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# INSPECTOR GENERAL

*U.S. Department of Defense*

# (U) Evaluation of Contract Monitoring and Management for Project Maven

**Controlled by: DoD OIG**
**Controlled by: Evaluations**
**CUI Category: PRIVILEGE; CTI, INTEL, OPSEC, CONTRACT, PROCURE**
**Distribution/Dissemination Control: FEDCON**
**POC: DIG Evaluations,** ▮▮▮▮▮▮▮▮▮

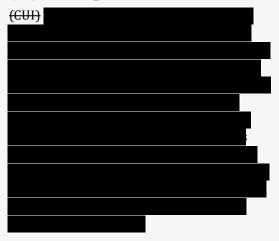INTEGRITY ★ INDEPENDENCE ★ EXCELLENCE

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# (U) Results in Brief

*(U) Evaluation of Contract Monitoring and Management for Project Maven*

January 6, 2022

## (U) Objective

(U) The objective of this evaluation was to determine whether the Army Contracting Command (ACC), the Army Research Laboratory (ARL), and the Algorithmic Warfare Cross-Functional Team (AWCFT, also known as Project Maven) monitored Project Maven contracts in accordance with the Federal Acquisition Regulation (FAR), Defense Federal Acquisition Regulation Supplement (DFARS), and DoD policy.

## (U) Background

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(CUI) To support AI development, the AWCFT partnered with the ACC to award four contracts and one cooperative agreement. Federal procurement guidelines define the structures, mechanisms, and

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### (U) Background (cont'd)

(CUI) roles for conducting contract administration, surveillance, and monitoring to track contract performance and contract deliverables and to mitigate risks. The primary roles that support contract monitoring and management include the Contracting Officer (KO), the Contracting Officer Representative (COR), and the Technical Monitor (TM). ████████████████████████████████
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## (U) Findings

(U) The ACC-Aberdeen Proving Ground Contracting Center KO appointed a Contracting Officer Representative (COR) for Project Maven's four contracts and one cooperative agreement in accordance with the FAR, and the Army Research Laboratory COR and the AWCFT TM successfully monitored and managed Project Maven's four contracts and one cooperative agreement in accordance with the FAR, DFARS, Defense Grant and Agreement Regulatory System, and contract requirements. Specifically, the TM, with the support of the AWCFT, actively monitored contract deliverables using AWCFT-developed reporting, metrics, processes, and procedures to monitor and manage the Project Maven contracts and meet Project Maven objectives.

(U) However, the AWCFT did not document its approach to monitoring by formalizing the reporting metrics, processes, and procedures for monitoring and managing Project Maven contracts.

(U) Without formalized and documented processes, there is an increased risk of lapses occurring in the monitoring and management of the Project Maven contracts as the program grows and as project personnel change. This could negatively affect the long-term success and growth of the project.

(U) In addition, as AI and machine learning programs expand within the DoD, future DoD acquisitions related to this complex, rapidly moving technology may not benefit from the monitoring and management lessons learned.

# (U) Results in Brief

## (U) Evaluation of Contract Monitoring and Management for Project Maven

### (U) Findings (cont'd)

(U) Best practices that can further refine and develop these types of acquisitions, as well as help provide continuity for management and monitoring of emergent technology, could be lost if these processes are not documented.

## (U) Recommendations

(U) We recommend that the Chief of the AWCFT formalize Project Maven's processes and procedures for monitoring and managing AI development contracts to ensure knowledge management, continuity, and efficiency when the project is transferred to a mission owner and for reference by subsequent novel technology projects and cross-functional teams.

(U) We recommend that the Assistant Secretary of Defense for Acquisition conduct a review of the AWFCT's emerging technology acquisition processes and procedures to evaluate whether any of the processes and procedures used by the AWCFT should be further formalized in acquisition policies, implemented by other programs and cross-functional teams, or incorporated into relevant curriculum and training.

## (U) Management Comments and Our Response

(CUI) Throughout the evaluation, we discussed the need to formalize Project Maven's processes and procedures with AWCFT personnel and AWCFT regularly shared draft documentation in support of that need. On October 14, 2021, we discussed the specific recommendations of this report with the AWCFT. During the discussion, the AWCFT Chief stated that the Joint Requirements Oversight Council Memorandum supporting the transition of Maven's ██

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(U) Additionally, following the October 14, 2021, discussion, the AWCFT provided evidence of actions taken to address the recommendation in this report, including a description of roles and responsibilities, standard operating procedure, and a Maven acquisition guide. The AWCFT also provided us the Joint Requirements Oversight Council Memorandum supporting the transition of Maven to a mission owner, which also outlined several requirements to ensure continuity and a seamless transition. These actions meet the intent of the recommendation; therefore, the recommendation is closed.

