Exhibit R-2, RDT&E Budget Item Justification: PB 2025 The Joint Staff											Date: March 2024	
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 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Cost To Complete**	**Total Cost**
Total Program Element	131.189	32.540	101.319	166.021	-	166.021	168.629	113.197	97.746	100.909	Continuing	Continuing
701: *Air Force Joint National Training Capability (JNTC)*	11.028	2.409	2.579	3.156	-	3.156	3.156	3.156	3.156	3.156	Continuing	Continuing
758: *Joint National Training Capability (JNTC)*	100.576	27.872	26.329	15.926	-	15.926	15.926	15.926	15.926	15.926	Continuing	Continuing
769: *Joint Knowledge Development & Distribution Capability (JKDDC)*	4.668	0.313	0.808	0.808	-	0.808	0.808	0.808	0.808	0.808	Continuing	Continuing
772: *Navy Joint National Training Capability (JNTC)*	11.921	1.678	3.165	3.165	-	3.165	3.160	3.165	3.165	3.165	Continuing	Continuing
774: *USMC Joint National Training Capability (JNTC)*	2.996	0.268	0.268	0.268	-	0.268	0.268	0.268	0.268	0.268	Continuing	Continuing
777: *Large Scale Global Exercise (LSGE)*	0.000	0.000	5.170	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
779: *Joint Staff Live, Virtual and Constructive (JLVC) Modernization*	0.000	0.000	63.000	142.698	-	142.698	145.311	89.874	74.423	77.586	Continuing	Continuing

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 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.

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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)*

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 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 program objectives, and the Chairman's joint training guidance. JKO satisfies all requirements necessary to provide JTEEP 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.

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.

LSGE: Large Scale Global Exercises (LSGE) initiative facilitates LVC technical projects, architecture integration, and interface development required to enable Field Training Exercises (FTX) and Command Post Exercises (CPX) to achieve LGSE objectives. During LSGE execution, CCMD exercises as part of the JTEEP, tier 3 and 4 FTX exercises are frequently nested within the overall Tier 1 and 2 CPX exercises. Integrating LVC within FTX tactical exercise and CPX operational exercise requires new development efforts for LVC capabilities, LVC architectures, datasets, integration, and interfaces to create an LVC operational environment for training. This funding will address refining LVC requirements, architecture design, new integrations, and capability and interface development to close joint operational training gaps critical to LSGE joint training. This targets the integration of the Military Service Title X LVC training to enable LGSE LVC joint training.

Joint Staff Live, Virtual and Constructive Modernization: This funding supports the Department's priorities to defend the homeland, deter strategic attacks and aggression, prevail in conflict, build enduring advantage, and build a resilient and ready joint force and defense eco system. China has greatly increased the urgency for realism of joint training using JLVC to improve readiness and interoperability, unearth operational weaknesses to train a joint force to key operational problems. The Joint Live, Virtual and Constructive (JLVC) Modernization project seeks out, develops, and integrates training technologies to provide a reliable, realistic, relevant, repeatable,

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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)*

and recordable training environment to train joint warfighters to successfully execute operational plans (OPLANs). Through analysis driven by a threat-informed China task force study in 2022, the Joint force lacks the training enterprise capability and technical architecture required to provide all-domain, high-end training for globally operations. Aligned with the National Defense Strategy, JLVC Modernization is critical to ensure the Department of Defense (DoD) can close joint operational training gaps, provide a key enabler for the Pacific Multi-Domain Training and Experimentation Capability, provide training for advanced systems that cannot be realistically trained in live environments, provide training for future capabilities the force must be prepared to employ, and to build the readiness of a more lethal force. To meet this objective, the JLVC Modernization project performs the following activities:

• Exploit new technologies and leverage industry advances in equipment, modeling and simulation, and networks support the joint training enterprise
• Expedite the transition and integration of new training technologies (simulations, network, range integration) from Services, Industry, and Academic environments to the joint training enterprise
• Establish data standards to enable the transition to a data-centric architecture, aligned to CJADC2, ensuring consistency and provide ‘analytic ready’ data to support all domain training; implement Joint LVC interoperability standards to enable all domain joint force training across LVC training ranges
• Develop and integrate a fully-informed (Program to S/REL) Space, Cyber, Electromagnetic Spectrum (EMS), and 5th/6th Gen synthetic capabilities for the joint training enterprise
• Work with CCMDs and Services to optimize existing service programs while beginning to develop Next Generation simulations and simulators that are inherently interoperable across warfighting and security domains
• Advance the use of innovative applications of Artificial Intelligence for scenario generation, dynamic threat, smart opposing force (OPFOR), and after-action review (AAR) for the joint training enterprise

