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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force **Date:** February 2019

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>					R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</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	-	25.597	27.964	28.034	0.000	28.034	28.939	30.051	30.597	31.148	Continuing	Continuing
640211: <i>GLOBAL ACCESS</i>	-	6.868	7.718	7.493	0.000	7.493	7.644	7.804	7.945	8.088	Continuing	Continuing
640212: <i>C2/OPTIMIZATION/ MODELING AND SIMULATION</i>	-	13.918	15.050	15.183	0.000	15.183	15.856	16.695	16.999	17.305	Continuing	Continuing
640213: <i>CYBER</i>	-	4.811	5.196	5.358	0.000	5.358	5.439	5.552	5.653	5.755	Continuing	Continuing

Note

This program, BA 4, PE 0604776F, project 640211, Autonomous 60K Tunner, is a new start.
This program, BA 4, PE 0604776F, project 640211, Interoperable Multi-modal Patient Movement, is a new start.
This program, BA 4, PE 0604776F, project 640211, Replenishment from Ships to Point of Need Delivery, is a new start.
This program, BA 4, PE 0604776F, project 640211, Use of Dual Row Airdrop System with Joint Light Tactical Vehicle, is a new start.
This program, BA 4, PE 0604776F, project 640212, Strategies for Artificial Intelligence and Machine Learning, is a new start.

A. Mission Description and Budget Item Justification

This program provides for the development, integration, demonstration and detailed assessment of capabilities which improve deployment, distribution and supply chain decision-making/collaboration (e.g., planning stage to real-time execution/retrograde operations) without need for highly specialized operators. Projects in this area address the following: decision support tools, distribution process simulations/analytics, distribution demand forecasting/execution monitoring, automated decision-maker support (e.g., queuing, alerting, courses of action), automated status monitoring with information fusion to include drilldown capability, and resilient Command & Control (C2) infrastructure capabilities. Current planning, forecasting, and collaboration capabilities do not permit full synchronization of people, processes and assets to execute planned operations. Automated tools must be able to dynamically analyze/predict demand and provide input to advanced distribution planning systems to include the capability for Combatant Commanders to manage theater transportation operations from the port of debarkation to the point of need. Transportation information exchange across the DOD is inhibited by disparate systems, multiple data standards and insufficient interfaces. The ability to rapidly determine the impact of any delays/ changes and conduct "what-if" impact assessments on the closure of force packages is required. This project addresses the required mission support to combatant commanders and other customers in the area of C2, Optimization, and Modeling and Simulations.