(U) The Assistant Secretary of Defense for Acquisition concurred with the recommendation to review the AWFCT's emerging technology acquisition process for possible inclusion in DoD acquisition guidance. To support this effort, the Office of the Assistant Secretary of Defense for Acquisition will interact with the Project Maven team to gather additional details, such as approaches that dynamically handle changing performance metrics and needs, and determine if and how those approaches can be elaborated upon in DoD acquisition guidance. The comments meet the intent of the recommendation; therefore, the recommendation is resolved, but will remain open. We will close the recommendation when the Assistant Secretary of Defense for Acquisition provides us the results of the review of Project Maven's practices and resulting determination of whether those practices were incorporated into DoD acquisition guidance.

(U) Please see the Recommendations Table on the next page for the status of the recommendations.

## (U) Recommendations Table

| (U) Management | (U) Recommendations Unresolved | (U) Recommendations Resolved | (U) Recommendations Closed |
|---|---|---|---|
| (U) Assistant Secretary of Defense for Acquisition | None | 2 | None |
| (U) Chief, Algorithmic Warfare Cross-Functional Team | None | None | 1 |

(U) Please provide Management Comments by February 7, 2022.

**(U) Note:** The following categories are used to describe agency management's comments to individual recommendations.

- **(U) Unresolved** – Management has not agreed to implement the recommendation or has not proposed actions that will address the recommendation.

- **(U) Resolved** – Management agreed to implement the recommendation or has proposed actions that will address the underlying finding that generated the recommendation.

- **(U) Closed** – DoD OIG verified that the agreed upon corrective actions were implemented.

**INSPECTOR GENERAL**
**DEPARTMENT OF DEFENSE**
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500

January 6, 2022

(U) MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE FOR ACQUISITION
CHIEF, ALGORITHMIC WARFARE CROSS-FUNCTIONAL TEAM

(U) SUBJECT: Evaluation of Contract Monitoring and Management for Project Maven
(Report No. DODIG-2022-049)

(U) This final report provides the results of the DoD Office of Inspector General's evaluation. We previously provided copies of the draft report and requested written comments on the recommendations. We considered management's comments on the draft report when preparing the final report. These comments are included in the report.

(U) This report contains one recommendation that is considered resolved, but remains open. As described in the Recommendations, Management Comments, and Our Response section of this report, we will consider the recommendation closed when the Assistant Secretary of Defense for Acquisition provides us the results of the review of Project Maven's practices and resulting determination of whether those practices should be incorporated into DoD acquisition guidance. We will track this recommendation until an agreement is reached on the actions that you will take to address the recommendation and you have submitted adequate documentation showing that all agreed-upon actions are completed.

(U) DoD Instruction 7650.03 requires that recommendations be resolved promptly. Therefore, please provide us within 30 days your response concerning specific actions in process or alternative corrective actions proposed on the recommendations. Send your response to ████████████████

(U) If you have any questions or would like to meet to discuss the evaluation, please contact ███████████████████████████ We appreciate the cooperation and assistance received during the evaluation.

*Dana K Johnson*
Dana Johnson
Acting Assistant Inspector General for
Programs, Combatant Commands, and
Contingency Operations

# (U) Contents

## (U) Introduction

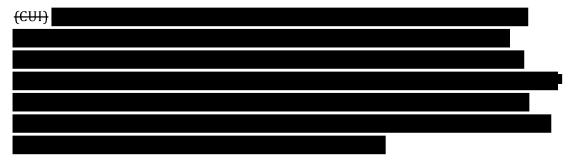## (U) Finding.  The Algorithmic Warfare Cross-Functional Team Successfully Monitored and Managed Project Maven Contracts, but Lacked Documented, Formalized Processes

## (U) Appendix

## (U) Management Comments

## (U) Acronyms and Abbreviations

# (U) Introduction

## (U) Objective

(U) The objective of this evaluation was to determine whether the Army Contracting Command (ACC), the Army Research Laboratory (ARL), and the Algorithmic Warfare Cross-Functional Team (AWCFT), also known as Project Maven) monitored Project Maven contracts in accordance with the Federal Acquisition Regulation (FAR), Defense Federal Acquisition Regulation Supplement (DFARS), and DoD policy.

