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

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0203758A / <i>Digitization</i>							
COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	6.077	5.270	4.516	-	4.516	4.196	4.196	4.196	4.238	0.000	32.689
374: <i>HOR Battlefield Digitizn</i>	-	6.077	5.270	4.516	-	4.516	4.196	4.196	4.196	4.238	0.000	32.689

A. Mission Description and Budget Item Justification

As the Army Equipping methodology transitions to the Army Modernization Enterprise or AME the information technology used to support Army Equipping must grow and change. The development of an upgraded Army Equipping Enterprise System (AE2S) will integrate and share programming data (dollars and quantities) with information from IT systems that support the Army Futures Command (AFC), ASA(ALT), ASA(FM&C) and Army G3/5/7. This data sharing will allow the AME to provide Army Senior Leaders with a complete picture of how well programs are executing, the impacts of programming decisions on Army current and future readiness and modernization, and help develop a road map needed to transition the current force to a fully modernize Army. The AE2S next generation capability requirements include a flexible data and software architectures that allows the user to integrate disparate data from differing architectures in order to develop new information that can be turned into actionable knowledge by senior leaders. The software architecture must have data visualization capabilities that allow the user to display data in ways that can articulate how AME decisions made impact warfighting effectiveness and plans.

B. Program Change Summary (\$ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	6.308	5.270	4.520	-	4.520
Current President's Budget	6.077	5.270	4.516	-	4.516
Total Adjustments	-0.231	0.000	-0.004	-	-0.004
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.231	-			
• Adjustments to Budget Years	-	-	-0.004	-	-0.004

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COST (\$ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
374: HOR Battlefield Digitizn	-	6.077	5.270	4.516	-	4.516	4.196	4.196	4.196	4.238	0.000	32.689
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

As the Army Equipping methodology transitions to the Army Modernization Enterprise or AME the information technology used to support Army Equipping must grow and change. The development of an upgraded Army Equipping Enterprise System (AE2S) will integrate and share programming data (dollars and quantities) with information from IT systems that support the Army Futures Command (AFC), ASA(ALT), ASA(FM&C) and Army G3/5/7. This data sharing will allow the AME to provide Army Senior Leaders with a complete picture of how well programs are executing, the impacts of programming decisions on Army current and future readiness and modernization, and help develop a road map needed to transition the current force to a fully modernize Army. The AE2S next generation capability requirements include a flexible data and software architectures that allows the user to integrate disparate data from differing architectures in order to develop new information that can be turned into actionable knowledge by senior leaders. The software architecture must have data visualization capabilities that allow the user to display data in ways that can articulate how AME decisions made impact warfighting effectiveness and plans.

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

	FY 2019	FY 2020	FY 2021
<p>Title: Interoperability and Integration</p> <p>Description: Funds are to be used for the following efforts</p> <p>FY 2020 Plans: FFRDC contractor continues to conduct independent analyses of Army, joint, and multinational interfaces, adherence to standards, implementation profiles and interoperability baselines</p> <p>FY 2021 Plans: Contractor will continue to conduct independent analyses of Army, joint, and multinational interfaces, adherence to standards, implementation profiles and interoperability baselines</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase is due to providing increased requirements for independent analyses of Army, joint, and multinational interfaces.</p>	1.448	0.914	1.094
<p>Title: Operational Capability Analysis and Evaluation</p> <p>Description: Funds are to be used for the following efforts</p> <p>FY 2020 Plans:</p>	1.480	0.966	1.057

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
<p>FFRDC contractor continues to conduct iterative capability analyses and assessments consistent with CJCSI 3170 (JCIDS) and 6212 (Net Readiness) to ensure Army and joint program technical and operational requirements are consistent. Efforts support Army and joint initiatives.</p> <p>FY 2021 Plans: Contractor will continue to conduct iterative capability analyses and assessments consistent with CJCSI 3170 (JCIDS) and 6212 (Net Readiness) to ensure Army and joint program technical and operational requirements are consistent. Efforts support Army and joint initiatives.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase is due to increased requirements for iterative capability analyses and assessments</p>				
<p>Title: Systems Architecture Development</p> <p>Description: Funds are to be used for the following efforts</p> <p>FY 2020 Plans: FFRDC contractor continues to conduct broad concept studies with emphasis on interoperability and joint/coalition operations.</p> <p>FY 2021 Plans: FFRDC contractor will continue to conduct broad concept studies with emphasis on interoperability and joint/coalition operations.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement: Increase is due to inflation.</p>		1.099	0.783	0.805
<p>Title: AE2S Software</p> <p>Description: Procures AE2S software integration and enhancements for the single program language, single platform system that incorporates FDIIS, CEaVa, COP and AFM.</p> <p>FY 2020 Plans: Continues to integrate existing code-base for FDIIS, AFM and FDKC to reduce overall cost and maintenance footprint and incorporate the development of new applications to satisfy Strategic Portfolio Analysis Review (SPAR), Sustainment Program Evaluation Group (SS PEG), and Equipping PEG (EE PEG) Manpower.</p> <p>FY 2021 Plans: Contractor will continue to incorporate the development of new applications to satisfy Strategic Portfolio Analysis Review (SPAR), Sustainment Program Evaluation Group (SS PEG), and Equipping PEG (EE PEG) Manpower.</p> <p>FY 2020 to FY 2021 Increase/Decrease Statement:</p>		0.685	1.684	0.558

