. Continue to lead, align and standardize emerging Joint All Domain C2 tactical data link, symbology (including cyber symbology) and messaging standards to support common enterprise-level information sharing. Continue to support standardization of common warfighter Identity Access Management, robust cyber security, standardized interfaces and common data tagging to promote Joint All Domain C2 interoperability.

Coalition Interoperability - International lead for the Coalition Interoperability Assurance and Validation (CIAV) providing interoperability mission-based assessments across the geographic Combatant Commands. Continue to lead mission partner environment (MPE) implementation and support coalition cyber priorities across DoD by leading the MPE cyber security efforts and supporting the federated mission networking (FMN) cyber security working group. Continue to shape North Atlantic Treaty Organization (NATO) federated mission networking (FMN) implementation to ensure it remains aligned with MPE, including related capability development. Provide support to the Combined Communications-Electronics Board to ensure interoperability among the Five Eyes nations (Canada, New Zealand, Australia, UK and U.S.). Lead the NATO-sponsored Coalition Warrior Interoperability Exploration, Experimentation, Examination, Exercises (CWIX) FMN Focus Area to ensure standardized, effective development of Joining, Membership, and Exit Instructions.

FY 2022 to FY 2023 Increase/Decrease Statement:

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0604826J **/** *Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 002 **/** *C5 Capability Development*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Compliance with defense wide economic adjustments, non-pay, non fuel inflation, and minor cost adjustment.			
Accomplishments/Planned Programs Subtotals	5.119	4.750	13.951

C. Other Program Funding Summary ($ in Millions)

 N/A

Remarks

D. Acquisition Strategy

 Biannual review of Command, Control, Communications, Computers (C4)/Cyber resources includes an examination of the current and future Budget/Spend Plan, Lines of Effort, and Acquisition Strategy.

 The award of a Multi Award Contract (MAC) seeks efficiencies in the performance of requirements for C4/Cyber and Information services, and promotes contractor teaming to provide critical technical and management support. The MAC approach also seeks to reduce the costs of current contract support through the elimination of multiple fees for service contracts, and through the competitive award of contract services.

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 13 of 26

R-1 Line #109

Volume 5 - 13

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2023 The Joint Staff												**Date:** April 2022		

Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604826J / *Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 002 / *C5 Capability Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contract Management and Engineering Technical Services	C/CPFF	Various : Norfolk, Suffolk	31.837	5.119	Oct 2020	4.750		13.951		-		13.951	Continuing	Continuing	-
Subtotal			31.837	5.119		4.750		13.951		-		13.951	Continuing	Continuing	N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	31.837	5.119	4.750	13.951	-	13.951	Continuing	Continuing	N/A

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2023 The Joint Staff	**Date:** April 2022

Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 002 *I C5 Capability Development*

	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

C5 Capability Development

C5 Capability Development

Exhibit R-4A, **RDT&E Schedule Details:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 **I** 4	**R-1 Program Element (Number/Name)** PE 0604826J **I** *Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 002 **I** *C5 Capability Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
C5 Capability Development				
C5 Capability Development	4	2022	3	2024

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 16 of 26

R-1 Line #109

Volume 5 - 16

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff										Date: April 2022	

Appropriation/Budget Activity 0400 I 4				R-1 Program Element (Number/Name) PE 0604826J I *Joint C5 Capability Development, Integration, and Interoperability Assessments*					Project (Number/Name) 003 I *Joint Fires C2 Interoperability*		

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
003: *Joint Fires C2 Interoperability*	22.725	5.023	3.481	6.968	-	6.968	5.419	5.413	5.354	5.588	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

As the DoD lead for the integration of Joint All-Domain Command & Control (JADC2) capabilities and development efforts, lead interoperability efforts across DoD and partner nations at the operational and tactical level for mission partner operations, fire support, combat identification (CID), and friendly force tracking (FFT) capabilities. Conduct joint fire support, joint close air support and CID-FFT action plans to fulfill CJCS-directed, General Officer/Flag Officer (GOFO) level responsibilities. Conduct Joint Fire Support Executive Steering Committee (JFS ESC) standardization team accreditation visits to U.S. and partner nation schoolhouses to ensure memorandum of agreement signatories are accomplishing schoolhouse training in compliance with the memoranda.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Joint Fires C2 Interoperability *Description:* These efforts directly support Chairman, Joint Chiefs of Staff (CJCS) guidance to increase interoperability with allies and partners, to more effectively counter trans-regional threats. Supports Chairman's focus area of improving joint warfighting capability and the Secretary's line of effort to strengthen alliances and attract new partners. Execute Joint Staff-sponsored Bold Quest systems-of-systems interoperability assessment, including integration of cyber capabilities with command and control of conventional and Special Operations Force missions from a multinational perspective at the tactical level. Lead the Joint Fire Support Executive Steering Committee (JFS ESC), composed of Flag/General Officer representatives and supporting staffs from the U.S. Services, Special Operations Command and 21 partner nations. Those nations include NATO nations, Australia, Republic of Korea and key Gulf State allies. Also lead the Combat Identification – Friendly Force Tracking Executive Steering Committee (CID-FFT ESC), focused on more effective and efficient combat operations and reduced potential for friendly fire incidents. *FY 2022 Plans:* Plan and execute Joint Staff-sponsored Bold Quest 2022 capability demonstration and assessment, focused on interoperability for joint and coalition fires underpinned by Mission Partner Environment (MPE) concepts. Bold Quest data and assessments inform U.S. and Partner Nation investment in multiple capability areas: combat identification, friendly force tracking, digitally aided close air support and fires, integrated air and missile defense (Mode 5 Identify Friend or Foe), coalition intelligence surveillance and reconnaissance, integrated interoperable simulations, and cyber. These efforts directly support the National Military Strategy, the Chairman's global integration objectives and the Combatant Commanders conventional and Special Operations Forces (SOF) international engagement programs. Continue leading accreditation visits of current JFS ESC member programs and provide staff	5.023	3.481	6.968

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 17 of 26

R-1 Line #109

Volume 5 - 17

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Develo pment, Integration, and Interoperability Ass essments*	**Project (Number/Name)** 003 *I Joint Fires C2 Interoperability*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
assistance visits for development of close air support-related training and certification programs. Continue leading the CID-FFT ESC and JFS ESC in order to address capability shortfalls/gaps, analyze and recommend integrated joint and coalition solutions to warfighter issues. *FY 2023 Plans:* Plan and execute Joint Staff-sponsored Bold Quest capability demonstration and assessment, focused on interoperability for joint and coalition fires underpinned by Mission Partner Environment (MPE) concepts. Bold Quest data and assessments inform U.S. and Partner Nation investment in multiple capability areas: combat identification, friendly force tracking, digitally aided close air support and fires, integrated air and missile defense (Mode 5 Identify Friend or Foe), coalition intelligence surveillance and reconnaissance, integrated interoperable simulations, and cyber. These efforts directly support the National Military Strategy, the CJCS' global integration objectives and the Combatant Commanders conventional and SOF international engagement programs. Continue leading accreditation visits of current JFS ESC member programs and provide staff assistance visits for development of close air support-related training and certification programs. Continue leading the CID-FFT ESC and JFS ESC in order to address capability shortfalls/gaps, analyze and recommend integrated joint and coalition solutions to warfighter issues. *FY 2022 to FY 2023 Increase/Decrease Statement:* Increased experimentation efforts, compliance with the Department's economic assumptions and minor programmatic adjustments.			
Accomplishments/Planned Programs Subtotals	5.023	3.481	6.968

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 Biannual review of C4/Cyber resources includes an examination of the current and future Budget/Spend Plan, Lines of Effort and Acquisition Strategy.

 The award of a Multi Award Contract (MAC) seeks efficiencies in the performance of requirements for C4/Cyber and Information services, and promotes contractor teaming to provide critical technical and management support. The MAC approach also seeks to reduce the costs of current contract support through the elimination of multiple fees for service contracts, and through the competitive award of contract services.