## (U) Background

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(U) According to the Brookings Institute, AI and machine learning are emerging, fast-moving technologies.[3]  AI refers to software that performs a task or series of tasks that normally require human intelligence to perform.  Machine learning is a subcategory of AI in which the system uses algorithm-based learning to process data, improving its functioning as it receives more data.  In AI and machine learning, data sets are used to train algorithms for rapid development, fielding, research, testing, and evaluation.

(CUI) When the AWCFT was established in 2017, its mission was to field technology to augment or automate processing, exploitation, and dissemination of full-motion video for intelligence support.  ███████████████████████████
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[3] (U) The Brookings Institution, "How Artificial Intelligence is Transforming the World," April 24, 2018.

[4] (U) Deputy Secretary of Defense Memorandum, "Establishment of Algorithmic Warfare Cross-Functional Team (Project Maven)," April 26, 2017.

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## (U) The AWCFT Is a Secretary of Defense-Empowered Cross-Functional Team

(U) According to a January 2020 Government Accountability Office report, cross-functional teams rely on individuals with different types of expertise to work toward a common, well-defined goal and are thought to deliver better and faster solutions to complex and fast-moving problems.[5]

### (U) Congress Directed the DoD to Use Cross-Functional Teams

(U) To address organizational challenges within the DoD, Congress directed the Secretary of Defense to issue an organizational strategy that identified critical objectives that would benefit from the use of cross-functional teams.  In the National Defense Authorization Act of 2017, section 911, Congress stated that one purpose of cross-functional teams is to "provide for effective collaboration and integration across organizational and functional boundaries in the Department of Defense."[6]  Additionally, section 911 directed the DoD to issue guidance on how to set up and operate cross-functional teams and provide team members and civilian leaders in the Office of the Secretary of Defense with training in elements of successful cross-functional teams.

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[5]   (U) Government Accountability Office, GAO-20-312, "Defense Management More Progress Needed for DoD to Meet Outstanding Statutory Requirements to Improve Collaboration," January 2020.

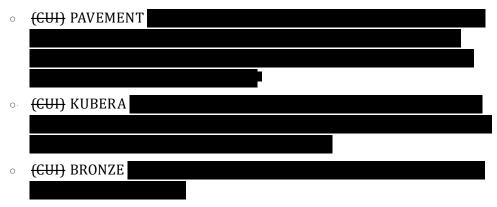[6]   (U) Public Law 114–328, "National Defense Authorization Act of 2017," section 911, December 23, 2016.

## *(U) Cross-Functional Teams Emphasize Speed*

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## *(U) Project Maven Contracts*

(U) To support the objectives and mission of Project Maven, the Deputy Secretary of Defense, in DTM 18-002, directed the AWCFT to contract with commercial industry.  The AWCFT partnered with the Army Research Laboratory (ARL) to solicit proposals to address Project Maven objectives.  Between September 2018 and February 2020, the AWCFT and ACC awarded four contracts and one cooperative agreement to support Project Maven.[8]  Each of these awards addressed a problem set related to Project Maven's objectives.

- (U) Three contracts were awarded to ECS Federal, LLC:
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    - (CUI) KUBERA █████████████████████████
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    - (CUI) BRONZE ██████████████████████████
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- (U) One contract was awarded to MORSE Corporation:
  - (CUI) MORSE ████████████████████████████
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- (U) One cooperative agreement was awarded to Carnegie Mellon University (CMU) and its team of academic institutions:
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## (U) Monitoring Contract Performance

(U) Federal acquisition regulations provide the standard processes and guidelines for the procurement of goods and services by the Executive branch of the Government, including the DoD.  The FAR is the primary regulation used by executive agencies in their acquisition activities.  To provide uniform acquisition policies and procedures for the DoD, the Office of the Assistant Secretary of Defense for Acquisition issues the DFARS and the DFARS Procedures, Guidance, and Information regulations, which are the primary regulations that govern DoD procurement activities.  In addition to the FAR and DFARS, the Defense Grant and Agreement Regulatory System (DGARS) is the collection of policies and procedures that establish rules specifically for DoD grants and cooperative agreements.