Additionally, the JLVC Modernization project examines emerging joint training requirements resulting from new operational concepts, wargames, experiments, and exercises to identify training technology needs and develop a long-range roadmap for technology insertion into the joint training enterprise. The project leverages and employs applicable applied research efforts from the highly developed technology base in the DoD/DOE laboratories, Service System engineering Centers, test and evaluation centers, other Government agencies, and industry to accelerate development and integration of new training capabilities. The project outreaches and engages Academia to address joint training technology challenges in DoD. This program provides travel funds for JLVC Modernization project oversight, special studies, analyses, and strategic planning related to modernization of training capabilities and infrastructure.

Exhibit R-2, RDT&E Budget Item Justification: PB 2025 The Joint Staff					Date: March 2024
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)*		
B. Program Change Summary ($ in Millions)	**FY 2023**	**FY 2024**	**FY 2025 Base**	**FY 2025 OCO**	**FY 2025 Total**
Previous President's Budget	32.540	101.319	177.967	-	177.967
Current President's Budget	32.540	101.319	166.021	-	166.021
Total Adjustments	0.000	0.000	-11.946	-	-11.946
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Program Reduction	-	-	-11.946	-	-11.946

Change Summary Explanation

Congressional defense-wide reduction to Federally Funded Research and Development Center (FFRDC) funding, and a directed Congressional reduction (-3.991M) to this Program Element in FY 2023. Increased FY 2024 funding reflects the Secretary's direction on the Large Scale Global Exercise (LSGE), funding for Joint Staff Joint Live, Virtual and Constructive (JLVC) modernization, and a minor adjustment to comply with the Department's economic assumptions. Primary focus of the LSGE program is to ensure the joint training synthetic environment is optimized and responsive for the coordinating authority to conduct LSGE at a time and place of their choosing uninhibited by current training architecture shortfalls. JLVC Modernization project focus is to modernize joint LVC-enabled training to provide realism for a China threat to present the complex key operational problems the joint force may face in protracted crisis or conflict. The project will modernize the entire JLVC synthetic training environment after 15+ years of 'life support' sustainment, as our warfighting capabilities evolved and modernized. The life support sustainment has left critical joint operational training gaps, identified in the China Task Force Study, that seriously impacts the joint force's ability to conduct realistic and relevant Joint training against a China threats. JLVC Modernization is a VCJCS and OSD priority, and 2022 Deputy Secretary of Defense directed project to begin the modernization to begin realistically representing current and future friendly and enemy capabilities in all domains to enable joint warfighters to successfully train to conduct globally operations. JLVC Modernization transitions our synthetic environment to a modern data-centric modular open systems architecture that aligns to DoD IT Modernization, Data, and Zero Trust Strategies.

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff			Date: March 2024
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	Project (Number/Name) 701 / *Air Force Joint National Training Capability (JNTC)*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
701: *Air Force Joint National Training Capability (JNTC)*	11.028	2.409	2.579	3.156	-	3.156	3.156	3.156	3.156	3.156	Continuing	Continuing
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 2023	FY 2024	FY 2025
Title: Air Force Joint National Training Capability (JNTC)	2.409	2.579	3.156

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 2024 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/

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 701 / *Air Force Joint National Training Capability (JNTC)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
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 2025 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 2024 to FY 2025 Increase/Decrease Statement:*** Increases in this program are to support the Secretary of Defense's Joint Training Infrastructure Goals in JTEEP programs.			
Accomplishments/Planned Programs Subtotals	2.409	2.579	3.156

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 701 / *Air Force Joint National Training Capability (JNTC)*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff			Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
758: *Joint National Training Capability (JNTC)*	100.576	27.872	26.329	15.926	-	15.926	15.926	15.926	15.926	15.926	Continuing	Continuing
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 2023	FY 2024	FY 2025
Title: Joint National Training Capability (JNTC)	27.872	26.329	15.926
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 2024 Plans: 1. Continue 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.			