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 18 of 26

R-1 Line #109

Volume 5 - 18

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 The Joint Staff												Date: April 2022		

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / *Joint C5 Capability Development, Integration, and Interoperability Assessments*	Project (Number/Name) 003 / *Joint Fires C2 Interoperability*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Contract Management and Engineering Technical Services	C/CPFF	Various : Norfolk	22.725	5.023	Oct 2020	3.481		6.968		-		6.968	Continuing	Continuing	-
		Subtotal	22.725	5.023		3.481		6.968		-		6.968	Continuing	Continuing	N/A

	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	22.725	5.023	3.481	6.968	-	6.968	Continuing	Continuing	N/A

Remarks

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 19 of 26

R-1 Line #109

Volume 5 - 19

Exhibit R-4, **RDT&E Schedule Profile:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 003 *I Joint Fires C2 Interoperability*

	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
Joint Fires C2 Interoperability																												
Joint Fires C2 Interoperability																												

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 20 of 26

R-1 Line #109

Volume 5 - 20

Exhibit R-4A, RDT&E Schedule Details: PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 003 *I Joint Fires C2 Interoperability*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Joint Fires C2 Interoperability				
Joint Fires C2 Interoperability	4	2022	3	2024

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 21 of 26

R-1 Line #109

Volume 5 - 21

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022

Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 004 *I Rapid Defense Experimentation Reserve*

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
004: *Rapid Defense Experimentation Reserve*	-	-	-	10.000	-	10.000	10.000	11.000	11.000	12.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

To facilitate rapid modernization of the force, the Rapid Defense Experimentation Reserve (RDER) initiative was established in the Defense Planning Guidance for Fiscal Year 2023-2027, to encourage multi-component experimentation through a campaign of learning. Services, Agencies, and other participating organizations are to identify "best of breed" capabilities developed among the DoD prototyping programs, and execute approved projects through large-scale experiments in order to refine and/or validate the Joint Warfighting Concept (JWC). Organizations are to nominate proposals to the Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)) that are multi-component – involving Joint Services, International partners and/or other government agencies – and link to one or more of the four key supporting concepts ("functional battles") of the Joint Warfighting Concept: Joint Concept for Fires, Joint Concept for Command and Control, Joint Concept for Contested Logistics, and Joint Concept for Information Advantage.

The Department will implement multiple RDER experimentation series through projects with execution timelines ranging from one to two years. The USD(R&E) will review project progress, and nominate new series at least annually with the goal of quickly incorporating the most promising innovative prototypes into experiments, and promptly terminating projects that fail to achieve expectations. To support a disciplined approach to rapidly identify, incorporate and execute projects the Joint Staff J-7 will assess the degree of alignment for the proposals against the concepts for USD (R&E).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Rapid Defense Experimentation Reserve	-	-	10.000
Description: Experimentation outcomes will be designed to validate required capabilities enabling the JWC by evaluating and integrating prototyped technologies in operationally relevant, multi-domain environments. Experimentation results will facilitate Joint Staff J-7 analysis in the evaluation of the Joint Warfighting Concept, assist the Joint Requirements Oversight Counsel in requirements determination, and inform the Deputy's Management Action Group to make budget decisions that effect changes throughout the Department. *FY 2023 Plans:* Joint all-domain experimentation, addressing high-need capability gaps across the Department. *FY 2022 to FY 2023 Increase/Decrease Statement:*			

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 22 of 26

R-1 Line #109

Volume 5 - 22

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 004 *I Rapid Defense Experimentation Reserve*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Increased funding supporting Joint all-domain experimentation.			
Accomplishments/Planned Programs Subtotals	-	-	10.000

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 23 of 26

R-1 Line #109

Volume 5 - 23

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 The Joint Staff														Date: April 2022	

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604826J / Joint C5 Capability Development, Integration, and Interoperability Assessments	Project (Number/Name) 004 / Rapid Defense Experimentation Reserve

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
RDER	IA	Joint Experimentation : Pentagon	-	-		-		10.000	Nov 2023	-		10.000	-	-	-
Subtotal			-	-		-		10.000		-		10.000	-	-	N/A

			Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	-		-		10.000		-		10.000	-	-	N/A

Remarks

Exhibit R-4, **RDT&E Schedule Profile:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 004 *I Rapid Defense Experimentation Reserve*

	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
Joint Experimentation																												
Joint Experimentation								██	██	██	██	██	██	██														

Exhibit R-4A, **RDT&E Schedule Details:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0604826J *I Joint C5 Capability Development, Integration, and Interoperability Assessments*	**Project (Number/Name)** 004 *I Rapid Defense Experimentation Reserve*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Joint Experimentation				
Joint Experimentation	4	2022	3	2024

PE 0604826J: *Joint C5 Capability Development, Integra...*
The Joint Staff

UNCLASSIFIED
Page 26 of 26

R-1 Line #109

Volume 5 - 26

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 The Joint Staff											Date: April 2022	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*					**R-1 Program Element (Number/Name)** PE 0603829J *I Joint Capability Experimentation*							
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	10.971	10.730	8.444	12.452	-	12.452	12.100	11.171	11.397	11.397	-	-
001: *Joint Capability Experimentation*	10.971	10.730	8.444	12.452	-	12.452	12.100	11.171	11.397	11.397	-	-

A. Mission Description and Budget Item Justification

The FY2019 National Defense Authorization Act (NDAA) amends the Chairman's responsibilities to address experimentation on future concepts and the 2018 National Defense Strategy Implementation Guidance directs that rigorous experimentation take place on concepts to ensure Department investments adequately address future requirements as well as those of today. Accordingly, the Joint Staff requires an experimentation capability to analyze and validate priority joint concept required capabilities. The Joint Staff will lead, plan, execute the Global Integrated Wargame (GIWG) 21 events to examine the Joint Warfighting Concept (JWC) 2.0 operational logic and identified gaps to support delivery of an evaluated concept to the Secretary of Defense.

Concept analysis and validation will have a multi-faceted nature to meet the Chairmen's Title 10 responsibility of, "identifying new joint military capabilities based on advances in technology and concepts of operation, and recommending investments and experiments in such capabilities." Wargames will assess baseline mission and campaign level outcomes of the concepts as well as identify a tradespace of potential new capabilities. This tradespace of capabilities is further explored with quantitative models and software that identify the most efficient cost and capability tradeoffs to help meet the Title 10 responsibility of "advising the Secretary on new and alternative joint military capabilities, and alternative program recommendations and budget proposals, within projected resource levels."

The National Defense Strategy directs "early design tradeoffs in the requirements process to increase the speed of delivery." The Joint Staff approach to tradespace exploration follows that guidance by providing a cost conscious and operationally relevant prioritization tradeoff technique early in the portfolio design process. Using this rigorous prioritization approach, the capability development cycle can efficiently focus resources on more detailed experimentation of specific capabilities to inform the requirements process. The analysis from the experimentation program will be used to provide foundational evidence to directly inform the Joint Military Net Assessment (JMNA), the Chairman's Program Recommendation (CPR), and ultimately the Defense Planning Guidance for Joint Force development.

PE 0603829J: *Joint Capability Experimentation*
The Joint Staff

UNCLASSIFIED
Page 1 of 4

R-1 Line #143

Volume 5 - 27

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 The Joint Staff				**Date:** April 2022	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*			**R-1 Program Element (Number/Name)** PE 0603829J *I Joint Capability Experimentation*		
B. Program Change Summary ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**
Previous President's Budget	10.730	8.444	0.000	-	0.000
Current President's Budget	10.730	8.444	12.452	-	12.452
Total Adjustments	0.000	0.000	12.452	-	12.452
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Year	-	-	12.452	-	12.452

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding. Increases to meet the Department's economic assumptions and increased experimentation efforts

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff										Date: April 2022	
Appropriation/Budget Activity 0400 / 6				R-1 Program Element (Number/Name) PE 0603829J / *Joint Capability Experimentation*					Project (Number/Name) 001 / *Joint Capability Experimentation*		

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
001: *Joint Capability Experimentation*	10.971	10.730	8.444	12.452	-	12.452	12.100	11.171	11.397	11.397	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The FY2019 NDAA amended the Chairman's responsibilities to include experimentation on future concepts. The 2018 National Defense Strategy Implementation Guidance directed rigorous experimentation on concepts as a means to ensure Department investments adequately address future requirements, not just near term. Given this, the Joint Staff must establish an experimentation capability suitable for analysis and validation of priority joint concept required capabilities. The base of experimentation and wargaming will expand through the initial operating capability to full operating capability. This will provide the necessary capacity and capability. The combination will allow the Chairman to identify cost efficient and effective capability tradeoffs. This capability will enable the Chairman to fulfill his Title 10 responsibility, "advising the Secretary on new and alternative joint military capabilities, and alternative program recommendations and budget proposals, within projected resource levels." This capability more fully supports the Chairman's production of the Joint Military Needs Assessment (JMNA), the Chairman's Program Recommendation (CPR) and ultimately the Defense Planning Guidance for Joint Force development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Joint Capability Experimentation	10.730	8.444	12.452
Description: The FY 2019 NDAA amended the Chairman's responsibilities to address experimentation on future concepts and the 2018 National Defense Strategy Implementation Guidance directed vigorous experimentation take place on concepts to ensure department investments are adequately addressing future requirements as well as those today. The project will deliver analytically rigorous, resource-conscious and operationally-validated portfolio investment strategies for the CJCS to ensure an enduring competitive advantage. *FY 2022 Plans:* Execute joint experimentation and wargaming focused on Joint Force Development (JFD) that will enhance the capability of the Joint Staff to provide the Chairman with sound analysis of the future environment, concepts, and joint capabilities. *FY 2023 Plans:* Execute joint experimentation and wargaming focused on Joint Force Development (JFD) that will enhance the capability of the Joint Staff to provide the Chairman with sound analysis of the future environment, concepts, and joint capabilities. *FY 2022 to FY 2023 Increase/Decrease Statement:* Increased RDTE efforts supporting force development experimentation.			
Accomplishments/Planned Programs Subtotals	10.730	8.444	12.452

