

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army	Date: March 2019
---	-------------------------

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army</i> / BA 6: <i>RDT&E Management Support</i>					R-1 Program Element (Number/Name) PE 0605326A / <i>Concepts Experimentation Program</i>							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	28.701	30.394	42.922	-	42.922	43.136	43.781	47.394	49.000	0.000	285.328
312: <i>Army/Joint Experimentation</i>	-	6.815	6.526	7.725	-	7.725	7.887	8.051	8.218	8.494	0.000	53.716
317: <i>Current Force Capability Gaps</i>	-	20.063	22.216	35.046	-	35.046	35.095	35.575	39.019	40.282	0.000	227.296
33B: <i>Soldier-Centered Analyses For Future Force</i>	-	1.823	1.652	0.151	-	0.151	0.154	0.155	0.157	0.224	0.000	4.316

A. Mission Description and Budget Item Justification

The Army Concepts Experimentation Program supports current and future concepts and capabilities involving Soldiers and Leaders within live, virtual, and constructive environments by exploring concepts, capability requirements and solutions across Doctrine, Organization, Training, Materiel, Leadership and Education, personnel, and Facilities (DOTMLPF) domains. The purpose of Concepts Experimentation is to clarify and mitigate risk for current and future forces. Experiments and projects inform Army futures concepts and assess high-risk conceptual assumptions in order to focus required capabilities and represent user requirements in the future Army. Army experiments use the combined resources of Army Battle Laboratories, operational units, research labs, materiel developers, industry and academia to collaborate in the development, refinement, and assessment of future force concepts. Simulated Experiments (SIMEX) will integrate and assess Army Concepts and Force Design phases with Army-level issues across the breadth of a campaign that highlights validation and integration of Force 2025 outcomes.

This Program Element (PE) enhances Joint Capabilities Integration and Development System (JCIDS) development in support of Program Executive Offices (PEOs) and Program Managers (PMs) for acquisition milestone decisions. This PE provides for Accelerated Capability Development (ACD) to address current critical operational needs, enabling development and deployment/employment of accelerated capabilities (both materiel and non-materiel) to the current force. Early Synthetic Prototyping enables a wargaming and experimentation capability that engages soldiers across the Army through early-fidelity game environments to gain their insights and recommendations in the development of future doctrine, organization, and materiel solutions. This PE provides funding for Army Warfighter Assessments (AWA) that physically integrate, assess and evaluate networked capability sets and other adaptive capabilities to accelerate the systems acquisition process of providing DOTMLPF recommendations to the Army. This PE also provides support to the Army Warfighting Challenges (AWFC) used by the Army to frame learning and collaboration.