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
2. Continue development of JTIMS capability within JTT. 3. Continue to develop additional capability within planned persistent simulation service of web-enabled, modular JTT and test against first CCMD use-cases. 4. Continue to enhance joint simulation (within JLVC) to keep pace with operational environment changes (annual requirement). 5. Support the Joint Operation Training infrastructure goals. ***FY 2025 Plans:*** 1. Continue 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. Continue develop additional capability within planned persistent simulation service of web-enabled, modular JTT and test against first CCMD use-cases. 4. Continue to enhance joint simulation (within JLVC) to keep pace with operational environment changes (annual requirement). 5. Support the Joint Operation Training infrastructure goals. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** Adjustments to support the Secretary of Defense's Joint Training Goals. JTT continues to integrate Joint Training Information Management System (JTIMS) functionality into the Joint Training Tool (JTT), there has be no defined cost savings until JTIMS functionality is released in the production environment. Major software development activity was accomplished, resulting in efficiencies and a lower operating cost.			
Accomplishments/Planned Programs Subtotals	27.872	26.329	15.926

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
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)*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff			Date: March 2024
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)*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
769: *Joint Knowledge Development & Distribution Capability (JKDDC)*	4.668	0.313	0.808	0.808	-	0.808	0.808	0.808	0.808	0.808	Continuing	Continuing
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 2023	FY 2024	FY 2025
Title: Joint Knowledge Development & Distribution Capability (JKDDC)	0.313	0.808	0.808

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
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 2023	FY 2024	FY 2025
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 2024 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 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 2025 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 2025 The Joint Staff		Date: March 2024
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 2023	FY 2024	FY 2025
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 2024 to FY 2025 Increase/Decrease Statement:*** Minor adjustments to support the Secretary of Defense's Joint Training Infrastructure Goals.			
Accomplishments/Planned Programs Subtotals	0.313	0.808	0.808

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff			Date: March 2024
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	Project (Number/Name) 772 / *Navy Joint National Training Capability (JNTC)*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
772: *Navy Joint National Training Capability (JNTC)*	11.921	1.678	3.165	3.165	-	3.165	3.160	3.165	3.165	3.165	Continuing	Continuing
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 2023	FY 2024	FY 2025
Title: Navy Joint National Training Capability (JNTC)	1.678	3.165	3.165
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 2024 Plans: 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). 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 2025 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 772 / *Navy Joint National Training Capability (JNTC)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
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). 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 2024 to FY 2025 Increase/Decrease Statement:*** Minor changes to support the Secretary of Defense's Joint Training Infrastructure Goals.			
Accomplishments/Planned Programs Subtotals	1.678	3.165	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 2025 The Joint Staff			Date: March 2024
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 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
774: *USMC Joint National Training Capability (JNTC)*	2.996	0.268	0.268	0.268	-	0.268	0.268	0.268	0.268	0.268	Continuing	Continuing
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 2023	FY 2024	FY 2025
Title: Marine Corps Joint National Training Capability (JNTC)	0.268	0.268	0.268
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 2024 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 2025 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
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)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
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 2024 to FY 2025 Increase/Decrease Statement:*** Continued support to the Secretary of Defense's Joint Training Infrastructure Goals.			
Accomplishments/Planned Programs Subtotals	0.268	0.268	0.268

