| Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Office of the Secretary Of Defense | Date: April 2022 |
|---|---|
| **Appropriation/Budget Activity**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 8: *Software and Digital Technology Pilot Programs* | **R-1 Program Element (Number/Name)**<br>PE 0308588D8Z *I Algorithmic Warfare Cross Functional Teams - Software Pilot Program* |

| COST ($ in Millions) | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element | 0.000 | 229.943 | 275.352 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 505.295 |
| 925: *Algorithmic Warfare Cross Functional Teams - Software Pilot Program* | 0.000 | 229.943 | 275.352 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 505.295 |

**Note**

New Start (Y/N): No

The Algorithmic Warfare Cross Functional Team (AWCFT) program decrease reflects the AWCFT transfer to various classified mission partners.

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

The AWCFT (Project Maven) is the pathfinder artificial intelligence (AI) initiative for the DoD that accelerates the integration of AI into DoD systems to improve warfighting speed and lethality for the Joint Force. Maven deploys capabilities that complement human cognition by automating key tasks of object identification, characterization and tracking, and by deriving insights from large-scale data sets to create immediately actionable intelligence. Maven's AI architecture initially automated and augmented Processing, Exploitation and Dissemination (PED) of Full Motion Video (FMV) from Tactical Unmanned Aerial Vehicles (TUAVs). Maven additionally developed algorithms to Medium Altitude, High Altitude, and Wide Area Motion Imagery (WAMI) Intelligence and multiple other Surveillance, and Reconnaissance (ISR) platforms to support the National Defense Strategy (NDS). Maven includes AI tools used on Captured Enemy Material (CEM), Maritime, and Public Available Information (PAI) exploitation. Most military intelligence exploitation systems were designed pre-AI and require specialized integration and multiple individuals to control and then enable the insertion of algorithms into their software baseline. Maven developed a path forward to eliminate substantial costs and coordination among myriad legacy projects to instead use a single screen with multiple AI-enabled layers and tools. Maven increases the value of ISR, reduces human processing so analysts can multi-task and produce more intel, and it now detects, classifies, and tracks objects exponentially faster than a human. With FMV intel, for example, Maven detects/tracks persons, vehicles, and weapon systems. By combining AI detections, tracks, and insights onto a single screen, Maven created tools for deployment to help mission commanders, operations personnel, and intel analysts to unite their increased productivity in conducting military operations in every domain of warfare – air, land, sea, space, and cyberspace.

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| B. Program Change Summary ($ in Millions) | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 229.943 | 247.452 | 0.000 | - | 0.000 |
| Current President's Budget | 229.943 | 275.352 | 0.000 | - | 0.000 |
| Total Adjustments | 0.000 | 27.900 | 0.000 | - | 0.000 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | 27.900 | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2021 | FY 2022 |
|---|---|---|
| **Project:** 925: *Algorithmic Warfare Cross Functional Teams - Software Pilot Program* | | |
| Congressional Add: *Ukraine Supplemental* | 0.000 | 27.900 |
| Congressional Add Subtotals for Project: 925 | 0.000 | 27.900 |
| Congressional Add Totals for all Projects | 0.000 | 27.900 |

**Change Summary Explanation**

The Algorithmic Warfare Cross Functional Team (AWCFT) FY 2022 program increase reflects Ukraine Supplemental.

The Algorithmic Warfare Cross Functional Team (AWCFT) FY 2023 program decrease reflects the AWCFT transfer to various classified mission partners.

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense | | | Date: April 2022 |
|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 8 | R-1 Program Element (Number/Name)<br>PE 0308588D8Z / *Algorithmic Warfare Cross Functional Teams - Software Pilot Program* | Project (Number/Name)<br>925 / *Algorithmic Warfare Cross Functional Teams - Software Pilot Program* | |

| COST ($ in Millions) | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 925: *Algorithmic Warfare Cross Functional Teams - Software Pilot Program* | 0.000 | 229.943 | 275.352 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 505.295 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