As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force				Date: February 2019	
Appropriation/Budget Activity		R-1 Program Element (Number/Name)			
3600: Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)		PE 0604776F I Deployment & Distribution Enterprise R&D			
B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	26.222	28.350	28.937	0.000	28.937
Current President's Budget	25.597	27.964	28.034	0.000	28.034
Total Adjustments	-0.625	-0.386	-0.903	0.000	-0.903
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.625	-0.386			
• Other Adjustments	0.000	0.000	-0.903	0.000	-0.903
Change Summary Explanation					
FY 2018 funds include \$0.015 million pending transfer to the Rapid Prototyping Fund in accordance with PL 114-92; section 828, Penalty for Cost Overruns, as amended by PL 115-91 section 825(a).					
FY 2019 funds include \$0.058 million withhold pending final determination of Penalty for Cost Overruns in accordance with PL 114-92 as amended by PL 115 -91 section 825(a).					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 4					R-1 Program Element (Number/Name) PE 0604776F / Deployment & Distribution Enterprise R&D				Project (Number/Name) 640211 / GLOBAL ACCESS			
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
640211: GLOBAL ACCESS	-	6.868	7.718	7.493	0.000	7.493	7.644	7.804	7.945	8.088	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note												
This program, BA 4, PE 0604776F, project 640211, Autonomous 60K Tunner, is a new start.												
This program, BA 4, PE 0604776F, project 640211, Interoperable Multi-modal Patient Movement, is a new start.												
This program, BA 4, PE 0604776F, project 640211, Replenishment from Ships to Point of Need Delivery, is a new start.												
This program, BA 4, PE 0604776F, project 640211, Use of Dual Row Airdrop System with Joint Light Tactical Vehicle, is a new start.												
In FY 2017, PE 0603713S (BA3) Deployment and Distribution Enterprise Technology (DDET) and PE 0603264S (BA3) Agile Transportation for the 21st Century Theater were transferred to a single PE in the Air Force budget (PE0604776F, (BA4) Deployment and Distribution Enterprise (DDE))in order to support auditability, increase management efficiency, and reduce administrative actions.												
A. Mission Description and Budget Item Justification												
This program provides for the development, integration, demonstration and detailed assessment of DOD procedures/technologies targeted at optimizing throughput at the nodes as well as across the conduits of the deployment and distribution supply chains, from origin to point of use as well as return. Needed capabilities include inventory/cargo management, materiel handling innovations, improved physical node access, port throughput improvements, innovative delivery methods (e.g., precision airlift, autonomous re-supply), and cargo/container security. This project addresses required mission support to combatant commanders and other customers of DOD's distribution and transportation systems in the area of deployment/distribution velocity management, manned/unmanned systems to the point of effect, and increased global reach in austere/anti-access environments.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020	
Title: Contingency Response Wing Mobile Power Generator									0.125	0.000	0.000	
Description: Develop mobile variable output power generation prototype for the CRW that is ¼ the size of current generators, has a decreased fuel burn rate, and increased maintenance reliability rate.												
FY 2019 Plans: Project ended in FY18												
FY 2020 Plans: Project ended in FY 2018												
FY 2019 to FY 2020 Increase/Decrease Statement:												

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Appropriation/Budget Activity 3600 / 4		R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>		Project (Number/Name) 640211 / <i>GLOBAL ACCESS</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
No funding in FY 2020					
Title: Autonomous 60K Tunner Description: Autonomous Technologies applied to the 60K Tunner to improve throughput and safety FY 2020 Plans: Apply semi autonomous technologies and testing FY 2019 to FY 2020 Increase/Decrease Statement: Project starts in FY20			-	-	0.500
Title: Interoperable Multi-modal Patient Movement Description: Create system to move mass casualties when air medivac is not available FY 2020 Plans: Develop interoperable multi-modal platform FY 2019 to FY 2020 Increase/Decrease Statement: Project starts in FY20			-	-	0.500
Title: Replenishment from Ships to Point of Need Delivery Description: Unmanned system launched from ships and capable of carrying supplies up to 100 miles inland. FY 2020 Plans: testing various payloads and distance calculations FY 2019 to FY 2020 Increase/Decrease Statement: Project starts in FY20			-	-	0.500
Title: Use of Dual Row Airdrop System with Joint Light Tactical Vehicle Description: Increasing the strength of C-17 dual row rails to enable dropping the JLTV FY 2020 Plans: Testing of above-the-floor release mechanisms FY 2019 to FY 2020 Increase/Decrease Statement:			-	-	1.250

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Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604776F / Deployment & Distribution Enterprise R&D	Project (Number/Name) 640211 / GLOBAL ACCESS		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Project Starts in FY20				
Title: Port Improvement via Exigent Repair (PIER) JCTD Description: Develop robust capability to rapidly restore damaged pier to a minimal militarily-capable to support reception, power projection & sustainment operations. FY 2019 Plans: TRL 6-7: Mooring, fendering and fuel discharge: Will address expedient repair to mooring and fender systems with an emphasis on assuring structural integrity FY 2019 to FY 2020 Increase/Decrease Statement: Project funding ends in FY19		1.653	2.255	-
Title: Autonomous Aerial Insertion and Resupply into Dense Urban Complex Terrain (AAIRDUCT) Joint Capabilities Technology Demonstration (JCTD) Description: Enhance capability of a guided airdrop system to navigate in contested/denied environments where Global Positioning System data is either suspect or unavailable. FY 2019 Plans: TRL 5: U.S. Army (Natick) led effort to prototype technologies to enable accurate delivery of airdropped supplies in a Global positioning System (GPS) denied environment. FY 2019 to FY 2020 Increase/Decrease Statement: Project funding ends in FY19		0.729	1.180	-
Title: Enhanced Vision Navigation for Joint Precision Airdrop System (Supports FY17 AAIRDUCT JCTD) Description: Advanced technologies to improve airdrop capabilities to the warfighter. FY 2019 Plans: TRL 6: Support for transition FY 2020 Plans: Project support requirement FY 2019 to FY 2020 Increase/Decrease Statement: Funding levels increase as development progresses		1.186	0.459	0.505
Title: Expeditionary End-to-End Fueling Concept		0.650	0.700	0.800