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff			Date: March 2024
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	Project (Number/Name) 777 / *Large Scale Global Exercise (LSGE)*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
777: *Large Scale Global Exercise (LSGE)*	0.000	0.000	5.170	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Large Scale Global Exercise (LSGE) funding provides a focused upgrade to develop products that mitigate gaps identified during CCMD exercises. Large Scale Global Exercises (LSGE) initiative facilitates LVC technical projects, architecture integration, and interface development required to enable Field Training Exercises (FTX) and Command Post Exercises (CPX) to achieve LGSE objectives. During LSGE execution, CCMD exercises as part of the JTEEP, tier 3 and 4 FTX exercises are frequently nested within the overall Tier 1 and 2 CPX exercises. The LSGE program enables tier 3 and tier 4 training, it is imperative the current service Tier 3 and Tier 4 Modeling & Simulation capabilities Joint Live Virtual Constructive Federates properly integrate with joint training LVC capabilities. Integrating LVC within FTX tactical exercise and CPX operational exercise requires new development efforts for LVC capabilities, LVC architectures, datasets, integration, and interfaces to create an LVC operational environment for training. This funding address refining LVC requirements, architecture design, new integrations, and capability and interface development to close joint operational training gaps critical to LSGE joint training. This targets the integration of the Military Service Title X LVC training to enable LGSE LVC joint training. This funding is essential to the success execution and integration efforts support CCMD joint training exercises.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Large Scale Global Exercise (LSGE)	0.000	5.170	0.000
Description: Large Scale Global Exercise funding provides a focused efforts to facilitate LVC technical projects, architecture integration, and interface development required to LSGE aligned Field Training Exercises (FTX) and Command Post Exercises (CPX) to mitigate joint operational training gaps. To enable tier 3 and tier 4 joint training in the future, it is imperative the current military service Tier 3 and Tier 4 M&S capabilities (Joint Live Virtual Constructive Federates) properly integrate with the Joint LVC capabilities. This funding will address refining LVC requirements, architecture design, new integrations, and capability and interface development to close joint operational training gaps critical to LSGE joint training.			
FY 2024 Plans: To enable tier 3 and tier 4 training in the future, it is imperative the current service Tier 3 and Tier 4 M&S capabilities (Joint Live Virtual Constructive Federates) properly integrate, and can utilize authoritative data and operational force structure to execute LSGE aligned FTX and CPX exercises. This funding will fund Service M&S developers, to ensure the services M&S outputs from JLVC properly integrate with the Joint capabilities and accelerate the development to produce automated OBS.XML schema from the remaining Service's (USMC, USAF, and USN) authoritative sources, operational force structure (ORION/GLS), and Threat (JACOB/JCOFA & MARS/MIDB).			

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 777 / *Large Scale Global Exercise (LSGE)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Provide funding to Service/Agency technical teams to develop and integrate near term partner identified joint operational training gaps. Provide system engineering for NKE efforts aligned to LGSE exercise to include all-domain NKE from cyber, space, EMS, and IO. The focus is to refine requirements and leverage LSGE opportunities to accelerate an executable NKE training environment architecture capable of supporting advanced synthetic training. Provide Systems engineering for LSGE fully informed simulation environment and NKE training capabilities. Joint systems engineer will team JLVC engineers and Service/Agency teams to develop an executable synthetic environment architecture for fully informed simulation operations and NKE training capability integration. Joint systems engineering will leverage FY 2024 LSGE exercises to develop requirements and identify rapid technology insertion opportunities for: VALIANT SHIELD 24, VIGILANT SHIELD 24/ARCTIC EDGE 24/ARDENT SENTRY 24, APOLLO GRIFFIN 24, and CYBER FLAG 24. ***FY 2025 Plans:*** The funding line was closed out in FY 2025. FY 2025 future efforts are aligned under Joint Staff JLVC Modernization. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** FY 2024 was the last year to LGSE RDTE. The funding line was closed out in FY 2025 and all future LVC efforts are aligned under JTEEP Joint Staff JLVC Modernization.			
Accomplishments/Planned Programs Subtotals	0.000	5.170	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

LSGE leverages existing GSA contract vehicles that enable world class contracting that allows for obligations, commitment and expenditures that align to JTEEP program goals.

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff			Date: March 2024
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	Project (Number/Name) 779 / *Joint Staff Live, Virtual and Constructive (JLVC) Modernization*	

COST ($ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
779: *Joint Staff Live, Virtual and Constructive (JLVC) Modernization*	0.000	0.000	63.000	142.698	-	142.698	145.311	89.874	74.423	77.586	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