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

Project Maven rapidly fields AI to programs and systems that augment and automate PED for FMV of TUAVs, Medium Altitude, High Altitude, WAMI ISR, commercial and military satellite imagery in support of the NDS peer/near peer competitor strategy. Aside from imagery, Maven also uses AI to exploit CEM, Maritime, and PAI. Maven's AI, deep learning, and computer vision algorithms and insights are developed for use in theater to detect, classify, and track objects within images (e.g., persons, vehicles, and weapons) as well as provide other insights, such as with CEM, text-based, and other projects. Maven algorithms are still in development in all its lines of effort. While Maven's algorithms advance to increase the intelligence value of ISR and reduce the human burden on analysts, Maven develops complementary software that both analysts and operations personnel use to rapidly react, effectively plan, and clearly communicate. Project Maven's development process requires continuous feedback and substantial changes to mature user interfaces, build AI harnesses to run algorithms, and build labeled data sets. As the underlying Maven systems continue to develop new tools for mission operations, Project Maven must constantly manage a shifting R&D budget in critical AI architecture that supports the rapid expansion of AI. These developments are expected to resolve into licensing or other COTS-based solutions. Currently agility is required to turn R&D mission successes into production for procurement and sustainment by Services, SOCOM and CCMDs. While Maven's applications are developing, near-term and future requirements become more identifiable. However, certain nascent lines of effort will continue to require modification and advancement. Maven plans for the process to create a more robust and refined set of requirements, albeit with substantial room to continue to invest in better AI training data and better algorithms for years to come. Budgeting flexibility is important to Maven because Maven applies R&D to integrate news tools with legacy systems. Most military intelligence exploitation systems were designed pre-AI and therefore require specialized integration to enable the insertion of algorithms into the software baseline. Maven funds multiple approaches for bridging these technology hurdles which provides for multiple pathways. Critical is testing and evaluation and user feedback. Maven's successes, however, have already been deemed mission critical and have transitioned to procurement efforts. Maven will transition the Project Maven AI Training Foundry (AITF) to a mission owner, and to transition Project Maven's AI-enabled mission command investments to Title 10 MIP Procurement paths in FY 2023.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2021 | FY 2022 | FY 2023 |
|---|---|---|---|
| ***Title:*** Algorithmic Warfare Cross Functional Teams - Software Pilot Program | 229.943 | 247.452 | 0.000 |
| ***Description:*** Project Maven rapidly fields AI to programs and systems that augment and automate PED for FMV of TUAVs, Medium Altitude, High Altitude, WAMI ISR, commercial and military satellite imagery in support of the NDS peer/near peer competitor strategy. Aside from imagery, Maven also uses AI to exploit CEM, Maritime, and PAI. Maven's AI, deep learning, and computer vision algorithms and insights are developed for use in theater to detect, classify, and track objects within images (e.g., persons, vehicles, and weapons) as well as provide other insights, such as with CEM, text-based, and other projects. | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 8 | **R-1 Program Element (Number/Name)**<br>PE 0308588D8Z / *Algorithmic Warfare Cross Functional Teams - Software Pilot Program* | **Project (Number/Name)**<br>925 / *Algorithmic Warfare Cross Functional Teams - Software Pilot Program* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2021 | FY 2022 | FY 2023 |
|---|---|---|---|
| Maven algorithms are still in development in all its lines of effort. While Maven's algorithms advance to increase the intelligence value of ISR and reduce the human burden on analysts, Maven develops complementary software that both analysts and operations personnel use to rapidly react, effectively plan, and clearly communicate. Project Maven's development process requires continuous feedback and substantial changes to mature user interfaces, build AI harnesses to run algorithms, and build labeled data sets. As the underlying Maven systems continue to develop new tools for mission operations, Project Maven must constantly manage a shifting R&D budget in critical AI architecture that supports the rapid expansion of AI. In the future, these developments are expected to resolve into licensing or other COTS-based solutions. For now, agility is required to turn R&D mission successes into production for procurement and sustainment by Services, SOCOM and CCMDs. While