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Description: Addressing gap in theater fuel delivery/distribution capabilities to inform the development of the Army Early Entry Fluid Distribution System as well as provide a development path for Navy/USMC ship-to-shore capabilities. FY 2019 Plans: TRL 6: Proof of concept prototype system including a field expedient planning tool and networked control capability. FY 2020 Plans: demonstration of fueling ashore operations FY 2019 to FY 2020 Increase/Decrease Statement: Project funding ends in FY19				
Title: Dropsonde Optimization Description: Mobility assets lack drop zone situational awareness, pre-drop confirmation of clear/safe drop zone, capability of post-drop assessment, and autonomous/passive bundle geo-location. FY 2019 Plans: TRL 4-7: Interface designs and algorithm coding completed FY 2019 to FY 2020 Increase/Decrease Statement: Project funding ends in FY19		0.055	0.414	-
Title: Advanced Planning for Global Response Force Mission Description: Create and leverage analytical and visual tools to provide planners the ability to streamline GRF missions, integrating aircraft load planning with sophisticated airdrop mission simulations. FY 2019 Plans: Development of prototype planning software. FY 2020 Plans: Completing planning tool development FY 2019 to FY 2020 Increase/Decrease Statement: Project funding levels increase as development schedule progresses		0.300	0.400	0.500
Title: Autonomous Drone Delivery from Airdrop Systems Description: An air-droppable Unmanned Aircraft System (UAS) to conduct resupply missions in densely populated urban areas.		0.300	0.310	0.400

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Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604776F / Deployment & Distribution Enterprise R&D	Project (Number/Name) 640211 / GLOBAL ACCESS		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
FY 2019 Plans: Drone hardware development and integration.				
FY 2020 Plans: development and demonstration of drone delivery from JPADS				
FY 2019 to FY 2020 Increase/Decrease Statement: Funding levels increase as development progresses				
Title: Mini Robotic Dredge Description: Prototype a tactical dredging capability to deepen an usable port facility		0.520	0.600	0.700
FY 2019 Plans: TRL 5-6: Evaluate various cutter heads to determine those suitable for the various types of sediments				
FY 2020 Plans: Complete development of dredge and demo				
FY 2019 to FY 2020 Increase/Decrease Statement: Funding levels increase as development progresses				
Title: Optimized HALO Delivery using Probablistic Airdrop Planner Description: A low-cost, low-complexity solution to deliver payloads at improved accuracy, compared to standard ballistic parachutes, but without the expensive parafoil and guidance systems		0.350	0.400	0.500
FY 2019 Plans: Develop planner to help optimize airdrop accuarcy				
FY 2020 Plans: complete development of planner				
FY 2019 to FY 2020 Increase/Decrease Statement: Funding levels incresaes as development progresses				
Title: Expedient and Expeditionary Airfield Damage Repair Description: Provide a truly expeditionary, indigenous-material based repair capability to support high pace, aircraft sortie generation, recovery and egress		0.500	0.500	1.338