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 **/** 6	**R-1 Program Element (Number/Name)** PE 0603829J **/** *Joint Capability Experimentation*	**Project (Number/Name)** 001 **/** *Joint Capability Experimentation*

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

PE 0603829J: *Joint Capability Experimentation*
The Joint Staff

UNCLASSIFIED
Page 4 of 4

R-1 Line #143

Volume 5 - 30

| Exhibit R-2, RDT&E Budget Item Justification: PB 2023 The Joint Staff | | | | | | | | | | | Date: April 2022 | |

| Appropriation/Budget Activity
0400: *Research, Development, Test & Evaluation, Defense-Wide I BA 6:
RDT&E Management Support* | | | | R-1 Program Element (Number/Name)
PE 0605126J *I Joint Integrated Air & Missile Defense Organization (JIAMDO)* | | | | | | | | |

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	428.785	50.255	52.671	53.278	-	53.278	61.348	60.189	58.875	58.841	-	-
P001: *Core*	172.942	11.544	10.428	18.840	-	18.840	21.774	21.906	23.382	24.207	-	-
P005: *Nimble Fire*	138.846	20.036	19.876	13.797	-	13.797	15.244	14.712	13.579	13.205	-	-
P006: *Cruise Missile Combat Identification (CID)*	84.249	4.675	4.433	3.911	-	3.911	4.643	4.545	4.300	4.300	-	-
P007: *Homeland Defense Capability*	32.748	14.000	17.934	16.730	-	16.730	19.687	19.026	17.614	17.129	-	-

A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is the organization within the Department of Defense chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, joint operational concepts, and operational architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the operational community's proponent for requirements and capabilities in IAMD, and is the joint IAMD proponent within the DoD's resource allocation structures. JIAMDO also leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, conducts evaluations, demonstrations of joint IAMD architectures, and provides advocacy for innovative, technically mature, and affordable solutions.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs, and assesses the validity of those criteria in relation to national and military requirements. At the request of USSTRATCOM and direction of the CJCS, JIAMDO supports USSTRATCOM in the development of the IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and technical oversight of homeland capability solutions.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 The Joint Staff				**Date:** April 2022	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*			**R-1 Program Element (Number/Name)** PE 0605126J *I Joint Integrated Air & Missile Defense Organization (JIAMDO)*		
B. Program Change Summary ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023 Base**	**FY 2023 OCO**	**FY 2023 Total**
Previous President's Budget	50.255	52.671	0.000	-	0.000
Current President's Budget	50.255	52.671	53.278	-	53.278
Total Adjustments	0.000	0.000	53.278	-	53.278
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Year	-	-	53.278	-	53.278

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding. Adjustments to comply with the Department's economic assumptions.

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff											**Date:** April 2022	

Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605126J / *Joint Integrated Air & Missile Defense Organization (JIAMDO)*	**Project (Number/Name)** P001 / *Core*

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**
P001: *Core*	172.942	11.544	10.428	18.840	-	18.840	21.774	21.906	23.382	24.207	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Title: Core	11.544	10.428	18.840
Description: Provides staff support for JIAMDO operations in the area of ballistic missile defense, air and cruise missile defense, homeland defense, requirements management, combat identification, modeling and simulation, analytical functions and products, senior level briefings, and all travel costs for government and contractor support personnel. Routine functions include performing analyses, demonstrations, and programmatic assessments of technology, operations, requirements, and weapons systems. In coordination with Services and CCMDs, JIAMDO Core funds the definition, assessment, development, and approval of Joint IAMD operational concepts, operational architectures, and capability requirements. These assessments guide the Department's joint, interagency, integrated and net-centric IAMD. JIAMDO Core provides funding to: 1. Conduct and integrate joint studies, simulations, war games, force resource allocation, and interoperability initiatives. 2. Manage relevant Congressional interaction and CCMD interface. 3. Directly support and sponsor homeland air surveillance-related demonstration and analysis activities.			

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 **/** 6	**R-1 Program Element (Number/Name)** PE 0605126J **/** *Joint Integrated Air & Missile Defense Organization (JIAMDO)*	**Project (Number/Name)** P001 **/** *Core*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
4. Manage the Integrated Air and Missile Defense (IAMD) Working Group and co-chair the Protection Functional Capabilities Board focusing CCMD, Joint Staff, and Service collaboration efforts to generate joint concepts and develop the IAMD architecture and roadmap. JIAMDO Core enables strategic planning development, security, travel, and other support activities. Funding pays for: contracted Systems Engineering and Technical Assistance (SETA) support for Air & Cruise Missile Defense (ACMD), Ballistic Missile Defense (BMD), Homeland Air Security (HAS) strategic planning, studies & analysis, combat ID, modeling & simulation. Additionally, the JIAMDO Core budget funds daily on-site security management personnel to meet DoD, National Industrial Security Program Operating Manual (NISPOM), and other security regulations, for all administrative and support functions related to higher security classifications, as well as basic office supplies and furniture, and classified/unclassified data connections. *FY 2022 Plans:* Expand efforts to develop joint integrated air and missile defense (IAMD) requirements solutions. With the completion of the Engagement Coordination initial capabilities document (ICD) in mid FY 2020, continue to support solutions efforts with Missile Defense Agency (MDA) and Services for the Planning Capabilities ICD. Provide support to DISA for Networks Management Capabilities ICD. Ensures the solutions efforts support the Joint Requirements Oversight Council (JROC) validated capability requirements documents (ICDs). *FY 2023 Plans:* Expand efforts to develop joint integrated air and missile defense (IAMD) requirements solutions. *FY 2022 to FY 2023 Increase/Decrease Statement:* FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.			
Accomplishments/Planned Programs Subtotals	11.544	10.428	18.840

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

PE 0605126J: *Joint Integrated Air & Missile Defense O...*
The Joint Staff

UNCLASSIFIED
Page 4 of 9

R-1 Line #150

Volume 5 - 34

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff											Date: April 2022	
Appropriation/Budget Activity 0400 / 6					**R-1 Program Element (Number/Name)** PE 0605126J / *Joint Integrated Air & Missile Defense Organization (JIAMDO)*					**Project (Number/Name)** P005 / *Nimble Fire*		

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
P005: *Nimble Fire*	138.846	20.036	19.876	13.797	-	13.797	15.244	14.712	13.579	13.205	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: JIAMDO Nimble Fire	20.036	19.876	13.797
Description: Nimble Fire is the Department's only IAMD operator-in-the-loop modeling and simulation capability supporting the Chairman's top five critical joint IAMD capabilities: wide-area surveillance and engagement quality tracking, pre-launch interdiction, non-kinetic post-launch capabilities, ballistic missile discrimination, and increased weapons ranges and lethality. Nimble Fire events generally explore joint IAMD capabilities and concepts in the FYDP plus two timeframe. The events combine experienced operators from the tactical communities, virtual simulations accredited by the program offices, current and future advanced capabilities, an integrated air, ballistic and cruise missile threat, and informed scenarios based on the Department's analytical agenda and CCMD operational plans. JIAMDO brings together stakeholders across the engineering, analytical, and tactical communities to assess Joint interoperability of Service and MDA programs of record, explore concepts of employment, inform tactics, techniques and procedures and concepts of operation, provide insights that help shape CCMD integrated priorities and future operational plans, and inform senior leader acquisition and requirements decisions. *FY 2022 Plans:*			