Maven's applications are developing, near-term and future requirements become more identifiable. However, certain nascent lines of effort will continue to require modification and advancement. Maven plans for the process to create a more robust and refined set of requirements, albeit with substantial room to continue to invest in better AI training data and better algorithms for years to come. Separately, budgeting flexibility is important to Maven because Maven applies R&D to integrate news tools with legacy systems. Most military intelligence exploitation systems were designed pre-AI and therefore require specialized integration to enable the insertion of algorithms into the software baseline. Maven funds multiple approaches for bridging these technology hurdles which provides for multiple pathways. Critical is testing and evaluation and user feedback. Maven's successes, however, have already been deemed mission critical and have transitioned to procurement efforts. At this time, lines of effort continue to mature. Appropriation flexibility is critical to transitioning the current RDT&E funding of complex systems into licenses and requirements, purchasable by Services and COCOMs. To continue to deliver outstanding capability,<br><br>***FY 2022 Plans:***<br>Project Maven will begin the pre-transfer of activities supporting the transition of GEOINT and Non-GEOINT functions associated with Maven's AI Training Foundry (AITF) to mission owners. After a transition, Mission owners shall be required to provide the AITF core AI Enterprise Responsibilities to the Services and SOCOM for GEOINT and Non-Geoint functions. Project Maven will continue to prepare for direction to transition lines of effort to a program of record, Service, or Agency. Project Maven will transfer funding authorities to the transition partner and will concomitantly transfer production procurement obligations to the services and combatant commands. Project Maven will continue to rapidly conduct prototype sprints that field augmentation tools for GEOINT, such as for Medium Altitude, High Altitude, WAMI ISR and commercial and military satellite SAR and EO, and for Non-GEOINT lines of effort, namely CEM, Maritime, radar, and PAI. While these sprints incentivize competition among vendors, Maven also requires collaboration among vendors between separate sprints to accelerate successful vendors' development and deployment of AI capabilities across the Defense Intelligence Enterprise for the Joint Force. Project Maven will continue to use artificial intelligence, deep learning, and computer vision algorithms to detect, classify, and track objects, and will use other AI algorithms to bring AI deeper into the process of object detection, identification, and tracking at computer processing speeds versus human speeds. Incorporating these and other tools will reduce the human burden and provide efficient and effective exploration of data | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense | | Date: April 2022 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 8 | **R-1 Program Element (Number/Name)**<br>PE 0308588D8Z / *Algorithmic Warfare Cross Functional Teams - Software Pilot Program* | **Project (Number/Name)**<br>925 / *Algorithmic Warfare Cross Functional Teams - Software Pilot Program* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2021 | FY 2022 | FY 2023 |
|---|---|---|---|
| to create multi-modal and correlated insights. Among other plans, Project Maven will continue to develop algorithms focused on combining tactical UAV Automatic Target Recognition and an operational PED environment for platforms and ground stations. Project Maven will continue to build capabilities that integrate AI and ML to create actionable intelligence, advanced decision-making, and user alerts. Additional details on lines of effort are available at a higher classification level.<br>***FY 2023 Plans:***<br>N/A<br>***FY 2022 to FY 2023 Increase/Decrease Statement:***<br>FY 2023 funding decrease reflects Departmental Decision to transfer AWCFT funds to mission partners. | | | |
| **Accomplishments/Planned Programs Subtotals** | 229.943 | 247.452 | 0.000 |

| | FY 2021 | FY 2022 |
|---|---|---|
| ***Congressional Add:*** Ukraine Supplemental | 0.000 | 27.900 |
| ***FY 2021 Accomplishments:*** N/A | | |
| ***FY 2022 Plans:*** Increase of funds to support Ukraine crises. | | |
| **Congressional Adds Subtotals** | 0.000 | 27.900 |

**C. Other Program Funding Summary ($ in Millions)**

N/A

**Remarks**

**D. Acquisition Strategy**

AWCFT's contracting strategy follows guidance outlined in the DoD 5000 series directives, Federal Acquisition Regulation (FAR), Defense Federal Acquisition Regulation (DFAR), and rapid prototyping policies and procedures available to cross-functional teams. Management uses project management tools, executive steering group and working group meetings to ensure that stated capabilities and performance criteria are delivered.