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019
FY 2019 Plans: Demonstrate the ability to rapidly assess airfield damage FY 2020 Plans: Demonstrate and complete development of repair effort FY 2019 to FY 2020 Increase/Decrease Statement: Project funding increases as development progresses			
Title: Unmanned Logistics System - Air Description: Provides the warfighter with an assured/organic resupply capability to sustain maneuver units FY 2019 Plans: Capabilities to support last tactical mile distribution FY 2019 to FY 2020 Increase/Decrease Statement: Project funding ends in FY19		0.500	0.500
Accomplishments/Planned Programs Subtotals		6.868	7.718
C. Other Program Funding Summary (\$ in Millions)			
N/A			
Remarks			
D. Acquisition Strategy			
Requirements for joint deployment and distribution enterprise technology enhancements are annually identified, validated and prioritized by the Joint Deployment & Distribution Enterprise (JDDE) community. Pursuit of the development of new capabilities to meet these requirements is managed by the United States Transportation Command (USTRANSCOM). Prototype products, once evaluated by the users, are spirally transitioned by the operational community.			
E. Performance Metrics			
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 4						R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>						Project (Number/Name) 640211 / <i>GLOBAL ACCESS</i>			

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total					
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	Various	Various : Belleville, IL	-	6.868	Nov 2017	7.718	Nov 2018	7.493	Nov 2019	-		7.493		7.493	Continuing	Continuing	-
Subtotal			-	6.868		7.718		7.493		-		7.493		7.493	Continuing	Continuing	N/A

Remarks Funds will be realigned within the PE.																	
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			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	6.868		7.718		7.493		-		7.493	Continuing	Continuing	N/A

Remarks																	
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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force			Date: February 2019		
Appropriation/Budget Activity 3600 / 4		R-1 Program Element (Number/Name) PE 0604776F / Deployment & Distribution Enterprise R&D			Project (Number/Name) 640211 / GLOBAL ACCESS

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Deployment and Distribution																												
Integrated Logistics Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>	Project (Number/Name) 640211 / <i>GLOBAL ACCESS</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Deployment and Distribution</i>				
Integrated Logistics Support	1	2018	4	2021

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Appropriation/Budget Activity 3600 / 4					R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>				Project (Number/Name) 640212 / <i>C2/OPTIMIZATION/MODELING AND SIMULATION</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
640212: <i>C2/OPTIMIZATION/MODELING AND SIMULATION</i>	-	13.918	15.050	15.183	0.000	15.183	15.856	16.695	16.999	17.305	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 4, PE 0604776F, project 640212, Strategies for Artificial Intelligence and Machine Learning, is a new start.

In FY 2017, PE 0603713S (BA3) Deployment and Distribution Enterprise Technology (DDET) and PE 0603264S (BA3) Agile Transportation for the 21st Century Theater were transferred to a single PE in the Air Force budget (PE0604776F, (BA4) Deployment and Distribution Enterprise (DDE)) in order to support auditability, increase management efficiency, and reduce administrative actions.

A. Mission Description and Budget Item Justification

This program provides for the development, integration, demonstration and detailed assessment of capabilities which improve deployment, distribution and supply chain decision-making/collaboration (e.g., planning stage to real-time execution/retrograde operations) without need for highly specialized operators. Projects in this area address the following: decision support tools, distribution process simulations/analytics, distribution demand forecasting/execution monitoring, automated decision-maker support (e.g., queuing, alerting, courses of action), automated status monitoring with information fusion to include drilldown capability, and resilient Command & Control (C2) infrastructure capabilities. Current planning, forecasting, and collaboration capabilities do not permit full synchronization of people, processes and assets to execute planned operations. Automated tools must be able to dynamically analyze/predict demand and provide input to advanced distribution planning systems to include the capability for Combatant Commanders to manage theater transportation operations from the port of debarkation to the point of need. Transportation information exchange across the DOD is inhibited by disparate systems, multiple data standards and insufficient interfaces. The ability to rapidly determine the impact of any delays/changes and conduct "what-if" impact assessments on the closure of force packages is required. This project addresses the required mission support to combatant commanders and other customers in the area of C2, Optimization, and Modeling and Simulations.