(U) The FAR, DFARS, and DGARS also define the structures, mechanisms, and roles for conducting contract administration, surveilling and monitoring to track contract performance, accepting contract deliverables, and mitigating risks.  In addition to the terms and conditions outlined in contracts, the performance work statement (PWS) and the quality assurance surveillance plan (QASP) provide a framework for monitoring contractor performance and surveillance of contract deliverables.

### (U) CONTRACT ADMINISTRATION

(U) The FAR outlines the contract administration activities related to the monitoring of suppliers, contractors, and service providers' performance to fulfill the contract obligations.[10]  Contract administration also ensures appropriate actions are taken to remedy any deficiencies observed in contract implementation, scope, or terms and conditions.  The contract administration ends with the final inspection and acceptance of the goods.

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[10]  (U) FAR Part 42, "Contract Administration and Audit Services," Subpart 42.3, "Contract Administration Office Functions."

*(U) PERFORMANCE WORK STATEMENTS*

(U) The FAR outlines the elements of a PWS, which describes the required results of the contract, establishes measureable performance standards, and relies on those standards and financial incentives in a competitive environment to encourage competitors to develop and institute innovative and cost-effective methods of performing the work.[11]  The PWS is incorporated into the final contract award and is adopted at the start of a contract.

*(U) QUALITY ASSURANCE SURVEILLANCE PLANS*

(U) According to the ACC QASP template, the purpose of the QASP is to provide the Government and contractor with evaluation criteria that determines whether the performance standards for a specific contract have been met.[12]  The QASP outlines all work that requires surveillance and the method of surveillance and includes the performance standards and acceptable quality level for acceptance of contract deliverables.  The Contracting Officer (KO) receives the results of quality assurance inspections and may use them to document contractor performance.  QASPs are prepared in conjunction with the preparation of the PWS and are tailored to the work effort addressed by the contract.

## (U) Roles and Responsibilities for Project Maven Contract Management

(U) The primary roles that support contract administration and monitoring include the KO; the Contracting Officer Representative (COR) or, in the case of the cooperative agreement, a Cooperative Agreement Manager; and the Technical Monitor (TM).  For the four Project Maven contracts and one cooperative agreement, personnel from several DoD entities fulfilled these roles.

### (U) Army Contracting Command: Contracting Officer

(U) The Army Contracting Command (ACC) is a subordinate command of U.S. Army Material Command.  The Army Contracting Command–Aberdeen Proving Ground Contracting Center is responsible for acquiring quality, technologically superior, next-generation equipment and services in the shortest time while obtaining best value.  The Army Contracting Command–Aberdeen Proving Ground Contracting Center is a full service, life-cycle acquisition organization.

(U) Army Contracting Command–Aberdeen Proving Ground Contracting Center personnel serve as KOs for the four Project Maven contracts and one cooperative agreement.  The KO is primarily responsible for managing the high-level

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[11]  (U) FAR Part 37, "Service Contracting," Subpart 37.602, "Performance Work Statement."

[12]  (U) The QASP template can be found on the Defense Pricing and Contracting, Contingency Contracting, Defense Contingency COR Handbook website, https://www.acq.osd.mil/dpap/ccap/cc/corhb/HTML/documents.html.

(U) administration of the contract.  The duties of a KO include reviewing post-award contract information to validate the specified terms and conditions in the contract; appointing a COR; appointing a TM, if required; reviewing and approving the QASP to ensure it supports quality assurance, acceptance, and delivery of contract items; and reporting and documenting any defects or performance issues with contract technical and quality requirements.

## (U) Army Research Laboratory: Contracting Officer Representative and Cooperative Agreement Manager

(U) The U.S. Army Combat Capabilities Development Command Army Research Laboratory (ARL) is the Army's national research laboratory and is part of the Army Futures Command.  The ARL focuses on cutting-edge scientific discovery, technological innovation, and transition of knowledge from commercial partners to DoD personnel.

(U) The Associate Branch Chief of the ARL Technology Integration Branch was appointed by the KO and serves as both the COR and the Cooperative Agreement Manager for the four Project Maven contracts and cooperative agreement. The COR's primary responsibility is managing the day-to-day operations and monitoring progress of the contract by directly engaging with the contractor. The COR is appointed by the KO and his or her specific duties, usually relating to contract administration and technical monitoring, are outlined in the contract. The COR must be a Federal employee, be appointed in writing, complete required training, and, in some cases, meet specific experience requirements, if the contract requires specialized knowledge.  The CMU award is a cooperative agreement, rather than a contract, and the COR-equivalent role is the Cooperative Agreement Manager.  The day-to-day responsibilities of the Cooperative Agreement Manager are similar to those of a COR.