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605126J / *Joint Integrated Air & Missile Defense Organization (JIAMDO)*	**Project (Number/Name)** P005 / *Nimble Fire*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Execute two Nimble Fire events in support of the Combatant Commands, the Services, and MDA. Continue upgrades to improve EW and multi-domain modeling & simulation capabilities at the Virtual Warfare Center. Multi-domain primarily refers to space, attack or offensive operations, cyber effects and unmanned systems. *FY 2023 Plans:* Execute Nimble Fire events in support of the Combatant Commands, the Services, and MDA. Continue upgrades to improve EW and multi-domain modeling & simulation capabilities at the Virtual Warfare Center. *FY 2022 to FY 2023 Increase/Decrease Statement:* Decrease to comply with fiscal guidance.			
Accomplishments/Planned Programs Subtotals	20.036	19.876	13.797

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff		Date: April 2022	

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / Joint Integrated Air & Missile Defense Organization (JIAMDO)	Project (Number/Name) P006 / Cruise Missile Combat Identification (CID)

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
P006: Cruise Missile Combat Identification (CID)	84.249	4.675	4.433	3.911	-	3.911	4.643	4.545	4.300	4.300	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Integrated Air and Missile Defense Organization (JIAMDO) is chartered to plan, coordinate, and oversee Integrated Air and Missile Defense (IAMD) requirements, concepts, and architectures. As part of the Joint Staff, JIAMDO supports the Chairman in meeting his Title 10 responsibilities as they relate to IAMD issues. JIAMDO is the IAMD proponent for requirements and capabilities within the DoD's resource allocation system. JIAMDO leads IAMD mission and utility analysis, integrates IAMD within the force protection joint capability area, and conducts evaluations of joint IAMD architectures.

JIAMDO has established a close partnership with Combatant Commands (CCMDs) and maintains close coordination with U.S. Strategic Command (USSTRATCOM) and U.S. Northern Command (USNORTHCOM) in support of ballistic missile defense of the United States. JIAMDO provides the CJCS and the Joint Requirements Oversight Council the ability to meet statutory responsibilities to review cost, schedule, and performance criteria of Missile Defense Agency missile defense programs. At the request of USSTRATCOM and at the direction of the CJCS, JIAMDO supports USSTRATCOM development of IAMD prioritized capabilities list and the global integrated IAMD assessment and analysis of the Ballistic Missile Defense System. JIAMDO supports the USSTRATCOM ballistic missile early warning mission by ensuring operational and technical requirements are integrated into the theater missile warning architecture. JIAMDO also provides direct support to North American Aerospace Defense Command and USNORTHCOM for homeland air and cruise missile surveillance issues and homeland defense solutions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Cruise Missile Combat Identification (CID)	4.675	4.433	3.911
Description: Establishes joint requirements for emerging national and tactical combat identification technology and advocates for fielding CID technology to frontline weapon systems. Monitors, assesses, and enhances current joint air and cruise missile defense combat ID programs. **FY 2022 Plans:** Details of this program are classified and will be provided under a separate cover. **FY 2023 Plans:** Details of this program are classified and will be provided under a separate cover. **FY 2022 to FY 2023 Increase/Decrease Statement:** Minor adjustments.			
Accomplishments/Planned Programs Subtotals	4.675	4.433	3.911

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605126J / *Joint Integrated Air & Missile Defense Organization (JIAMDO)*	**Project (Number/Name)** P006 / *Cruise Missile Combat Identification (CID)*

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

PE 0605126J: *Joint Integrated Air & Missile Defense O...*
The Joint Staff

UNCLASSIFIED
Page 8 of 9

R-1 Line #150

Volume 5 - 38

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff									**Date:** April 2022	

Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605126J / *Joint Integrated Air & Missile Defense Organization (JIAMDO)*	Project (Number/Name) P007 / *Homeland Defense Capability*

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
P007: *Homeland Defense Capability*	32.748	14.000	17.934	16.730	-	16.730	19.687	19.026	17.614	17.129	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
 This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

A. Mission Description and Budget Item Justification
 This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Homeland Defense Capability *Description:* Develop Homeland Defense Capability *FY 2022 Plans:* Perform technology development efforts. Further details are reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress. *FY 2023 Plans:* Perform technology development efforts. Further details are reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress. *FY 2022 to FY 2023 Increase/Decrease Statement:* Minor adjustments.	14.000	17.934	16.730
Accomplishments/Planned Programs Subtotals	14.000	17.934	16.730

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

PE 0605126J: *Joint Integrated Air & Missile Defense O...*
The Joint Staff

UNCLASSIFIED
Page 9 of 9

R-1 Line #150

Volume 5 - 39

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Exhibit R-2, **RDT&E Budget Item Justification:** PB 2023 The Joint Staff											**Date:** April 2022	

Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0204571J *I Joint Staff Analytical Support*

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	64.441	3.058	0.977	4.332	-	4.332	4.001	3.267	3.337	3.337	-	-
P001: *Future Joint Force Development*	64.441	3.058	0.977	4.332	-	4.332	4.001	3.267	3.337	3.337	-	-

A. Mission Description and Budget Item Justification

The Joint Staff Analytical Support (JSAS) family of programs provide defense analytical support capabilities for the Joint Staff and Combatant Commands (CCMDs). JSAS encompasses tools and infrastructure required to conduct analyses and formulate results that assist the Chairman in fulfilling his statutory responsibilities. Key deliverables provided by JSAS include development of Joint Concepts, concepts of operation, innovative operational concept assessments, course of action development for the future joint force operating environment, analyses and studies for joint concept driven, threat-informed capability development approach to joint force development to aid in decision-making, and other analysis efforts to implement timely, low-cost joint force development initiatives.

B. Program Change Summary ($ in Millions)

	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	3.058	0.977	0.000	-	0.000
Current President's Budget	3.058	0.977	4.332	-	4.332
Total Adjustments	0.000	0.000	4.332	-	4.332
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Year	-	-	4.332	-	4.332

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding, and incorporates the Department's economic assumptions.

PE 0204571J: *Joint Staff Analytical Support*
The Joint Staff

UNCLASSIFIED
Page 1 of 3

R-1 Line #182

Volume 5 - 41

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff											Date: April 2022	
Appropriation/Budget Activity 0400 / 6					**R-1 Program Element (Number/Name)** PE 0204571J / Joint Staff Analytical Support				**Project (Number/Name)** P001 / Future Joint Force Development			
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
P001: Future Joint Force Development	64.441	3.058	0.977	4.332	-	4.332	4.001	3.267	3.337	3.337	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Joint Staff Analytical Support (JSAS) program supports the Chairman's Title 10 responsibility for the analytical support, management and development of future-based joint concepts. These threat based Joint concepts include Joint concepts of operations that advance Joint Force operational effectiveness and enable the introduction and incorporation of new capabilities. The Joint Concepts program supports the Chairman's responsibility to express a vision for the future joint force; addressing operational problems on a 20-year horizon; identifying joint force development implications; and identifying capabilities required to mitigate and solve future joint warfighting gaps. The goal is to enable investment decisions balancing near and long term risk. Threat-informed joint concepts drive capability development and promote horizontal integration for force development across the Services, Combatant Commands, Defense agencies, OSD and Joint Staff. Key deliverables include:
The Joint Staff Analytical Support (JSAS) program supports the Chairman's Title 10 responsibility for the analytical support, management and development of future-based joint concepts. These threat based Joint concepts include Joint concepts of operations that advance Joint Force operational effectiveness and enable the introduction and incorporation of new capabilities. The Joint Concepts program supports the Chairman's responsibility to express a vision for the future joint force; addressing operational problems on a 20-year horizon; identifying joint force development implications; and identifying capabilities required to mitigate and solve future joint warfighting gaps. The goal is to enable investment decisions balancing near and long term risk. Threat-informed joint concepts drive capability development and promote horizontal integration for force development across the Services, Combatant Commands, Defense agencies, OSD and Joint Staff. Key deliverables include:

Family of Joint Concepts (FOJC): Based on the National Military Strategy (NMS) and providing operational and joint functional approaches to future adversary based challenges or opportunities. These concepts prioritize against near peer competitors and pacing threats. The FOJC drives capability development and alternative approaches to operating in support of a globally integrated force benchmarked against current and long-term pacing threats. The FOJC includes the Capstone Concept for Joint Operations, Joint Warfighting Concept, and Joint Supporting Concepts that address joint warfighting functions, Concepts of Operation.

Capstone Concept for Joint Operations (CCJO): Provides the Chairman's vision for future joint operations and establishes aim points for the development of the future Joint Force. The key theme is globally integrated operations and directs joint concept driven, threat-informed capability to regain competitive advantage.

Joint Warfighting Concept (JWC): Identifies innovative and alternative approaches and design options for the employment of the Joint Force out to 2030.