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

	FY 2018	FY 2019	FY 2020
Title: TRANSCOM Innovation Unit Experimental	0.016	2.045	3.015
Description: Rapidly develop and integrate technology solutions for the enterprise			
FY 2019 Plans: TRL 4-7: Identify challenges and garner/develop solutions to address those challenges			
FY 2020 Plans: Develop solutions to identified challenges			
FY 2019 to FY 2020 Increase/Decrease Statement:			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Support for pending FY19/20 JCTDs				
Title: Analytics Driven Command Decision Support Description: Developing the capability that improves organizational decision making by providing a holistic methodology that capitalizes on relevant information, captures accurate data, and leverages best practice tools and decision-making processes. FY 2019 Plans: Develop decision support best practices for rapid decision making FY 2020 Plans: No funding in FY 2020 FY 2019 to FY 2020 Increase/Decrease Statement: FY19 last year of funding		0.610	0.507	0.000
Title: Prevalent Vendor Threat Monitoring Description: Enhanced decision making capability using commercially available business intelligence tools to capture and mitigate near real-time 4th component readiness risks FY 2019 Plans: Project ended in FY18 FY 2020 Plans: No funding in FY 2020 FY 2019 to FY 2020 Increase/Decrease Statement: No funding in FY 2020		0.075	0.000	0.000
Title: Strategies for Artificial Intelligence and Machine Learning Description: This research effort is to demonstrate the potential of AI/ML to increase the effectiveness and value of USTRANSCOM's Big Data initiatives while also leveraging cloud computing capabilities. FY 2020 Plans: improved data quality and improved analytic capabilities. FY 2019 to FY 2020 Increase/Decrease Statement: improved data quality and improved analytic capabilities.		-	-	0.750
Title: Data Lake		3.506	0.800	0.000

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Appropriation/Budget Activity 3600 / 4		R-1 Program Element (Number/Name) PE 0604776F / Deployment & Distribution Enterprise R&D	Project (Number/Name) 640212 / C2/OPTIMIZATION/MODELING AND SIMULATION		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Description: Develop and demonstrate the capability that allows incongruent data to be brought together to provide automated decision support. FY 2019 Plans: TRL 5-6: Refined reference architecture for a data lake environment targeting performance, usability and data integration FY 2020 Plans: Funding ends in FY19 FY 2019 to FY 2020 Increase/Decrease Statement: Funding ends in FY19					
Title: End-to-End Deployment and Distribution Modeling Description: Provide an integrated deployment/distribution environment to provide continuous and optimal balancing of total demand verse capacity from planning through mission execution. FY 2019 Plans: TRL 5-6: Enable users to fully exploit technologies more rapidly and improve analytics FY 2020 Plans: Increase analytical capability for DoD programmatic studies and analysis FY 2019 to FY 2020 Increase/Decrease Statement: Funding ends in FY19			1.228	3.069	2.588
Title: Global Mission Scheduling Description: Development effort to optimize air movement requirements against resources and movement requirements. FY 2019 Plans: Project ended in FY18 FY 2020 Plans: Project ended in FY18			0.535	0.000	0.000
Title: Map Based Planning Services Description: Enable planners, via a collaborative geospatially enabled environment, to conduct deliberate course of action planning to include force flow feasibility concurrent with plan development.			1.500	0.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions)				FY 2018	FY 2019	FY 2020
FY 2019 Plans: Project ended in FY18						
FY 2020 Plans: Project ended in FY18						
Title: Massachusetts Institute of Technology Lincoln Labs Description: Partnership with MIT-LL to research efforts to improve enterprise operational architecture supporting high-end analytics, integrated information technology/data structures, understanding of cloud capabilities and multi-level cyber security defense. FY 2019 Plans: TRL 6: Improved basis for network optimization and network design. FY 2020 Plans: Effective secure operations enabled via data fusion frameworks and prototypes. FY 2019 to FY 2020 Increase/Decrease Statement: Approved ability to rapidly estimate tanker requirements and improve operational efficiencies				2.221	2.552	3.000
Title: Modeling & Simulation Innovation Description: Select student research/faculty-assisted projects (e.g., Joint Transportation Asset Scheduling Kit, Next Generation Cargo Capability, Applying Post Modern Portfolio Theory to Mitigate Risk in International Shipping, Optimal CH-47/C-130 Workload Balance, Remotely Piloted Aircraft Performing Airdrop Mission). FY 2019 Plans: TRL 4-6: Collaborative partnership with Air Force Institute of Technology for graduate research addressing Joint Deployment and Distribution challenges. FY 2020 Plans: Collaboration partnership with AFIT for student research				0.045	0.125	0.125
Title: Support Planning for Air Refueling Tasking and Allocation Description: Provide collaborative decision aid to enable planners to the optimize use of the worldwide Active Duty, Air National Guard and Air Force Reserve Air Refueling fleets while maintaining or increasing operational effectiveness, agility and capacity. FY 2019 Plans:				0.162	0.000	0.000