China has greatly increased the urgency for realism of joint training using JLVC to improve readiness and interoperability, and unearth operational weaknesses. Joint Live, Virtual and Constructive (JLVC) Modernization project seeks out, develops, and integrates training technologies to provide a reliable, realistic, relevant, repeatable, and recordable training environment to train joint warfighters to successfully execute operational plans (OPLANs). This funding will be used to integrate joint training LVC capabilities and environments by leveraging artificial intelligence (AI) and machine learning technologies to create a more realistic, effective, and affordable joint training environment. JLVC Modernization focus areas to develop a realistic operational environment for training is 1) standardize joint and Service level simulations, authoritative data, simulation models, and implementing cross-domain/multi-level security solutions, 2) modernizing simulations and incorporating space, cyber, realistic electromagnetic spectrum (EMS) and Information Operations (IO) environments to all aspects of JLVC, 3) increasing capacity, integrating, and building interoperability with Allies and partners, and 4) enabling the integration of experimentation and wargaming within training to better integrate force employment, force development and design LVC activities. This project is the only Department of Defense modernization effort that integrates joint and military service LVC training environment to create an integrated and interoperable all-domain joint training synthetic environment.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
Title: Joint Staff Live, Virtual and Constructive (JLVC) Modernization	-	63.000	142.698
Description: Joint Live, Virtual and Constructive (JLVC) Modernization project will develop and integrate joint training capabilities to enable all-domain collective training within Service and Combatant Command joint exercises. JLVC is the only joint LVC integrating architecture that creates a complex operating environment to enable tactical, operational, and strategic joint training. This modernization effort is a VCJCS and OSD priority and essential to close validated joint training gaps for the Joint Force to train against an increasing China threat. The JLVC Modernization project includes the evaluation of innovative training technologies from Industry, academia and across the Services to ensure efficiency and incorporate technologies that supports the JLVC Modernization construct by focusing on standardizing simulations, data libraries and implementing cross domain solutions, incorporating space, cyber, and realistic electromagnetic spectrum (EMS), Information Operations (IO environments, and increasing capacity and integrating with Allies and partners ensuring the greatest value to the Department of Defense.			

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 779 / *Joint Staff Live, Virtual and Constructive (JLVC) Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
JLVC Modernization is working directly with CCMDs and the Services to optimize existing training programs of records and training environments while developing Joint interoperability and data standards, AI-based training systems, and integrating next generation Joint LVC training capabilities to ensure inherent training interoperability across all warfighter domains. In addition, JLVC Modernization is leveraging non-traditional industry, academia, and small business consortiums to target, adapt, and accelerate advanced technologies and AI-based training capabilities for rapid technology integration and insertion into the Global Joint Training Enterprise to advance the high-end training environment to enable training and mission rehearsal in support of the Joint Warfighting Concept. ***FY 2024 Plans:*** JLVC Modernization established the project management structure, repeatable annual processes, LVC stakeholder community of interest, and refined requirements. Key accomplishments include: 1) JLVC Modernization joint operational training gap identification and prioritization; 2) alignment of FY 2024/2025 technology investment strategies with JWC 3.0 and operational training gap Joint LVC training requirements; 3) direct outreach through government/industry/academia consortiums to non-traditional Joint LVC industry, academia, and small business partners to address critical training challenges through rapid technology development and insertion; 4) coordination, synchronization and deconfliction with INDOPACOM's Pacific Multi-domain Training and Experimentation Capability (PMTEC) and Test and Evaluation community (TRMC) to ensure alignment of training requirements and technology testing and insertion requirements; 5) and coordination with CCMDs, the Services, and combat support agencies on addressing the application of non-kinetic/non-lethal effects within the Joint LVC training environment. FY 2024 $63M 'Shovel-ready' projects focused on foundational technology and enterprise requirements, fully informed simulation environment development, rapid integration of mature simulation technologies to support all domain requirements, implementation of enterprise-wide data standards, development of Joint LVC interoperability requirements, and development and integration of technologies that rapidly address prioritized Joint Operational Training Gaps (JOTG). Initial pathfinder experimental development with AI-based technologies to address rapid scenario generation and smart OPFOR challenges. Focused projects include: - JLVC Coalition Simulation Interoperability - Joint Innovation and Integration Lab (JIIL) - Defense Continuous Training Environment (DCTE) - Joint Training Enterprise Network Expeditionary (JTEN-X) node capability - JLVC Standardization for All-Domain Effects - Terrain Database Interoperability - JLVC High Level Architecture (HLA) Library Application Programming Interface (API) - Data Governance Framework - JLVC Modernization Technical Engineering Teams			