The Soldier-Centered Analysis For Future Force Project (33B) will provide early application of human performance and human figure modeling tools in the development of Soldier-focused requirements to shape technology for Future Force development. These efforts include design analyses, constructive simulations, and Soldier-in-the loop assessments to ensure that manpower requirements and workload and skill demands are considered, avoiding information and physical task overloads and taking optimum advantage of aptitudes, individual and collective training, and numbers of Soldiers for an affordable Future Force.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Army				Date: March 2019	
Appropriation/Budget Activity 2040: Research, Development, Test & Evaluation, Army I BA 6: RDT&E Management Support		R-1 Program Element (Number/Name) PE 0605326A I Concepts Experimentation Program			
B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	29.820	30.430	61.024	-	61.024
Current President's Budget	28.701	30.394	42.922	-	42.922
Total Adjustments	-1.119	-0.036	-18.102	-	-18.102
• Congressional General Reductions	-0.023	-0.036			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.096	-			
• Adjustments to Budget Years	-	-	-18.102	-	-18.102
Change Summary Explanation					
FY 2020 funding request was reduced by \$18.102 million to account for the availability of prior year execution balances along with planned elimination of some Army Concepts Experimentation events.					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 6					R-1 Program Element (Number/Name) PE 0605326A / Concepts Experimentation Program				Project (Number/Name) 312 / Army/Joint Experimentation			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
312: Army/Joint Experimentation	-	6.815	6.526	7.725	-	7.725	7.887	8.051	8.218	8.494	0.000	53.716
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
Army and Joint Experimentation supports current and future concepts and capabilities involving Soldiers and Leaders within live, virtual, and constructive environments by exploring concepts, capability requirements, and solutions across Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) domains. The purpose of these efforts is to learn and mitigate risk for current and future forces. Experiments inform Army future concepts and assess high-risk conceptual assumptions in order to focus required capabilities and represent user requirements in the future Army. Army experiments use the combined resources of Army Battle Laboratories, operating force units, research laboratories, materiel developers, industry, and academia to collaborate in the development, refinement, and assessment of future force concepts. These experiments refine and validate concepts for current and future forces to inform capability developments and requirements determination. Since Fiscal Year (FY) 2015, this Project has supported the Army's Simulation-Based Experiments (SIMEXp) to integrate and assess near-, mid-, and far-term future force concepts, force designs, and capabilities. In support of the Army Vision and Army Strategy, experimentation focuses on the latest Multi-Domain Operations Concept and operational and organizational concepts for the Army of 2028 and beyond. To refine the Multi-Domain Operations Concepts, Army experimentation expands linkages to multi-Service and Joint experiments.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020	
Title: Experimentation - High-Fidelity Live-Virtual-Constructive Experiments									6.815	6.287	7.725	
Description: Experiments address concept and capability developments including integration of capabilities for all Brigade Combat Team (BCT) types; development of future DOTMLPF requirements and solutions; and acceleration and integration of capabilities for current force BCTs and above brigade.												
FY 2019 Plans: Experiments will address concept and capability developments including integration of capabilities for all BCT types; development of future DOTMLPF requirements and solutions; and acceleration and integration of capabilities for current force BCTs and above brigade.												
FY 2020 Plans: Will conduct experiments to address concept and capability developments including integration of capabilities for all Brigade Combat Team (BCT) types. Will develop future DOTMLPF requirements and solutions and accelerate / integrate capabilities for current force BCTs and above brigade.												
FY 2019 to FY 2020 Increase/Decrease Statement:												

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019		
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605326A / <i>Concepts Experimentation Program</i>	Project (Number/Name) 312 / <i>Army/Joint Experimentation</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
FY20 funding aligns program requirements with Army modernization priorities in support of the National Defense Strategy.				
Title: FY19 SBIR/STTR adjustment		-	0.239	-
FY 2019 Plans: FY19 SBIR/STTR adjustment				
FY 2019 to FY 2020 Increase/Decrease Statement: FY19 SBIR/STTR adjustment				
Accomplishments/Planned Programs Subtotals		6.815	6.526	7.725
C. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
D. Acquisition Strategy N/A				
E. Performance Metrics N/A				

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 6					R-1 Program Element (Number/Name) PE 0605326A / <i>Concepts Experimentation Program</i>				Project (Number/Name) 317 / <i>Current Force Capability Gaps</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
317: <i>Current Force Capability Gaps</i>	-	20.063	22.216	35.046	-	35.046	35.095	35.575	39.019	40.282	0.000	227.296
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
<p>This Project enables Army Capability Development and Integration Programs to support the Joint Capabilities Integration and Development System (JCIDS). These efforts involve integrating Program Executive Offices (PEOs) and Program Managers (PMs) to ensure coordinated and integrated acquisition Milestone decisions in a timely manner. Funding in this Project ensures that the Army Futures Command (AFC) / Future Concepts Center (FCC) acts independently and serves as the voice of the warfighter, complementing the materiel developer in providing total capability management that integrates all doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) considerations. These resource requirements provide AFC and FCC resources to execute as lead for Accelerated Capability Development (ACD) and central coordination for Headquarters, Department of the Army (HQDA). These requirements support critical research, development, test and evaluation for Early Synthetic Prototyping and enable war-gaming and experimentation that engages soldiers across the Army to gain insights and recommendations in the development of future doctrine, organization, and materiel solutions. FCC integrates accelerated capabilities development activities between Army proponent force modernization managers as well as Joint / Sister Service coordination. AFC/FCC conducts Joint Warfighter Assessments to physically integrate, assess and evaluate adaptive capability sets to accelerate the systems acquisition process that provides DOTMLPF recommendations to the Army.</p>												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020	
Title: Joint Warfighting Assessments									2.085	2.118	3.337	
FY 2019 Plans: Support Joint Expeditionary Maneuver and Entry Operations, Set the Theater, Special Operations Forces/Coalition Forces Interoperability, Air-Ground Reconnaissance and Security, Joint/Multinational Operations, Sea Basing/Joint Logistics Over the Shore (JLOTS), Mobile Command Posts (Expeditionary), Man Unmanned Teaming, (Ground/Air) (MUM-T), Accelerated Capabilities Developments, Early Synthetic Prototyping and Architecture Army Warfighting Assessments (AWA).												
FY 2020 Plans: Support Joint Expeditionary Maneuver and Entry Operations, Set the Theater, Special Operations Forces/Coalition Forces Interoperability, Air-Ground Reconnaissance and Security, Joint Multinational Operations, Sea Basing/Joint Logistics Over the Shore (JLOTS), Mobile Command Posts (Expeditionary), Man Unmanned Teaming, (Ground/Air) (MUM-T), Accelerated Capabilities Developments, Early Synthetic Prototyping and Architecture Joint Warfighting Assessments (JWA).												
FY 2019 to FY 2020 Increase/Decrease Statement: Increase corresponds to emphasize early Concepts Experimentation in Army Modernization Priorities.												
Title: Accelerated Capabilites Development									1.520	1.544	2.432	