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
Project ended in FY18				
FY 2020 Plans: Project ended in FY18				
Title: Strategies for Enterprise Metadata Management Description: Comprehensive account of strategies, optional implementations and recommendations for enterprise-wide management of metadata. FY 2019 Plans: Project ended in FY18 FY 2020 Plans: Project ended in FY18		0.375	0.000	0.000
Title: Technology Transfer Description: U. S. Transportation Command uses Technology Transfer mechanisms of the Federal Laboratories to facilitate voluntary collaboration by experts from government, industry, and academia, revealing the costs and benefits of innovations, to understand the feasibility of future capabilities. FY 2019 Plans: TRL 4 - 6: Continue to actively promote and broker Cooperative Research and Development Agreements (CRADAs) between DOD labs and industry for development of technology with both commercial and military applications. This activity will particularly focus on non-traditional defense contractors and is intended to help lower the expense of new defense-related technology development through cost-sharing with industry and to help DOD benefit from private-sector technology investments and innovations. Continue to actively market DOD-developed technologies to U.S. companies and establish Patent License Agreements to commercialize these technologies for both civilian and military. FY 2020 Plans: TRL 4 - 6: Continue to actively promote and broker Cooperative Research and Development Agreements (CRADAs) between DOD labs and industry for development of technology with both commercial and military applications. This activity will particularly focus on non-traditional defense contractors and is intended to help lower the expense of new defense-related technology development through cost-sharing with industry and to help DOD benefit from private-sector technology investments and innovations. Continue to actively market DOD-developed technologies to U.S. companies and establish Patent License Agreements to commercialize these technologies for both civilian and military. FY 2019 to FY 2020 Increase/Decrease Statement:		0.174	0.290	0.295

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019		
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604776F / Deployment & Distribution Enterprise R&D	Project (Number/Name) 640212 / C2/OPTIMIZATION/MODELING AND SIMULATION		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019	FY 2020
No significant increase				
Title: Infrastructure Information Confidence Model Description: Inform decision makers of the quality of primary and alternate data sources they are using to make decisions FY 2019 Plans: Information collaboration process that analyzes and provides a confidence assessment of structured and unstructured data FY 2020 Plans: Continue development of information collaboration process that analyzes and provides a confidence assessment of structured and unstructured data FY 2019 to FY 2020 Increase/Decrease Statement: Project funding varies as development progresses		0.200	0.918	1.137
Title: Program Execution Description: Provide technical assistance and program management support to the USTRANSCOM RDT&E Program. FY 2019 Plans: TRL 4-6: Program support to explore technology solutions to capability gaps identified through Joint Concept Development documents, the Joint capabilities Integration and Development System process, Joint Experimentation, etc, to increase the responsiveness, efficiency and effectiveness of the Joint Deployment and Distribution Enterprise. FY 2020 Plans: TRL 4-6: Program support to explore technology solutions to capability gaps identified through Joint Concept Development documents, the Joint capabilities Integration and Development System process, Joint Experimentation, etc, to increase the responsiveness, efficiency and effectiveness of the Joint Deployment and Distribution Enterprise. FY 2019 to FY 2020 Increase/Decrease Statement: No significant increase		0.861	1.420	1.475
Title: Synchronizing Mobility Allocations and Resources for Transportation Description: Develop prototype software for advanced squadron scheduling, collaboration, and predictive modeling. FY 2019 Plans: Design of the squadron scheduler and visualizations. FY 2020 Plans:		0.800	1.700	1.450