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 779 / *Joint Staff Live, Virtual and Constructive (JLVC) Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
- Cyber Effects for Joint Ground Model - Space Combat Simulator - JLVC Contested Logistics Simulation Capability - JLVC Mission Partner Environment (MPE) - Fully Informed Simulation Environment / Cross-Domain Solution (CDS) ***FY 2025 Plans:*** FY 2025 focuses on developing and integrating new JLVC all-domain capabilities aligned to FY 2025 Joint Operational Training Gaps (JOTGs). China has greatly increased the urgency to provide LVC-enabled advanced warfighter training to prepare a joint force for the changing character of war. The modernization of the entire JLVC synthetic training environment will better represent current and future friendly and enemy capabilities in all domains, and new JLVC capabilities must be developed and integrated that address the priority JOTGs needed to train against key operational problems and new joint warfighting concepts. The prioritized FY 2025 JOTGs that are being addressed in FY 2025 projects are: - Joint Common Synthetic Training Environment (JCSTE) - Mission Partner Environment (MPE) enhancement - Wargaming Design and Data Standardization - Electro-Magnetic Spectrum (EMS) enhancement - Enhanced Cyber effects integration - Operational Information Environment (IE) training - Contested Logistics - Space capabilities - BMD/IAMD enhancement - Enhanced CBRNE/CWMD training - Live range enhancement - “Gray Space” operations The FY 2025 projects are: - Fully informed simulation environment. Migration of JLVC toolsets to JWICS-TS/SCI training network, CDS development, cross simulation federation development, and wargaming toolsets at the TS/SCI level. - Advanced capability modeling (Non-kinetic effects). Multiple projects for CBRNE, cyber, space-based, and electromagnetic effects modeling which addresses all-domain integrated sensor-to shooter training. Enterprise NKE server capability to support effects across the training environment and ensure compatibility with legacy training systems. - Architecture design and integration of Defense Continuous Training Environment (DCTE) to provide a framework for the established of a common synthetic training environment.			

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 779 / *Joint Staff Live, Virtual and Constructive (JLVC) Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
- Exercise management tools. Integration of JLVC modernization with INDOPACOM's PMTEC Joint Simulation and Technology Command and Control (JSTC2) toolset FY 2025 Plans: FY 2025 focuses on developing and integrating new JLVC all-domain capabilities aligned to FY 2025 JOTGs. China has greatly increased the urgency to provide LVC-enabled advanced warfighter training to prepare a joint force for the changing character of war. The modernization of the entire JLVC synthetic training environment will better represent current and future friendly and enemy capabilities in all domains, and new JLVC capabilities must be developed and integrated that address the priority JOTGs needed to train against key operational problems and new joint warfighting concepts. The prioritized FY 2025 JOTGs that are being addressed in FY 2025 projects are: - Joint Common Synthetic Training Environment (JCSTE) - Mission Partner Environment (MPE) enhancement - Wargaming Design and Data Standardization - Electro-Magnetic Spectrum (EMS) enhancement - Enhanced Cyber effects integration - Operational Information Environment (IE) training - Contested Logistics - Space capabilities - BMD/IAMD enhancement - Enhanced CBRNE/CWMD training - Live range enhancement - "Gray Space" operations The FY 2025 projects are: - Fully informed simulation environment. Migration of JLVC toolsets to JWICS-TS/SCI training network, CDS development, cross simulation federation development, and wargaming toolsets at the TS/SCI level. - Advanced capability modeling (Non-kinetic effects). Multiple projects for CBRNE, cyber, space-based, and electromagnetic effects modeling which addresses all-domain integrated sensor-to shooter training. Enterprise NKE server capability to support effects across the training environment and ensure compatibility with legacy training systems. - Architecture design and integration of Defense Continuous Training Environment (DCTE) to provide a framework for the established of a common synthetic training environment. - Exercise management tools. Integration of JLVC modernization with INDOPACOM's PMTEC Joint Simulation and Technology Command and Control (JSTC2) toolset and initiative to provide interoperability with PMTEC training and experimentation architectures.			