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army			Date: March 2019		
Appropriation/Budget Activity 2040 / 6		R-1 Program Element (Number/Name) PE 0605326A / <i>Concepts Experimentation Program</i>		Project (Number/Name) 317 / <i>Current Force Capability Gaps</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
<p><i>FY 2019 Plans:</i> Provide for TRADOC to serve as the lead Accelerated Capability Development to address current critical operational needs in enabling development and deployment/employment of accelerated capabilities (both materiel and non-materiel) to the current force. Serve as TRADOC central coordinating organization for Headquarters Department of the Army HQDA staff support requirements related to accelerated capabilities developments. Integrate ACD activities to ensure unity and priority of effort and synchronization and optimization of resources. Integrate accelerated capabilities development activities between proponent force modernization domains to include Joint/Service coordination.</p> <p><i>FY 2020 Plans:</i> Provide for AFC / Army Capabilities Integration Center (ARCIC) to serve as the lead Accelerated Capability Development to address current critical operational needs in enabling development and deployment of accelerated capabilities (both materiel and non-materiel) to the current force. Serve as AFC/ARCIC central coordinating organization for Headquarters Department of the Army HQDA staff support requirements related to accelerated capabilities developments. Integrate ACD activities to ensure unity and priority of effort and synchronization and optimization of resources. Integrate accelerated capabilities development activities between proponent force modernization.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i> Increase corresponds to emphasize early Concepts Experimentation in Army Modernization Priorities.</p>					
<p><i>Title:</i> CDID/TCM JCIDS Requirements Documentation</p> <p><i>Description:</i> In Fiscal Year 2014 the TRADOC Capability Development Integration Directorate (CDID) Capability Manager began finalizing a transfer of JCIDS Requirements Documentation Mission responsibility from the Assistant Secretary of the Army for Acquisition, Logistics, and Technology. This activity provides essential Joint Capabilities Integration and Development System Requirements Documentation.</p> <p><i>FY 2019 Plans:</i> Ensure TRADOC acts independently as the voice of the warfighter, the user, in complement with the materiel developer in providing total capability management including integration of all DOTMLPF consideration for warfighting functional areas.</p> <p><i>FY 2020 Plans:</i> Funding ensures AFC/ARCIC acts independently as the voice of the warfighter, the user, in complement with the materiel developer in providing total capability management including integration of all DOTMLPF considerations for warfighting functional areas.</p> <p><i>FY 2019 to FY 2020 Increase/Decrease Statement:</i></p>			14.446	15.696	26.056