Concepts of Operations (CONOPS): Describe how the actions of the joint force components and supporting organizations are integrated, synchronized, and phased to accomplish a specific mission or function within the construct of a future scenario. CONOPS support evaluation of new ways of operating, future force posture mix, advanced capabilities, and authorities in exercises, wargames, and experiments.

Joint Operating Environment (JOE) and the Gamechangers report: Developed in partnership with DIA, this report describes the future security environment and projects the implications of change for the Joint Force. The documents describe the circumstances that may alter the security environment and explores how the intersection and

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 6	**R-1 Program Element (Number/Name)** PE 0204571J *I Joint Staff Analytical Support*	**Project (Number/Name)** P001 *I Future Joint Force Development*

interaction of these changes might impact the character of war in the future. They provide a framework to think about the full range of Joint Force missions and how they may evolve over time in order to support development of threat-based future Joint concepts and concepts of operations.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Title: Future Joint Force Development	3.058	0.977	4.332
Description: Future joint force development provides analytic support required to develop future-based joint concepts. The goal is to enable investment decisions balancing near and long term risk. Threat-informed joint concepts drive capability development and promote horizontal integration for force development and design across the Services, Combatant Commands, Defense agencies, OSD and Joint Staff.			
FY 2022 Plans: Execute the Chairman's Joint Concepts Program. Support the execution of the FY 2022 Globally Integrated War Game. Complete updated version of Joint Warfighting Concept and Joint Supporting Concepts. Continue global CONOP development to support evaluation of joint concepts in exercises, war games, and experimentation. In partnership with DIA, begin development of the next Gamechangers report and continue to lead the futures community of interest.			
FY 2023 Plans: Execute the Chairman's Joint Concepts Program. Support the execution of the FY 2023 Globally Integrated War Game. Complete updated version of Joint Warfighting Concept and Joint Supporting Concepts. Continue global CONOP development to support evaluation of joint concepts in exercises, war games, and experimentation.			
FY 2022 to FY 2023 Increase/Decrease Statement: Increased RDTE support to force development efforts.			
Accomplishments/Planned Programs Subtotals	3.058	0.977	4.332

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 The Joint Staff											Date: April 2022	

Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*						R-1 Program Element (Number/Name) PE 0804768J *I Joint Training, Exercise and Evaluation Program (JTEEP)*						

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	76.726	29.292	29.530	37.852	-	37.852	38.182	36.017	36.111	36.230	-	-
701: *Air Force Joint National Training Capability (JNTC)*	5.728	2.869	2.431	2.409	-	2.409	2.409	2.409	2.409	2.409	-	-
758: *Joint National Training Capability (JNTC)*	56.877	20.542	23.157	31.193	0.000	31.193	31.532	29.367	29.461	29.580	-	-
769: *Joint Knowledge Development & Distribution Capability (JKDDC)*	2.734	1.108	0.826	0.817	-	0.817	0.808	0.808	0.808	0.808	-	-
772: *Navy Joint National Training Capability (JNTC)*	6.301	3.042	2.578	3.165	-	3.165	3.165	3.165	3.165	3.165	-	-
773: *Joint Interoperability and Data Link Training Center (JID-TC)*	3.264	1.095	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
774: *USMC Joint National Training Capability (JNTC)*	1.822	0.636	0.538	0.268	-	0.268	0.268	0.268	0.268	0.268	-	-

Note

On May 21 2021 Secretary Austin signed a policy memo directing renaming of the CE2T2 program with the Joint Training Exercise and Evaluation Program (JTEEP) and that CE2T2 is to be used in Budgetary matters until the term CE2T2 could be retired.

A. Mission Description and Budget Item Justification

These programs support readiness of the joint force by creating a joint training environment to replicate the complex and changing operational environment. These investments directly support defense strategic guidance, Joint Operational Training Infrastructure strategy, and enhance joint warfighting readiness by building training capabilities that support the operational readiness of the joint force. The elements associated with this coordinated effort consist of:

JNTC: The mission of the Joint National Training Capability (JNTC) program is to advance joint capabilities and interoperability by concentrating on emerging joint training requirements through collective training using a managed set of globally distributed capabilities and activities. The program resources Service and Special Operations Forces joint training to improve interoperability and create realistic tactical and operational joint training. JNTC enables joint training for Combatant Commands and Services by developing joint training content and ensuring global distributed access. JNTC enabling capabilities support Services and USSOCOM requirements to provide trained and ready joint forces in support of Combatant Command operational requirements. The program supports the Joint Operational

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 The Joint Staff		Date: April 2022
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	R-1 Program Element (Number/Name) PE 0804768J I *Joint Training, Exercise and Evaluation Program (JTEEP)*	

Training Infrastructure (JOTI). This program focuses efforts on improving readiness and creates a ready surge force consistent with Chairman's guidance and will provide the means to train joint forces for the operationalization of the Joint Warfighting Concept.

JKDDC: Joint Knowledge Development & Distribution Capability (JKDDC) Joint Knowledge Online (JKO) is the program of record for online joint training that implements and operationalizes the OSD training transformation JKDDC. JKO directly supports the JTEEP/CE2T2 program by developing, delivering, tracking, reporting, and supporting online training for Combatant Command exercises; Combatant Command required training; doctrinally based Joint Operations Core Curriculum; multinational, coalition, interagency training; OSD required training; and administration of the Senior Enlisted Joint Professional Military Education program. JKO expends RDT&E funding for leading edge technology review, market research, and integration to directly enhance various aspects of the training capability required to support Combatant Commanders, JTEEP/CE2T2 program objectives, and the Chairman's joint training guidance. JKO satisfies all requirements necessary to provide JTEEP/CE2T2 stakeholders with a distributed learning capability and access to web-based training content, learning resources, and distributed online training tools.

Air Force Joint National Training Center (JNTC): Air Force JNTC funding provides a focused upgrade to develop models for space-based and cyber capabilities for integration into the Joint Live, Virtual, and Constructive (JLVC) environment as well supporting development of cross-domain solutions. Additionally, the Air Force invests in development of capabilities to enhance the rigor and fidelity of training for live and virtual members of joint training audiences.

Navy JNTC: These funds enable Navy to develop unique maritime capabilities that integrate JLVC elements into a seamless joint training environment. The Navy program activities include conducting research, development, and integration of a common, realistic, joint and coalition, operational to tactical level training architecture to deliver individual and collective constructive joint training for use in Fleet Synthetic Training (FST) events, CCDR exercises, Ballistic Missile Defense Exercises (BMDEX) certification events, and BMD at Sea training events in support of CCDR's training, deployment certification and operational requirements.

JID-TC: Joint Interoperability and Data Link Training Center (JID-TC) supports 35 annual schoolhouse interoperability courses and up to six CAPSTONE Joint Interface Control Officer (JICO) courses tied to various Combatant Command (CCMD) joint exercises. JID-TC trains CCMD, Services and partner nations' operations center personnel on interoperability planning tasks required during contingencies and exercises in emerging mission areas such as joint fires, net enabled weapons, remotely piloted aircraft, integrated air and missile defense, and contested operations including secure internet with Link-16/TDL equipped major weapon systems and smart bombs. This program's R&D ended in FY21.

Marine Corps JNTC: These funds provide USMC stability and risk reduction to a variety of ongoing joint efforts focused on improving the fidelity and realism of training simulation systems that prepare Marine Air Ground Task Force (MAGTF) units for deployment in support of CCMD operations. Efforts align with JOTI Strategy Goal #1, Improve the use of LVC training and support the Commandant's planning guidance. The Marine Corps will continue to improve performance and support of the MAGTF Tactical Warfare Simulation in the areas of the JLVC-Multi- Resolution Federation (MRF) Bridge, common database terrain data ingestion, and JLVC interoperability. It will provide a single source training environment capability enabling users to select single or multiple play boxes (terrain data sets) for training simulation systems. Also developing an exercise planning, design, implementation, execution, and control tool.

ADL: The Advanced Distributed Learning (ADL) initiative supports innovation and provides policy oversight to help the Services, Joint Staff, and partner agencies deliver training and education more efficiently and cost effectively. ADL provides policy oversight and coordination across DoD, coalition partners, and other Federal agencies

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0804768J *I Joint Training, Exercise and Evaluation Program (JTEEP)*	

for distributed learning. This oversight supports interagency interoperability and promotes personnel readiness, ensuring the right people receive the right training at the right time. This program transferred to OSD P&R in FY21.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	29.292	29.530	0.000	-	0.000
Current President's Budget	29.292	29.530	37.852	-	37.852
Total Adjustments	0.000	0.000	37.852	-	37.852
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Year	-	-	37.852	-	37.852

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding, and incorporates the Department's economic assumptions. FY23 funding increases support Large Scale Global Exercises.