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 779 / *Joint Staff Live, Virtual and Constructive (JLVC) Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
- Mission Partner Environment. Integration of LVC for CCMD MPE and STRATCOM/SPACECOM training model capability. - Data standardization/CJADC2 alignment. Investments in data standardization for Service models, integration of next generation USAF training simulation suite, USA electronic warfare (EW) operational environment integration, integration of USN's TS/SCI network and above Secret training capabilities, and USSF's space combat simulator. - Wargaming. Simulation-assisted wargaming capability capable of integrating disparate wargaming simulation systems with the JLVC enterprise to provide for a seamless wargame-JLVC training exercise-wargame campaign environment. - Advanced weapons. Hypersonic weapons development and integration for advanced kill webs. - Cross domain solutions. CDS architecture and rule set development to support TS/SCI to SECRET//REL training and MPE environments. - Cloud computing for LVC. JLVC TS/SCI data center, cloud optimization, and software containerization to support rapid, simulation architecture implementation at the fully informed level. - 5th Generation aviation simulators. JLVC and Joint Synthetic Environment integration tool to enable a complete training battlespace for CCMD Tier 1 training exercises. - Artificial Intelligence / Machine Learning (AI/ML). AI applied to advanced missile defense systems modeling, smart OPFOR capabilities, after action review (AAR) and assessment toolsets. FY 2025 JLVC Modernization projects begin to transition LVC synthetic environment to a data-centric modular open systems architecture that aligns to the DoD Modernization, Data, and Zero Trust strategies. ***FY 2024 to FY 2025 Increase/Decrease Statement:*** The planned increase in RDTE requirements from FY 2024 ($63M) to FY 2025 ($142.7M) is driven by the urgency to modernize quickly to provide realistic joint training for rapidly increasing China threat. The increase also represents the complexity and funding needs to accelerate technology to the timeline required for 2027 IOC requirements to conduct realistic joint global exercises. The efforts in FY 2024 will establish the project management structure, joint engineering, and foundational groundwork necessary to develop, integrate, and test all-domain simulation and fully informed simulation environment technologies, and JOTG gap closing capabilities to enable training to the high-end fight by FY 2027. FY 2024 efforts must now be significantly scaled to simultaneously develop advanced JLVC capabilities, test and validate, and integrate across the JLVC. This includes the joint engineering and integration necessary for JLVC modernization to provide the joint "purple glue" that integrate the Joint Synthetic Environment (5th Gen TACAIR), Joint IO Range and Persistent Cyber Training Environment (Cyber training), USSF Space Range, and All-Domain test ranges that create the entire joint training synthetic environment.			

Exhibit R-2A, RDT&E Project Justification: PB 2025 The Joint Staff		Date: March 2024
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0804768J / *Joint Training, Exercise and Evaluation Program (JTEEP)*	**Project (Number/Name)** 779 / *Joint Staff Live, Virtual and Constructive (JLVC) Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2023	FY 2024	FY 2025
FY 2025. $142.7M. Accelerate to develop and Modernize Capability to the rapidly increasing China threat. FY 2025 - 2028 represent the most critical years for investments, development, testing, and integrating capabilities to achieve an IOC in 2027. The simultaneous development to close validate joint operational training gaps is an imperative for conducting a realistic global training exercise that stresses key operational problems and exercise joint warfighting concepts, to assess joint operational readiness and weakness. Priority capability requirements for FY 2025 development and integration into the GJTI: − Fully Informed sim environment / cross domain solutions − Data standardization/CJADC2 alignment for service sim models − Joint Synthetic Environment / 5th Gen environment integration solution − SPACECOM space model solution − Cyber mission tools − Federation tactical communications and C2 model − Exercise management tools − Wargaming and Joint Experimentation simulation tools FY 2025 solutions will include capabilities developed by academia, small technology businesses, and non-traditional JLVC industry partners to exploit innovation and disruptive technology, ensure a wide base of solutions across the entire DoD technology base, and to maximize quick turn capabilities the accelerated the JLVC Modernization project timelines for a China threat.			
Accomplishments/Planned Programs Subtotals	-	63.000	142.698

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Combatant Commands, Services, Defense Agencies, and the Office of the Secretary of Defense nominate candidate projects aligned to Joint Operational Training Gaps (JOTGs) on an annual basis. JOTGs are validated and prioritized annually by the CCMDs and Services to align project investments with joint training enterprise priorities. JLVC Modernization has developed a deliberate acquisition strategy that leverages existing and competitive award contracts through the Joint Staff and the Services. The strategy integrates industry proven technology and expertise by using Service Agency agreements with the Army Combat Capabilities Development Command (DEVCOM) , Navy Systems Commands, DTIC IAC MAC, Other Transaction Authorities (OTA's) and partnering using Cooperative Research Development Agreements (CRADA's) The acquisition strategy address the technical, business and program reporting requirements to ensure accountability and transparency of the JLVC Modernization project through its intended lifecycle.