## (U) Algorithmic Warfare Cross-Functional Team: Technical Monitor

(U) The KO may appoint a TM to assist in monitoring contractor performance if the COR requires additional support.  The TM, similar to a COR, is appointed in writing and is required to complete training requirements.  For all of the Project Maven contracts, the KO appointed the AWCFT Chief to serve as the TM.  The TM works closely with the COR and oversees the day-to-day execution of the contracts and regularly communicates and coordinates with the COR for all of the contracts.

# (U) Finding

## (U) The Algorithmic Warfare Cross-Functional Team Successfully Monitored and Managed Project Maven Contracts, but Lacked Documented, Formalized Processes

(U) The ACC-Aberdeen Proving Ground Contracting Center KO appointed a COR for Project Maven's four contracts and one cooperative agreement in accordance with the FAR, and the ARL COR and the AWCFT TM successfully monitored and managed Project Maven's four contracts and one cooperative agreement in accordance with the FAR, DFARS, DGARs, and contract requirements.  In addition, the COR and TM successfully monitored and managed the contracts and agreement to ensure compliance with the PWS and QASP and safeguarded the interest of the Government's contractual relationship by monitoring contract deliverables.

(U) In addition, the TM, with the support of the AWCFT, actively monitored contract deliverables using AWCFT-developed reporting, metrics, processes, and procedures to meet Project Maven objectives in a fast-moving AI development, testing, and implementation environment.  For example, the AWCFT engaged in regular project performance reviews and conducted frequent and transparent programmatic reviews to highlight performance and status, including financial and budgetary elements, with the ESG and DoD stakeholders.  Furthermore, the AWCFT continuously engaged with contractors and regularly inspected the algorithms' performance for each iteration of fielding and testing.  Additionally, the TM and AWCFT financial manager conducted a detailed review of all contract financial reporting on a weekly basis.

(U) However, the AWCFT did not document its approach to contract oversight by formalizing, in writing, the reporting metrics and procedures for monitoring and managing Project Maven contracts.  The AWCFT used provisional reporting metrics, processes, and procedures because AI and machine learning is an emerging, complex, and rapidly moving technology that requires close monitoring and management techniques that are not captured in current procedures and best practices that are used by the DoD acquisitions community.

(U) Without formalized and documented processes, there is an increased risk of lapses occurring in the monitoring and management of the Project Maven contracts as the program grows and as personnel change.  This could negatively affect the long-term success and growth of the project.  In addition, as AI and machine

(U) learning programs expand within the DoD, future DoD acquisitions related to this complex, rapidly-moving technology may not benefit from the AWCFT's monitoring and management lessons learned.  Best practices that can further refine and develop these types of acquisitions, as well as help provide continuity for management and monitoring of emergent technology, could be lost if these processes are not documented.

## (U) The Algorithmic Warfare Cross-Functional Team Managed Project Maven Contracts in Accordance With the FAR, DFARS, DGARs, and Contract Requirements

(U) The ACC-Aberdeen Proving Ground Contracting Center KO appointed a COR for Project Maven's four contracts and one cooperative agreement in accordance with the FAR, and the ARL COR and the AWCFT TM successfully monitored and managed Project Maven's four contracts and one cooperative agreement in accordance with the FAR, DFARS, DGARs, and contract requirements.  In addition, the COR and TM successfully monitored and managed the contracts and agreement to ensure compliance with the PWS and QASP and safeguarded the interest of the Government's contractual relationship by monitoring contract deliverables.

### (U) The Contracting Officer Incorporated a PWS and a QASP With Reporting Requirements

(U) The contractors provided PWSs for the four contracts, which the KO incorporated into the contracts upon award.  The PWSs incorporated several reporting requirements and checkpoints, and the QASPs reflected the PWSs.

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The developers and the integration team repeated this rapid iteration process every 6 months, which yielded an enhanced algorithm with each iteration.

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█████████████████████████.  The TM and AWCFT conducted the inspections through

(CUI)  the review of testing and integration reports and algorithm modeling results. TM inspection reports were provided to the COR who maintains a quality assurance file as required by the QASP.

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███████████████████████████ The TM and AWCFT personnel conducted inspections through participation in program and technical reviews and the review of algorithm model plans.  TM reporting was accomplished through meeting minutes and model plans that were provided to the COR, who maintained a quality assurance file as required by the QASP.  In addition, the QASP provided details on the required service; performance standards, as stated in the PWS; acceptable quality levels; and method of surveillance for the performance requirements summary.