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019		
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605326A / Concepts Experimentation Program	Project (Number/Name) 317 / Current Force Capability Gaps		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Increase corresponds to emphasize early Concepts Experimentation in Army Modernization Priorities.				
<p>Title: ArCADIE New Requirements</p> <p>Description: Army Capability-based Architecture Development and Integration Environment (ArCADIE) is the Army's authoritative source for architecture data and supports the community of practice requirement. ArCADIE provides a robust collaborative and common enterprise environment for architecture-related efforts in support of critical institutional processes throughout the TRADOC Centers of Excellence and Army/Joint/DOD partners. Offers a single, federated web-based environment for the development and discovery of integrated architectures across warfighting functions, and organizations throughout the Army Enterprise.</p> <p>FY 2019 Plans: Enable ARCIC to maintain ArCADIE and develop, verify, and validate operational architecture for 8 major BCT formations. Provide storage, accessibility, production, and certification of authoritative architecture data and supporting systems in accordance with DoD and DA information Assurance and management standards.</p> <p>FY 2020 Plans: Enable ARCIC to maintain ArCADIE and develop, verify, and validate operational architecture for 8 major BCT formations. Provide storage, accessibility, production, and certification of authoritative architecture data and supporting systems in accordance with DoD and DA information Assurance and management standards.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: Increase corresponds to emphasize early Concepts Experimentation in Army Modernization Priorities.</p>		2.012	2.044	3.221
<p>Title: FY19 SBIR/STTR adjustment</p> <p>FY 2019 Plans: FY19 SBIR/STTR adjustment</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: FY19 SBIR/STTR adjustment</p>		-	0.814	-
Accomplishments/Planned Programs Subtotals		20.063	22.216	35.046
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605326A / <i>Concepts Experimentation Program</i>	Project (Number/Name) 317 / <i>Current Force Capability Gaps</i>
D. Acquisition Strategy N/A		
E. Performance Metrics N/A		

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army										Date: March 2019		
Appropriation/Budget Activity 2040 / 6					R-1 Program Element (Number/Name) PE 0605326A / Concepts Experimentation Program				Project (Number/Name) 33B / Soldier-Centered Analyses For Future Force			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
33B: Soldier-Centered Analyses For Future Force	-	1.823	1.652	0.151	-	0.151	0.154	0.155	0.157	0.224	0.000	4.316
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project will provide early application of human performance and human figure modeling tools in the development of Soldier-focused requirements to shape technology for Future Force development. Efforts include design analyses, constructive simulations, and Soldier-in-the-loop assessments to ensure that manpower requirements and workload and skill demands are considered, avoiding information and physical task overloads and taking optimum advantage of aptitudes, individual and collective training, and numbers of Soldiers for an affordable Future Force.

The cited work is consistent with the Strategic Planning Guidance, the Army Science and Technology Master Plan (ASTMP), the Army Modernization Plan, and the Defense Technology Area Plan (DTAP).

Work in this Project is performed by the Army Research Laboratory (ARL).

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

	FY 2018	FY 2019	FY 2020
Title: Manpower and Personnel Integration (MANPRINT)	1.823	1.652	0.151
Description: Provide dedicated modeling and analysis cell for early and accurate MANPRINT estimates to Army Materiel Command (AMC), Research, Development, and Engineering Command (RDECOM) and its Research, Development, and Engineering Centers (RDECs), Training and Doctrine Command (TRADOC) Centers, Schools and Centers of Excellence (CoEs), Army Test and Evaluation Command (ATEC) and other service laboratories.			
FY 2019 Plans: Develop cognitive workload models to assess next-generation combat vehicle (NGCV) crewman ability to control multiple unmanned assets in a combined Manned-Unmanned Teaming (MuM-T) environment to allow crewman to think and act decisively to shoot, move and communicate more effectively. Collect dynamic motion data for NGCV crewman and format motion data for input into computer-assisted design (CAD) models to determine if proper crew offset exists in the design to minimize risk of injury. Incorporate scanned human body shape geometry into current 3D human figure boundary manikin models for improved analysis capability to shape technology for NGCV.			
FY 2020 Plans:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2020 Army		Date: March 2019	
Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605326A / <i>Concepts Experimentation Program</i>	Project (Number/Name) 33B / <i>Soldier-Centered Analyses For Future Force</i>	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019
Will expand the digital library by developing 3D models of Soldier clothing and equipment items to perform early human figure modeling assessments of NGCV platform designs and enhancements.			
FY 2019 to FY 2020 Increase/Decrease Statement: FY 2020 decrease aligns program requirements with Army modernization priorities in support of the National Defense Strategy.			
Accomplishments/Planned Programs Subtotals		1.823	0.151
C. Other Program Funding Summary (\$ in Millions) N/A			
Remarks			
D. Acquisition Strategy N/A			
E. Performance Metrics N/A			