PE 0804768J: *Joint Training, Exercise and Evaluation ...*
The Joint Staff

UNCLASSIFIED
Page 3 of 16

R-1 Line #192

Volume 5 - 47

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff										**Date:** April 2022	
Appropriation/Budget Activity 0400 *I* 6					**R-1 Program Element (Number/Name)** PE 0804768J *I Joint Training, Exercise and Evaluation Program (JTEEP)*				**Project (Number/Name)** 701 *I Air Force Joint National Training Capability (JNTC)*		

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**
701: *Air Force Joint National Training Capability (JNTC)*	5.728	2.869	2.431	2.409	-	2.409	2.409	2.409	2.409	2.409	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Air Force JNTC funding provides a focused upgrade to develop models for employment of cyber and 5th generation capabilities for integration into the Joint Live, Virtual, and Constructive (JLVC) environment as well as supporting development of cross-domain solutions. Additionally, the Air Force invests in development of capabilities to enhance the rigor and fidelity of training for live and virtual members of joint training audiences.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Title: Air Force Joint National Training Capability (JNTC)	2.869	2.431	2.409

Description: Air Force continues to develop joint enablers that drive realistic/effective training in contested and degraded environments across the JTEEP/CE2T2 enterprise. These capability enhancements provide a thinking and reactive Opposing Force (OPFOR) to challenge and engage both live and virtual Blue Forces using a combination of kinetic, non-kinetic, and cyber capabilities. Additionally, it continues to build upon prior investments in the cyber and space domains by improving fidelity of synthetic environments, ability to portray and control blue, red, and neutral entities and effects, interoperability with other Service, joint, and JLVC federation models and simulations, and support of JTEEP/CE2T2 mission partners. It also builds on prior investments in the One War Training System (OWTS) to enhance exercise control, safety, and feedback to training audiences in blended live and synthetic air and land domains.

FY 2022 Plans:
1. Continue to develop capabilities for live OPFOR surface-to-air threats to engage virtual as well as live Blue Force (BLUFOR) aircraft.

2. Sustain development of and enhance new capabilities for integration of the cyber simulator environment generator and "blue" cyber effects simulation. Sustain development of and enhance new capabilities for integration of the cyber simulator environment generator and "blue" cyber effects simulation. Further develop the capabilities of the Joint Electric Power Range (JEPR) to ensure the Joint community has access to a high-fidelity, configurable, targetable electrical power distribution grids in order to support training for Joint ISR analysts, EW systems, cyber operators and campaign planners while enhancing infrastructure attack capabilities and defensive measures.

PE 0804768J: *Joint Training, Exercise and Evaluation ...*
The Joint Staff

UNCLASSIFIED
Page 4 of 16

R-1 Line #192

Volume 5 - 48

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff		Date: April 2022
Appropriation/Budget Activity 0400 *I* 6	**R-1 Program Element (Number/Name)** PE 0804768J *I Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 701 *I Air Force Joint National Training Capability (JNTC)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
3. Sustain development of and enhance new all-domain, full-spectrum operations capabilities against adversary-representative control systems (CS) which support adversary war making capabilities such as POL and chemical production, power generation/ distribution, etc. Adversary CS replication provides enhanced planning and employment of integrated kinetic, EW, cyber, and ISR assets to achieve desired effects against adversary CS through all domains. 4. Sustain development of an enhanced anechoic chamber to support controlled RF exercise events during all-domain Joint training enabling the execution of cost-effective, high-impact, timely and scoped training and exercising of integrated or converged technologies that will provide significant insight to the joint cyber/EW community and to the warfighter. *FY 2023 Plans:* 1. Continue to develop capabilities for live OPFOR surface-to-air threats to engage virtual as well as live Blue Force (BLUFOR) aircraft. 2. Sustain development of and enhance new capabilities for integration of the cyber simulator environment generator and "blue" cyber effects simulation. Further develop the capabilities of the Joint Electric Power Range (JEPR) to ensure the Joint community has access to a high-fidelity, configurable, targetable electrical power distribution grids in order to support training for Joint ISR analysts, EW systems, cyber operators and campaign planners while enhancing infrastructure attack capabilities and defensive measures. 3. Sustain development of and enhance new all-domain, full-spectrum operations capabilities against adversary-representative control systems (CS) which support adversary war making capabilities such as POL and chemical production, power generation/ distribution, etc. Adversary CS replication provides enhanced planning and employment of integrated kinetic, EW, cyber, and ISR assets to achieve desired effects against adversary CS through all domains. 4. Sustain development of an enhanced anechoic chamber to support controlled RF exercise events during all-domain Joint training enabling the execution of cost-effective, high-impact, timely and scoped training and exercising of integrated or converged technologies that will provide significant insight to the joint cyber/EW community and to the warfighter. *FY 2022 to FY 2023 Increase/Decrease Statement:* Decrease in this program as funds were realigned to support the Secretary of Defense's Joint Training Infrastructure Goals in other JTEEP/CE2T2 programs.			
Accomplishments/Planned Programs Subtotals	2.869	2.431	2.409

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 6	**R-1 Program Element (Number/Name)** PE 0804768J *I Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 701 *I Air Force Joint National Training Capability (JNTC)*

C. Other Program Funding Summary ($ in Millions)
 N/A

Remarks

D. Acquisition Strategy
 N/A

PE 0804768J: *Joint Training, Exercise and Evaluation ...*
The Joint Staff

UNCLASSIFIED
Page 6 of 16

R-1 Line #192

Volume 5 - 50

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff										**Date:** April 2022	
Appropriation/Budget Activity 0400 **/** 6				**R-1 Program Element (Number/Name)** PE 0804768J **/** *Joint Training, Exercise and Evaluation Program (JTEEP)*					**Project (Number/Name)** 758 **/** *Joint National Training Capability (JNTC)*		
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**
758: *Joint National Training Capability (JNTC)*	56.877	20.542	23.157	31.193	0.000	31.193	31.532	29.367	29.461	29.580	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Investment in the Joint National Training Capability (JNTC) program enables Service and Combatant Commands to train as they operate as part of the overall Joint Force. JNTC provides the technical standards, architecture, and development processes required to integrate/link joint training enablers in programs across the Department of Defense. The capabilities enable simultaneous training at scale, with aggregation of training audiences at the Combatant Command, Joint Task Force, Component Command headquarters, and Service tactical levels. The funding also supports modernization of the Joint Training Environment (JTE) through a Modular Open Systems Architecture (MOSA) approach to include development of a cloud-enabled, web-accessible Joint Training Tool (JTT) that supports all phases of an exercise (planning and design, execution, and AAR). The JTT will increase warfighter access to semi-automated training enablers within the Joint Training Synthetic Environment (JTSE). The JTT will also modernize the automation the Joint Training System (JTS) by incorporating current Joint Training Information Management System (JTIMS) capability, with a focus on data centricity, as outlined in the DoD Data Strategy. JNTC enables the Department of Defense to train the Joint Force on the operationalization of the current and future Joint Warfighting Concept, and provides more effective training by providing capabilities that replicate the contemporary and future operating environment. This program will implement the goals listed in the Joint Operational Training Infrastructure (JOTI).

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Title: Joint National Training Capability (JNTC)	20.542	23.157	31.193
Description: JNTC provides the technical standards, architecture, and development processes required to integrate/link joint training enablers in programs across the Department of Defense. The capabilities enable simultaneous training at scale, with aggregation of training audiences at the Combatant Command, Joint Task Force, Component Command headquarters, and Service tactical levels. The funding also supports modernization of the Joint Training Environment (JTE) through a Modular Open Systems Architecture (MOSA) approach to include development of a cloud-enabled, web-accessible Joint Training Tool (JTT) that supports all phases of an exercise (planning and design, execution, and AAR). The JTT will increase warfighter access to semi-automated training enablers within the Joint Training Synthetic Environment (JTSE). The JTT will also modernize the automation the Joint Training System (JTS) by incorporating current Joint Training Information Management System (JTIMS) capability, with a focus on data centricity, as outlined in the DoD Data Strategy. *FY 2022 Plans:* 1. Expand capability and use of cloud-based, web-enabled JTT exercise design and planning services as the primary tool supporting Tier 1 and Tier 2 joint training exercise, and enabling synchronization of linked Tier 3 and Tier 4 exercises.			