## (U) The COR Monitored the Contracts With the Support of the Appointed TM

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(CUI) In addition, weekly technical meetings were conducted with the COR, TM, and contractor to review the contractor's technical progress, planned expenditures, and overall contract financial status.  ████████████████████
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██████████████████████████████ The COR and TM stated that they established a weekly meeting with the contractor that thoroughly covered all aspects of the contract.  The COR, TM, and contractor met weekly because of the novel process of AI development, the need to closely monitor the contract as it was progressing, and the QASP requirements for the acceptance and surveillance standards.  During these weekly meetings, the COR, TM, and contractor also

(CUI) discussed and identified contractor progress and performance. ████████
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████████████████████████ The COR coordinated with the TM to review the deliverables to ensure requirements were met in accordance with the QASP and whether the contractor met performance standards.  Additionally, during the weekly meetings with the contractor, both the COR and TM provided detailed customer feedback and discussed any performance issue in which deliverables did not meet contract requirements.

### (U) The Appointed TM Directly Monitored the Maven Contracts

(U) The TM conducted regular, in-depth meetings with the contractor project managers to review projected deliverables, financials, and potential project risks. As outlined in the QASP, the TM is responsible for verifying that the contractor performs the technical requirements of the contract in accordance with the contract terms and conditions and surveilling the contractor's performance. During an interview, the COR stated that the TM spent a considerable amount of time monitoring contractor performance because the research and development required for AI development and machine learning is not widely understood across the DoD and requires a heavy degree of oversight and monitoring.  The COR attributed this level of effort and oversight of the contracts by the TM to the rapid pace and technological novelty of AI development.  For example, in interviews with the COR and the TM, both acknowledged that the technology behind Project Maven's mission objectives is new to the DoD and that the AWCFT was learning how to work at the speed of commercial development within the DoD enterprise.

## (U) The AWCFT Actively Monitored Project Maven Contract Deliverables, but the AWCFT Monitoring Procedures Were Provisional and Not Formally Documented

(CUI) The TM, with the support of the AWCFT, actively monitored contract deliverables, ██████████████████████████████████████████████████
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(U) However, the reporting metrics, process, and procedures for monitoring and managing the development of Project Maven were provisional and not formalized in writing. For example, the COR and the TM developed reporting elements in addition to those required by the PWS and QASP, due to the complex, rapid moving, iterative nature of AI and machine learning.

## (U) AWCFT Developed Provisional Metrics, Processes, and Procedures to Maintain the Pace of AI Development

(CUI) The AWCFT used provisional reporting metrics, processes, and procedures because AI and machine learning is an emerging, complex, rapidly-moving technology that requires close monitoring and management techniques that are not captured in current procedures and best practices that are used by the DoD acquisitions community. ███████████████████████████ ████████████████████████████████

████████████████████████████████. The AWCFT also engaged with the contractor on a daily basis, conducted extensive weekly meetings, and reviewed each research line in detail to monitor progress, discuss and solve project obstacles, and coordinate on how best to deliver research capabilities to the customer.
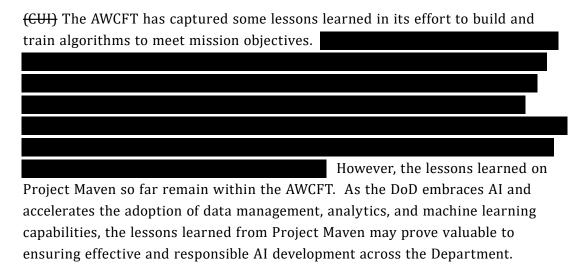
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## *(U) The CFT Structure Required Close Contract Management*

(CUI) AWCFT personnel engaged in regular project performance reviews and conducted frequent and transparent programmatic reviews to highlight performance and status, including financial and budgetary elements, with the Project Maven O-6 Working Group, the ESG, and DoD stakeholders. ██████████ ████████████████████████████████████████████████████████████████████ ████████████████████████████████████████████████████████ ████████████████████████████████████████████████████ ████████████████████████████

(CUI) AWCFT DTM 18-002 ████████████████████████████████████████ ████████████████████████████████████████████████ ████████████████████████████████████████████████ ████████████████████████████████████████████████████ ████████████████████████████████████████████ ████████████████████████████████████████████████ ████████████████████████████████████████████████ ████████████████████████████

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(CUI) ████████████████████████████████████████████ ████████████████████████████████████████████████████ ████████████████████████████████████████████████ ████████████████████████████████████████████████ ████████████████████████████. The close contract management by the AWCFT led to success in the development and implementation of AI and machine learning. The AWCFT contract management and monitoring process, if documented and shared across the DoD, can support future Project Maven mission objectives and other AI projects in the DoD.  During the evaluation, we discussed formalizing the procedures for monitoring and managing AI development with AWCFT personnel.

