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

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 6: RDT&amp;E Management Support</i>	<b>R-1 Program Element (Number/Name)</b> PE 0605718A / <i>Army Modeling &amp; Sim X-Cmd Collaboration &amp; Integ</i>
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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
Total Program Element	-	2.708	2.527	2.572	-	2.572	2.665	2.718	2.772	2.800	0.000	18.762
S03: <i>Analysis M&amp;S Tools and Services</i>	-	2.708	2.527	2.572	-	2.572	2.665	2.718	2.772	2.800	0.000	18.762

**A. Mission Description and Budget Item Justification**

This Program Element (PE) promotes the Army's Modeling and Simulation (M&S) strategy, defined by five guiding priorities: (1) formulate Army M&S policies; (2) develop and employ management processes for models, simulations and data; (3) develop M&S standards, architectures, networks and environments; (4) develop/employ new M&S tools and simulation technology; (5) develop an M&S workforce. Specifically, this PE focuses on priorities 3 and 4.

**M&S Standards, Architectures, Networks and Environments:** The consistent use of standards, architectures, networks and environments advances the goal of interoperability. The Army coordinates with Joint, Interagency, Intergovernmental, and Multinational (JIIM) partners along with industry and academia to develop/employ standards that promote collaboration and facilitate the sharing of tools, data and information. The Army oversees procedures and processes for the appropriate use of standards to foster common formats and increase M&S and data reuse. The Army ensures these standards, architectures, networks and environments are readily accessible and can be reliably applied by users.

**M&S Tools and Simulation Technology:** The Army must have credible M&S tools and data to support the full range of Army organizational missions and functional responsibilities. M&S results that are timely and credible enhance decision making. The Army must develop and accredit reliable M&S tools so that decision makers and senior leaders benefit from the results and thus support the continued development, integration and use of such tools. To ensure credibility and reliability of results, M&S managers, developers and users must make the capabilities, constraints, limitations and assumptions of their M&S tools readily accessible. PE 0605718A provides for the development and employment of tools in the form of models, simulations and data that support the full range of Army interests and deliver timely information to enhance effective decision making. Moreover, these tools can be documented, verified, validated and accredited for their intended purpose in order to provide timely, credible results.

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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>
Previous President's Budget	2.798	2.527	2.574	-	2.574
Current President's Budget	2.708	2.527	2.572	-	2.572
Total Adjustments	-0.090	0.000	-0.002	-	-0.002
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.090	-			
• Adjustments to Budget Years	-	-	-0.002	-	-0.002

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<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021 Base</b>	<b>FY 2021 OCO</b>	<b>FY 2021 Total</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
S03: Analysis M&S Tools and Services	-	2.708	2.527	2.572	-	2.572	2.665	2.718	2.772	2.800	0.000	18.762
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**A. Mission Description and Budget Item Justification**

This Project has two functions:

Function 1 (Priority 3 of the "Army Modeling and Simulation (M&S) Strategy") -- Develop M&S standards, architectures, networks and environments that promote sharing, interoperability, access, and reliable application of tools, formats, data and information among/for users.

Function 2 (priority 4 of the "Army M&S Strategy") -- Develop and improve tools and technology in the form of models, simulations and data that support the full range of Army interests and deliver timely information to enhance effective decision making. These tools can be documented, verified, validated and accredited for their intended purpose.

Resources under Project S03 support the M&S communities (Acquisition, Analysis, Experimentation, Test & Evaluation, Training, Intelligence) at the enterprise level through enabling efforts. These efforts include the following: (a) design models, simulations, data and tools that are resident within one organization but reusable and trusted by M&S users and specialists across the Army M&S enterprise; (b) leverage industry and academia; (c) promote interoperability within M&S and between M&S and operational capabilities.

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

	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b>Title:</b> Develop M&S standards, architectures, networks and environments	0.840	0.784	0.850
<b>Description:</b> Develop M&S standards, architectures, networks and environments that promote sharing, interoperability, access, and reliable application of tools, formats, data and information among/for users.			
<b>FY 2020 Plans:</b> Fiscal Year (FY) 2020 funds will be distributed among activities that promote the third priority of the Army M&S Strategy: develop M&S standards, architectures, networks and environments. Specific FY 2020 plans include: a.) development and access to cyber/electronic warfare simulated environments, b.) development of an enhanced fires training and testing environment, c.) development of an Operational Environment (OE) signal architecture, d.) enhancement and access to a network modeling architecture that bridges multiple modeling and simulation environments. FY2020 M&S standards, architectures, networks and environment plans will be developed to maximize reuse across the five Army M&S-enabled communities.			
<b>FY 2021 Plans:</b>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<p>Fiscal Year (FY) 2021 funds will be distributed among activities that promote the Army M&amp;S Strategy: develop M&amp;S standards, architectures, networks and environments. Specific FY 2021 plans include: a.) development and access to cyber/electronic warfare simulated environments, b.) development of an enhanced fires training and testing environment, c.) development of an Operational Environment (OE) signal architecture, d.) enhancement and access to a network modeling architecture that bridges multiple modeling and simulation environments. FY 2021 M&amp;S standards, architectures, networks and environment plans will be developed to maximize reuse across the Army M&amp;S-enabled communities.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Slight increase in requirements</p>				
<p><b>Title:</b> Develop M&amp;S tools and technology</p> <p><b>Description:</b> Develop and improve tools and technology in the form of models, simulations and data that support the full range of Army interests and deliver timely information to enhance effective decision making. These tools can be documented, verified and validated for their intended purpose.</p> <p><b>FY 2020 Plans:</b> Fiscal Year (FY) 2020 funds will be distributed among activities that promote the fourth priority of the Army M&amp;S Strategy: develop M&amp;S tools and technology. Specific FY 2019 plans include: a.) development of an Army Fires Community Army Effectiveness Model (AEM); b.) development of network modeling scenarios and models for the test/evaluation and analysis network communities; c.) update and enhance intelligence models for existing simulations and Mission Command Information Systems (MCIS). FY 2019 M&amp;S tools and technology plans will be developed to maximize reuse across the five Army M&amp;S-enabled communities.</p> <p><b>FY 2021 Plans:</b> Fiscal Year (FY) 2021 funds will be distributed among activities that promote the priorities of the Army M&amp;S Strategy: develop M&amp;S tools and technology. Specific FY 2021 plans include: a.) development of an Army Fires Community Army Effectiveness Model (AEM); b.) development of network modeling scenarios and models for the test/evaluation and analysis network communities; c.) update and enhance intelligence models for existing simulations and Mission Command Information Systems (MCIS). FY 2021 M&amp;S tools and technology plans will be developed to maximize reuse across the five Army M&amp;S-enabled communities.</p> <p><b>FY 2020 to FY 2021 Increase/Decrease Statement:</b> Slight increase in requirements.</p>		1.868	1.628	1.722
<p><b>Title:</b> FY 2020 SBIR/STTR Transfer</p> <p><b>Description:</b> Funding transferred in accordance with Title 15 USC ?638</p>		-	0.115	-

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2019</b>	<b>FY 2020</b>	<b>FY 2021</b>
<b><i>FY 2020 Plans:</i></b> Funding transferred in accordance with Title 15 USC ?638			
<b><i>FY 2020 to FY 2021 Increase/Decrease Statement:</i></b> Funding transferred in accordance with Title 15 USC ?638			
<b>Accomplishments/Planned Programs Subtotals</b>	2.708	2.527	2.572

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

**Remarks**

**D. Acquisition Strategy**  
N/A