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019		
Appropriation/Budget Activity 3600 / 4		R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>		Project (Number/Name) 640212 / <i>C2/OPTIMIZATION/MODELING AND SIMULATION</i>	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2018	FY 2019	FY 2020
Complete development of the squadron scheduler and visualizations.					
FY 2019 to FY 2020 Increase/Decrease Statement: Project funding varies as development progresses					
Title: Full Spectrum Mission Assurance Description: All-threats/hazards, collaborative transportation risk management activity to identify unacceptable physical/cyber risks FY 2019 Plans: TRL 5-7: An operational picture environment fed by standardized, reusable, and shareable data layers of actionable info. FY 2020 Plans: Complete the operational picture environment fed by standardized, reusable, and shareable data layers of actionable info. FY 2019 to FY 2020 Increase/Decrease Statement: No significant increase			0.810	0.814	0.998
Title: Modeling Dynamics of Modular Causeways to Improve Debarkation Sites Description: High-fidelity model to provide planners with precise knowledge of Modular Causeway behavior. FY 2019 Plans: TRL 4-7: Design mockups, Design testing, population of database, demonstration and training FY 2020 Plans: Population of database, demonstration and training FY 2019 to FY 2020 Increase/Decrease Statement: Shifted funds to optimize development			0.320	0.330	0.350
Title: Web Based Seaport Explosive Safety Planning Description: Provide seaport planners capability to manage net explosive weight/hazard munitions FY 2019 Plans: TRL 4-6: Reduce planner port layout from 80 to 5 hours FY 2019 to FY 2020 Increase/Decrease Statement:			0.480	0.480	-

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019	
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>	Project (Number/Name) 640212 / <i>C2/OPTIMIZATION/MODELING AND SIMULATION</i>	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019
Project ends in FY19			
Accomplishments/Planned Programs Subtotals		13.918	15.050
C. Other Program Funding Summary (\$ in Millions)			
N/A			
Remarks			
D. Acquisition Strategy			
Requirements for joint deployment and distribution enterprise technology enhancements are annually identified, validated and prioritized by the Joint Deployment & Distribution Enterprise (JDDE) community. Pursuit of the development of new/improved capabilities to meet these requirements is managed by the United States Transportation Command (USTRANSCOM). Prototype products, once evaluated by the users, are spirally transitioned by the operational community.			
E. Performance Metrics			
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force													Date: February 2019		
Appropriation/Budget Activity 3600 / 4							R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>				Project (Number/Name) 640212 / <i>C2/OPTIMIZATION/MODELING AND SIMULATION</i>				

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	Various	Various : Belleville, IL	-	13.918	Nov 2017	15.050	Nov 2018	15.183	Nov 2019	-		15.183	Continuing	Continuing	-
Subtotal			-	13.918		15.050		15.183		-		15.183	Continuing	Continuing	N/A

Remarks Funds will be realigned within PE.															
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Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Contractor Support PMO	Various	Various : Belleville, IL	-	-		-		-		-		-	Continuing	Continuing	-
Subtotal			-	-		-		-		-		-	Continuing	Continuing	N/A

			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	13.918		15.050		15.183		-		15.183	Continuing	Continuing	N/A

Remarks															
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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604776F / Deployment & Distribution Enterprise R&D	Project (Number/Name) 640212 / C2/OPTIMIZATION/MODELING AND SIMULATION	

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Deployment and Distribution																												
Integrated Logistics Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>	Project (Number/Name) 640212 / <i>C2/OPTIMIZATION/MODELING AND SIMULATION</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Deployment and Distribution</i>				
Integrated Logistics Support	1	2018	4	2021