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13  (U) In software and technology development, a "sprint" refers to a develop iteration of specified duration, wherein a development team works to complete specific tasks, milestones, or deliverables.  For Project Maven each sprint is 90 days.

(CUI) AWCFT personnel agreed with the necessity of formalizing the procedures and shared draft plans to facilitate the transition of Project Maven to a mission owner with the evaluation team.  The AWCFT Chief provided the evaluation team with information on the actions taken based on the discussions with the evaluation team and the finalization of the transition to the mission owner.  See AWCFT Actions Taken for Recommendation 1.

## (U) Without Formalized and Documented Processes, There Is Increased Risk of Lapses Occurring in the Monitoring and Management of Project Maven

(U) Without formalized and documented processes, such as standard operating procedures for monitoring and managing AI and machine learning contracts, there is an increased risk of lapses occurring in the monitoring and management of the Project Maven contracts as the program grows and personnel change.  These lapses could negatively affect the long-term success and growth of the project.  In addition, as AI and machine learning programs expand within the DoD, future DoD acquisitions relating to this complex, rapidly moving technology may not benefit from the monitoring and management lessons learned.  Best practices that can further refine and develop these types of acquisitions, as well as help provide continuity for emergent technology monitoring and management, could be lost if they are not documented.

(CUI) The AWCFT has captured some lessons learned in its effort to build and train algorithms to meet mission objectives.  ██████████████████████ ███████████████████████████████████████████████ ███████████████████████████████████████████ ███████████████████████████████████████ █████████████████████████████████████████████ █████████████████████████████████████████ ████████████████████████████  However, the lessons learned on Project Maven so far remain within the AWCFT.  As the DoD embraces AI and accelerates the adoption of data management, analytics, and machine learning capabilities, the lessons learned from Project Maven may prove valuable to ensuring effective and responsible AI development across the Department.

## (U) Recommendations, Management Comments, and Our Response

### (U) Recommendation 1

**(U) We recommend that the Chief of the Algorithmic Warfare Cross-Functional Team formalize Project Maven's processes and procedures for monitoring and managing artificial intelligence development contracts to ensure knowledge management, continuity, and efficiency when the project transfers to a future mission owner and for reference by subsequent novel technology projects and cross-functional teams.  These formalized processes and procedures should capture:**

     a.    **(U) the strategy and approach for managing, surveilling, and monitoring such projects;**

     b.    **(U) contract monitoring procedures that surpass normal acquisition requirements;**

     c.    **(U) conducting financial reviews;**

     d.    **(U) partnering with and managing contractors;**

     e.    **(U) reporting requirements; and**

     f.    **(U) surveillance needs, including manpower and training requirements, to effectively manage, monitor, and surveil Project Maven.**

### (U) Algorithmic Warfare Cross-Functional Team Actions Taken

~~(CUI)~~ Throughout the evaluation, we discussed the need to formalize Project Maven's processes and procedures with AWCFT personnel and the AWCFT shared draft documentation in support of that need.  On October 14, 2021, we discussed the specific recommendations of this report with the AWCFT.  During the discussion, the AWCFT Chief stated that the Joint Requirements Oversight Council Memorandum supporting the transition of Maven's ████████████████████ ████████████████████████████████████████████████ ████████████████████         Directly following that discussion, the AWCFT provided evidence of actions taken to address the recommendation in this report, including a description of roles and responsibilities, standard operating procedure, and a Maven acquisition guide.  In addition, it provided ████████████████████ ████████████████████████████████████████████████ ████████████████████████████████████         These actions meet the intent of the recommendation; therefore, the recommendation is closed.