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 **I** 6	**R-1 Program Element (Number/Name)** PE 0804768J **I** *Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 758 **I** *Joint National Training Capability (JNTC)*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
2. Plan approach for and begin development of current JTIMS capability within JTT. 3. Develop initial capabilities within planned persistent simulation service. 4. Enhance joint simulation (within JLVC) to keep pace with operational environment changes (annual requirement). 5. Support the Joint Operational Training Infrastructure goals. ***FY 2023 Plans:*** 1. Expand capability of cloud-based, web-enabled JTT exercise design and planning and execution modules, furthering use as the primary tool supporting Tier 1 and Tier 2 joint training exercise, and enabling synchronization of linked Tier 3 and Tier 4 exercises. 2. Continue development of JTIMS capability within JTT. . 3. Develop additional capability within planned persistent simulation service of web-enabled, modular JTT and test against first CCMD use-cases. 4. Enhance joint simulation (within JLVC) to keep pace with operational environment changes (annual requirement). 5. Support the Joint Operation Training infrastructure goals. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increases in FY23 to support the Secretary of Defense's Joint Training Infrastructure Goals.			
Accomplishments/Planned Programs Subtotals	20.542	23.157	31.193

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

PE 0804768J: *Joint Training, Exercise and Evaluation ...*
The Joint Staff
UNCLASSIFIED
Page 8 of 16
R-1 Line #192
Volume 5 - 52

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff											**Date:** April 2022	
Appropriation/Budget Activity 0400 *I* 6					**R-1 Program Element (Number/Name)** PE 0804768J *I Joint Training, Exercise and Evaluation Program (JTEEP)*				**Project (Number/Name)** 769 *I Joint Knowledge Development & Distribution Capability (JKDDC)*			
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**
769: *Joint Knowledge Development & Distribution Capability (JKDDC)*	2.734	1.108	0.826	0.817	-	0.817	0.808	0.808	0.808	0.808	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Joint Knowledge Online (JKO) is the DoD unique and authoritative source for online joint training. JKO is tasked to develop a DoD enterprise-wide, joint individual training toolkit of web-enabled individual and small group training products, services, and enabling training technology. Products and services are developed in response to OSD program goals, CJCS training guidance, Joint Staff training priorities, and JKO stakeholders (Combatant Commands, Services, Combat Support Agencies, Interagency, and multinational partners) prioritized training requirements. JKO supports a career-long joint learning continuum, joint professional military education, and tailored common training standards to Service members on tasks that are jointly executed. JKO's research and development will improve all components of the Joint Total Learning Architecture (JTLA) including:

1. JKO Learning Management System (LMS): Development and enhancement is required to integrate advanced individual and staff training technologies and methodologies with larger scale, collective training exercises, and modernize military training capability with a DoD enterprise-wide online training toolkit. There are currently over 4.5 million registered users of the JKO LMS.

2. JKO Course Builder: JKO's Course Builder is a separate component used for organizations to develop online content by both internal and external joint enterprise teams. Course Builder mitigates the need to have programmer's code Shareable Content Object Reference Model (SCORM) standards into content with automation that promotes fiscal efficiency as well as operational responsiveness. Course Builder will advance to support new JKO Content Development techniques including responsive design, micro-learning, parallax scrolling and adaptive learning methodology.

3. Small Group Scenario Trainer (SGST) desktop modeling and simulation based training: This JKO capability trains and prepares thousands of military and civilian personnel deploying to Combatant Command theaters of operation prior to serving in their assigned Combined/Joint Task Force (C/JTF) billets. JKO integration of SGST simulation exercise scenarios and prerequisite JKO courses significantly enhance blended learning training support to large-scale, collective training exercises.

4. JKO Virtual Classroom (VC LASS): JKO's new virtual classroom, or VCLASS, meets the need for an enhanced distributed learning capability with the introduction of a collaborative learning environment. VCLASS is a customizable platform within JKO's architecture and that provides JKO elevated users the tools to meet the unique needs of DoD's training and education audience by providing online/blended course support with syllabus, messaging, gradebook, resources, announcements and synchronous instructional forums.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Title: Joint Knowledge Development & Distribution Capability (JKDDC)	1.108	0.826	0.817

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 6	**R-1 Program Element (Number/Name)** PE 0804768J *I Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 769 *I Joint Knowledge Development & Distribution Capability (JKDDC)*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Description: Joint Knowledge Online (JKO) advance technology initiatives primarily include the JKO Learning Management System (LMS) application, Course Builder, Small Group Scenario Trainer (SGST) desktop modeling and simulation based training capability, and Virtual Classroom, training applications. These capabilities increase access to, and facilitate the training and preparation of hundreds of thousands of military and civilian personnel deploying to Combatant Command (CCMD) theaters of operation prior to serving in their assigned Joint and Combined/Joint Task Force (C/JTF) billets. JKO LMS development and enhancements are required to develop, host, deliver, track, report and support students' completions, progress and survey results more effectively and efficiently. C/JTF "battle staffs" and combatant command (CCMD) personnel will be better trained, as individuals and as staffs, based on joint courses, SGST, VCLASS development, and implementation throughout the joint training enterprise. *FY 2022 Plans:* Continue to integrate and expand the virtual classroom (VC LASS) open source capability (Sakai) into the Global Content Distribution System (GCDS) and the JKO LMS suite of tools for synchronous (live) and asynchronous instructor led training. Integrate JTLA for component tools such as LMS, Coursebuilder, SGST, and VCLASS in support of advanced content and development techniques such as micro-learning, parallax scrolling, and Adaptive Learning Methodology. Continue extension of a micro learning technology , xAPI adaptation, Learning Record Store and Adaptive Learning Methodology to increase personalization capability of learning content. Increasing personalization capability delivers self-regulated micro-learning training that is designed to be engaging, usable and practical, allowing individuals to quickly access desired learning content whenever an opportunity arises. As DoD organizations increase training via DL opportunities, the methodologies of developing and delivering DL must be cutting edge, timely and optimize the learning experience of the joint warfighter. JKO content development advancements are allowing individuals to quickly access desired learning content whenever an opportunity arises. Continue to build out FVEY access and integrate JWICS military networks. *FY 2023 Plans:* Continue to integrate and expand the virtual classroom (VCLASS opensource capability (Sakai) into the Global Content Distribution System (GCDS) and the JKO LMS suite of tools for synchronous (live) and asynchronous instructor-led training. Integrate JTLA for component tools such as LMS, Coursebuilder, SGST, and VCLASS in support of advanced content and development techniques such as micro-learning, parallax scrolling, and Adaptive Learning Methodology. Continue extension of micro learning technology, xAPI adaptation, Learning Record Store and Adaptive Learning Methodology to increase personalization capability of learning content. Increasing personalization capability delivers self-regulated micro-learning training that is designed to be engaging, usable and practical, allowing individuals to quickly access desired learning content whenever an opportunity arises. As DoD organizations increase training via DL opportunities, the methodologies of developing and delivering DL must be cutting edge, timely and optimize the learning experience of the joint warfighter. JKO content development			

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 **/** 6	**R-1 Program Element (Number/Name)** PE 0804768J **/** *Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 769 **/** *Joint Knowledge Development & Distribution Capability (JKDDC)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
advancements are allowing individuals to quickly access desired learning content whenever an opportunity arises. Continue to build out FVEY access and integrate JWICS military networks. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Adjustments in FY23 to support the Secretary of Defense's Joint Training Infrastructure Goals.			
Accomplishments/Planned Programs Subtotals	1.108	0.826	0.817

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 6	**R-1 Program Element (Number/Name)** PE 0804768J *I Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 772 *I Navy Joint National Training Capability (JNTC)*

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
772: *Navy Joint National Training Capability (JNTC)*	6.301	3.042	2.578	3.165	-	3.165	3.165	3.165	3.165	3.165	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