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2019	FY 2020	FY 2021
Decrease is due to transition of 95% of the requirement to sustainment.				
Title: Technical Reviews and Technical Performance Analysis		1.351	0.783	0.862
Description: Funds are to be used for the following efforts				
FY 2020 Plans: FFRDC contractor continues to provide technology maturity assessments and prepare technical recommendations in support of Army Transformation and specific technologies of interest to G8. Test and evaluate network systems and infrastructure modeling and simulations.				
FY 2021 Plans: Contractor will continue to provide technology maturity assessments and prepare technical recommendations in support of Army Transformation and specific technologies of interest to G8. Test and evaluate network systems and infrastructure modeling and simulations.				
FY 2020 to FY 2021 Increase/Decrease Statement: Increase resulting from increase in requirements for technical recommendation to support Army specific technologies and complexities of evaluating network systems and infrastructure modeling and simulations.				
Title: Academic Research		-	0.140	0.140
Description: Apply university academic and research resources to the integration of Army complex modeling, simulation, and training in support of modernized forces.				
FY 2020 Plans: Continues to apply university academic and research resources to the integration of Army complex modeling, simulation, and training in support of modernized forces.				
FY 2021 Plans: Will continue to apply university academic and research resources to the integration of Army complex modeling, simulation, and training in support of modernized forces.				
Title: FY 2018 NDAA SEC 825 MDAP Cost Overrun		0.014	-	-
Accomplishments/Planned Programs Subtotals		6.077	5.270	4.516
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				

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D. Acquisition Strategy

The AE2S development will be done through either a competitive Cost Plus or Fixed Price Incentive contracts that will deliver capabilities in increments, recognizing up front the need for future improvements. The objective of the strategy is to develop and optimize system capabilities while reducing risk and streamlining business and engineering processes.

FFRDC requirements will be accomplished by competitive contract.

Other efforts will be accomplished by various contract methods and types.

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

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Management Services (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Digitization Technical Integration	Various	Various : Various	5.556	-		-		-		-		-	0.000	5.556	-
Joint & Coalition Interoperability	Various	Various : Various	5.091	-		-		-		-		-	0.000	5.091	-
FY 2018 NDAA SEC 825 MDAP Cost Overrun	TBD	FY 2018 NDAA SEC 825 MDAP Cost Overrun : FY 2018 NDAA SEC 825 MDAP Cost Overrun	0.014	0.014		-		-		-		-	0.000	0.028	-
Subtotal			10.661	0.014		-		-		-		-	0.000	10.675	N/A

Product Development (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Army Equipping Enterprise SYstem (AE2S) Software	C/CPFF	TBD : TBD	8.597	0.685		1.684		0.558		-		0.558	Continuing	Continuing	Continuing
Cross-Platform Development	Various	TBD : TBD	3.605	-		-		-		-		-	0.000	3.605	-
Subtotal			12.202	0.685		1.684		0.558		-		0.558	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Interoperability and Integration	Various	Various : Various	6.996	1.448		0.914		1.094		-		1.094	0.000	10.452	-
Operational Capability Analysis and Evaluation	Various	VAR : VAR	6.272	1.480		0.966		1.057		-		1.057	0.000	9.775	-
Academic Research	Various	Various : Various	3.231	-		0.140		0.140		-		0.140	0.000	3.511	-
Operational Capability Analysis and Evaluation	Various	Various : Various	5.608	-		-		-		-		-	0.000	5.608	-

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Exhibit R-4, RDT&E Schedule Profile: PB 2021 Army **Date:** February 2020

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Event Name	FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025			
	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
Interoperability and Integration																												
Operational Capability Analysis and Evaluation																												
Systems Architecture Development 4.0																												
Systems Architecture Development 5.0																												
Army Equipping Enterprise System (AE2S) Software SW 4.0																												
Army Equipping Enterprise System (AE2S) Software SW 5.0																												
Technical Reviews and Technical Performance Analysis																												
Academic Research																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2021 Army **Date:** February 2020

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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Interoperability and Integration	1	2016	4	2023
Operational Capability Analysis and Evaluation	1	2016	4	2022
Systems Architecture Development 1.0	2	2015	2	2016
Systems Architecture Development 2.0	3	2016	3	2017
Systems Architecture Development 3.0	4	2017	4	2018
Systems Architecture Development 4.0	1	2019	1	2020
Systems Architecture Development 5.0	2	2020	4	2021
Army Equipping Enterprise System (AE2S) Software SW 1.0	2	2015	2	2016
Army Equipping Enterprise System (AE2S) Software SW 2.0	3	2016	3	2017
Army Equipping Enterprise System (AE2S) Software SW 3.0	4	2017	4	2018
Army Equipping Enterprise System (AE2S) Software SW 4.0	1	2019	1	2020
Army Equipping Enterprise System (AE2S) Software SW 5.0	2	2020	4	2021
Technical Reviews and Technical Performance Analysis	1	2015	4	2022
Academic Research	3	2015	4	2022