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 4					R-1 Program Element (Number/Name) PE 0604776F / Deployment & Distribution Enterprise R&D				Project (Number/Name) 640213 / CYBER			
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
640213: CYBER	-	4.811	5.196	5.358	0.000	5.358	5.439	5.552	5.653	5.755	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
Note In FY 2017, PE 0603713S (BA3) Deployment and Distribution Enterprise Technology (DDET) and PE 0603264S (BA3) Agile Transportation for the 21st Century Theater were transferred to a single PE in the Air Force budget (PE0604776F, (BA4) Deployment and Distribution Enterprise (DDE))in order to support auditability, increase management efficiency, and reduce administrative actions.												
A. Mission Description and Budget Item Justification This program provides for the development, integration, demonstration and detailed assessment of capabilities to ensure USTRANSCOM mission assurance is in a persuasive/dynamic cyber environment. USTRANSCOM requires the procedures/technologies to improve cyber surveillance and control of networks across multiple domains and the ability to continue critical network operations in contested unclassified and classified network environments. The Command also needs the ability to differentiate between valid/unauthorized users and determine/quantify the trustworthiness of hardware/software systems. Additionally USTRANSCOM must have the ability to rapidly analyze & correlate data regarding malicious activities, select/evoke real-time defense actuators, perform automated reasoning capabilities that address data quality issues, and the ability to rapidly return to a known/safe operating state.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020	
Title: Identity and Access Management Description: Need secure means to credential user access to proper applications & data via single sign approach. FY 2019 Plans: N/A FY 2020 Plans: N/A									0.130	0.000	0.000	
Title: Operationalizing Cyber Security Description: Provide USTRANSCOM Joint Cyber Center (JCC) organizational effectiveness tools to enhance cyber-security operations, plans & processes. FY 2019 Plans: N/A FY 2020 Plans:									0.638	0.000	0.000	

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019	
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>	Project (Number/Name) 640213 / <i>CYBER</i>	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019
N/A			
Title: Lincoln Labs Description: Partnership with MIT-LL to research efforts to improve enterprise operational architecture supporting high-end analytics, integrated information technology/data structures, understanding of cloud capabilities and multi-level cyber security defense. FY 2019 Plans: TRL 4-6: Multi-faceted prototyping numerous technologies to enhance cyber. FY 2020 Plans: Increased awareness and ability to respond to cyber events FY 2019 to FY 2020 Increase/Decrease Statement: Yearly funding varies depending on development schedule		3.713	3.885
Title: Operationally Transparent Cyber Description: Rapidly identify, track, and eliminate malicious actor behavior and defend against Advanced Persistent Threats in near real-time FY 2019 Plans: Increase activity detection rate FY 2020 Plans: Functionality to increase detection FY 2019 to FY 2020 Increase/Decrease Statement: Yearly funding varies depending on development schedule		0.330	1.311
Accomplishments/Planned Programs Subtotals		4.811	5.196
C. Other Program Funding Summary (\$ in Millions)			
N/A			
Remarks			

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>	Project (Number/Name) 640213 / <i>CYBER</i>
<p><u>D. Acquisition Strategy</u></p> <p>Requirements for joint deployment and distribution enterprise technology enhancements are annually identified, validated and prioritized by the Joint Deployment & Distribution Enterprise (JDDE) community. Pursuit of the development of new/improved capabilities to meet these requirements is managed by the United States Transportation Command (USTRANSCOM). Prototype products, once evaluated by the users, are spirally transitioned by the operational community.</p> <p><u>E. Performance Metrics</u></p> <p>Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 4						R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>						Project (Number/Name) 640213 / <i>CYBER</i>			

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total					
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	Various	Various : Belleville, IL	-	4.811	Nov 2017	5.196	Nov 2018	5.358	Nov 2019	-		5.358		5.358	Continuing	Continuing	-
Subtotal			-	4.811		5.196		5.358		-		5.358		5.358	Continuing	Continuing	N/A

Remarks Funds will be realigned within the PE.																
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			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	4.811		5.196		5.358		-		5.358	Continuing	Continuing	N/A

Remarks																
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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force										Date: February 2019																			
Appropriation/Budget Activity 3600 / 4										R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>										Project (Number/Name) 640213 / CYBER									

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Deployment and Distribution																												
Integrated Logistics Support																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604776F / <i>Deployment & Distribution Enterprise R&D</i>	Project (Number/Name) 640213 / <i>CYBER</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Deployment and Distribution</i>				
Integrated Logistics Support	1	2018	4	2021