These funds enable the Navy to develop unique maritime capabilities that integrate joint live, virtual, and constructive elements into a seamless joint training environment. The Navy program activities include conducting research, development, and integration of a common, realistic, joint and coalition, operational to tactical level training architecture to deliver individual and collective constructive joint training for use in Fleet Synthetic Training (FST) events, Combatant Commander (CCDR) exercises, Ballistic Missile Defense Exercises (BMDEX) certification events, and BMD at Sea training events in support of CCDR's training, deployment certification and operational requirements.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Title: Navy Joint National Training Capability (JNTC) *Description:* Develops unique maritime capabilities that integrate joint live, virtual, and constructive (JLVC) elements into a seamless joint training environment. Using a scientific and phased approach that focuses on modeling ground, air, space, and maritime capabilities, this program researches new technologies and methods that provide a crucial technology-based foundation that supports all JNTC training transformation, JLVC federation, and Combatant Commanders exercise and engagement operations. This program provides a current and emerging multi-functional and multi-domain near-peer threat environment and associated warfighting challenges to stimulate Joint and Navy training audiences, enabling the Fleet Commander to certify deploying forces in a synthetic Joint training environment and Joint Force Maritime Component Commands (JFMCCs) to participate in realistic Combatant Commander Exercises. *FY 2022 Plans:* 1. Provide development of new capability for integration with annual software release of the Navy Training Baseline (NTB) to enable tactics, techniques and procedures (TTP) development for contested environments and Ballistic Missile Defense (BMD). 2. Develop advanced models to support Navy and Joint Operational Level of War (OLW) exercises and tactical training; to include Anti-ship Cruise Missile (ASCM) defense, Counter-ISR, including unmanned system (UxS) defense, theater and regional BMD, and AEGIS Weapons System, maritime air, tactical air and unmanned sensor and weapon system capability upgrades. *FY 2023 Plans:* 1. Provide continued development of capability for integration with annual software release of the Navy Training Baseline (NTB) to enable tactics, techniques and procedures (TTP) development for contested environments and Ballistic Missile Defense (BMD).	3.042	2.578	3.165

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 6	**R-1 Program Element (Number/Name)** PE 0804768J *I Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 772 *I Navy Joint National Training Capability (JNTC)*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
2. Continue to develop advanced models to support Navy and Joint Operational Level of War (OLW) exercises and tactical training; to include Anti-ship Cruise Missile (ASCM) defense, Counter-ISR, including unmanned system (UxS) defense, theater and regional BMD, and AEGIS Weapons System, maritime air, tactical air and unmanned sensor and weapon system capability upgrades. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Increase in FY 23 to support the Secretary of Defense's Joint Training Infrastructure Goals.			
Accomplishments/Planned Programs Subtotals	3.042	2.578	3.165

C. Other Program Funding Summary ($ in Millions)
 N/A

Remarks

D. Acquisition Strategy
 N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff										**Date:** April 2022	
Appropriation/Budget Activity 0400 I 6					**R-1 Program Element (Number/Name)** PE 0804768J I Joint Training, Exercise and Evaluation Program (JTEEP)				**Project (Number/Name)** 773 I Joint Interoperability and Data Link Training Center (JID-TC)		
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**
773: *Joint Interoperability and Data Link Training Center (JID-TC)*	3.264	1.095	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
 This programs R&D ended in FY21.

A. Mission Description and Budget Item Justification
 JID is the sole Department of Defense provider of joint interoperability training and Joint Interface Control Officer (JICO) production. JID trains CCMD, Services and partner nations' operations center personnel in mission areas such as joint fires, net enabled weapons, remotely piloted aircraft, integrated air and missile defense, and contested operations including secure internet with Link-16/TDL equipped major weapon systems and smart bombs. FY19 was the first year the JID received RDT&E funding in order to support the development of the JICO Simulator. The JICO Simulator will allow the JID to train students across the Services on the proper planning, management and execution of tactical data links (TDL) to fill the gaps for non-participating weapon systems missing in live exercises.

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Title: Joint Interoperability and Data Link Training Center (JID-TC)	1.095	-	-
Description: JICO Simulator will allow the JID to train students across the Services on the proper planning, management and execution of tactical data links (TDL). The simulator will allow the JID to build robust practice scenarios that students can execute fixing TDL architecture plans as necessary. This capability will not only create realistic training scenarios with the ability to inject multi-tactical data link network anomalies for training, but can also be used to support Combatant Command (CCMD) operations centers during planned exercises.			
Accomplishments/Planned Programs Subtotals	1.095	-	-

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

PE 0804768J: *Joint Training, Exercise and Evaluation ...*
The Joint Staff

UNCLASSIFIED
Page 14 of 16

R-1 Line #192

Volume 5 - 58

| Exhibit R-2A, RDT&E Project Justification: PB 2023 The Joint Staff | | | | | | | | | | Date: April 2022 | |

| Appropriation/Budget Activity
0400 / 6 | | | | R-1 Program Element (Number/Name)
PE 0804768J / Joint Training, Exercise and
Evaluation Program (JTEEP) | | | | | Project (Number/Name)
774 / USMC Joint National Training
Capability (JNTC) | | |

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
774: USMC Joint National Training Capability (JNTC)	1.822	0.636	0.538	0.268	-	0.268	0.268	0.268	0.268	0.268	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

These funds advance USMC training capabilities by providing stability and risk reduction to a variety of efforts focused on improving the fidelity and realism of training simulation systems. These systems are tailored to prepare operational Marine Air Ground Task Force (MAGTF) units for worldwide deployment in support of CCMD operations and engagements and are available to any organization or entity training via the JLVC federation of training tools. Based on the Commandant's planning guidance and JOTI Strategy Goal #1 and objectives, the Marine Corps will continue to improve performance of the MAGTF Tactical Warfare Simulation in the areas of the JLVC-multi-resolution federation bridge, common database terrain data ingestion, and JLVC interoperability. The MAGTF Tactical Warfare Simulation also provides a single source training environment capability that enables users to select single or multiple play boxes (terrain data sets) for training simulation systems easing the burden of requesting terrain, 3D models, and other geographic layers into a single source. In addition to developing an exercise planning, design, implementation, execution, and control tool, the MAGTF Tactical Warfare Simulation also enhances indigenous population modular service enabling exercise designers the ability to rapidly build new scenarios and incorporate human geography elements into the training scenarios.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Marine Corps Joint National Training Capability (JNTC) **Description:** Provides indigenous population (IP) concept development and integration, supporting both constructive and virtual training simulation systems by injecting "people packs" with realistic attributes and behaviors associated with specified regions. Full integration of terrain generation 3D models and objects into joint federation synthetic training environment eliminates the burden of requesting terrain data by the Services and CCMDs creates a single, shareable, repository across the federation. Initiates design and development of a joint exercise design and control tool enhancing connectivity across multiple platforms providing exercise planning, design and control within various joint simulation constructs. Addresses crucial integration of MAGTF Tactical Warfare Simulator (MTWS) into the Korean side of multi-resolution federation bridge supporting Ulchi Freedom Guardian covering training shortfalls in engineering obstacle simulations (minefields, chemical, anti-tank ditches, bridges, etc.). **FY 2022 Plans:** Continue development of pattern-of-life (POL) models that can insert synthetic opposing forces and civilian population into scenarios that will autonomously respond with native behaviors of that region providing synthetic adversaries that adapt to various training scenarios in multi-domain joint training.	0.636	0.538	0.268

Exhibit R-2A, **RDT&E Project Justification:** PB 2023 The Joint Staff		**Date:** April 2022
Appropriation/Budget Activity 0400 *I* 6	**R-1 Program Element (Number/Name)** PE 0804768J *I Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 774 *I USMC Joint National Training Capability (JNTC)*

B. Accomplishments/Planned Programs ($ in Millions)	**FY 2021**	**FY 2022**	**FY 2023**
Provide a capability for all simulation systems to use the same standardized terrain datasets across training domains. Sustain pre-deployment training for operations while supporting the readiness of deployed forces, particularly those primarily focused on global response force readiness. Address crucial integration of MTWS into Korean side of multi-resolution federation bridge supporting USFK joint exercises covering shortfalls identified in addressing engineering obstacle simulations (minefields, chemical, anti-tank ditches, bridges, etc.). Continue design and development of a joint exercise design and control tool enhancing interoperability and connectivity across multiple platforms. Deliver sharper training environment definitions, assist with defining friendly, enemy, neutrals (including joint multinational and synthetic forces), and support to concurrent planning tools. Explore innovative ways to train for operations in strategically challenging trans-regional, multi-domain and multi-functional (TMM) environments. Use web-based cloud technologies to accelerate exercise development and execution. *FY 2023 Plans:* Continue to work on providing a capability for all simulation systems to use the same standardized terrain datasets across training domains. Sustain pre-deployment training for operations while supporting the readiness of deployed forces, particularly those primarily focused on global response force readiness. *FY 2022 to FY 2023 Increase/Decrease Statement:* Decrease in FY 23 to support the Secretary of Defense's Joint Training Infrastructure Goals in other JTEEP/CE2T2 programs.			
Accomplishments/Planned Programs Subtotals	0.636	0.538	0.268

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

PE 0804768J: *Joint Training, Exercise and Evaluation ...*
The Joint Staff

UNCLASSIFIED
Page 16 of 16

R-1 Line #192

Volume 5 - 60