## (U) Recommendation 2

**(U) We recommend that the Assistant Secretary of Defense for Acquisition conduct a review of the Algorithmic Warfare Cross-Functional Team's emerging technology acquisition processes and procedures to evaluate whether any of the processes and procedures used by the Algorithmic Warfare Cross-Functional Team should be further formalized in acquisition policies, implemented by other programs and cross-functional teams, or incorporated into relevant curriculum and training.**

### (U) Management Comments

(U) The Assistant Secretary of Defense for Acquisition agreed with the recommendation and outlined several potential best practices for possible inclusion in the Software Acquisition Pathway in DoD Instruction 5000.87.  To support this effort, the Office of the Assistant Secretary of Defense for Acquisition will interact with the Project Maven team to gather additional details, such as approaches that dynamically handle changing performance metrics and needs, and determine if and how those approaches can be elaborated upon in DoD acquisition guidance.

### (U) Our Response

(U) The comments from the Assistant Secretary of Defense for Acquisition addressed the specifics of the recommendation.  Therefore, the recommendation is resolved, but will remain open.  We will close the recommendation when the Assistant Secretary of Defense for Acquisition provides us the results of the review of Project Maven's practices and resulting determination of whether those practices should be incorporated into DoD acquisition guidance.

# (U) Appendix

## (U) Scope and Methodology

(U) We conducted this evaluation from October 2020 through October 2021 in accordance with the "Quality Standards for Inspection and Evaluation," published in January 2012 by the Council of Inspectors General on Integrity and Efficiency. Those standards require that we adequately plan the evaluation to ensure that objectives are met and that we perform the evaluation to obtain sufficient, competent, and relevant evidence to support the findings, conclusions, and recommendations. We believe that the evidence obtained was sufficient, competent, and relevant to lead a reasonable person to sustain the findings, conclusions, and recommendations.

(U) This report was reviewed by the DoD Component associated with this oversight project to identify whether any of their reported information, including legacy FOUO information, should be safeguarded and marked in accordance with the DoD CUI Program. In preparing and marking this report, we considered any comments submitted by the DoD Component about the CUI treatment of their information. If the DoD Component failed to provide any or sufficient comments about the CUI treatment of their information, we marked the report based on our assessment of the available information.

### *(U) Interviews with Officials*

(U) We interviewed individuals from the following organizations to determine:
1) whether the ACC, Aberdeen Proving Ground Contracting Center KO; the ARL COR; and the AWCFT TM successfully monitored and managed the Project Maven four contracts and one cooperative agreement in accordance with the FAR, DFARS, DGARs, and contract requirements; 2) whether the KO, COR, and TM monitored and managed the contracts in compliance with the PWS, QASP; and 3) whether the KO, COR, and TM safeguarded the interest of the Government's contractual relationship by monitoring contract deliverables.

- (U) Army Contracting Command – Aberdeen Proving Ground, Maryland
- (U) Army Research Laboratory – Adelphi, Maryland
- (U) Algorithmic Warfare Cross-Functional Team – Washington, D.C.

(U) Due to COVID-19 travel restrictions, we did not physically visit any of the DoD Components identified in this report. We relied upon teleconferences, interviews, and data calls to collect testimonial and documentary evidence to verify information.

### *(U) Contract Selection and Documentation Review*

(U) We identified the contracts selected for this evaluation through a self-initiated followup on the evaluation Report No. DODIG-2020-025, "Evaluation of the Algorithmic Warfare Cross-Functional Team (Project Maven)," issued November 8, 2019.

(U) To determine whether the KO, COR, and TM successfully monitored and managed the four contracts and one cooperative agreement, we requested and obtained the following documents:

- (U) PWS for the KUBERA, BRONZE, PAVEMENT, and MORSE contracts;
- (U) QASP for the KUBERA, BRONZE, PAVEMENT, and MORSE contracts;
- (U) Research Plan for the CMU cooperative agreement;
- (U) weekly, monthly, and quarterly reports for each contract;
- (U) financial reporting or invoices for each contract;
- (U) COR and TM appointment letters;
- (U) narrative statements provided by the CORs; and
- (U) AWCFT presentations to the O-6 Working group and ESG.

(U) We reviewed the documents in comparison with the requirements outlined in the FAR, DFARS, the DGARS, PWS, and QASP.

## (U) Use of Computer-Processed Data

(U) We did not use computer-processed data to perform this evaluation.

## (U) Prior Coverage

(U) During the last 5 years, the DoD Office of Inspector General (DoD OIG) issued three reports discussing AI, information technology, or Project Maven related topics.  Unrestricted DoD OIG reports can be accessed http://www.dodig.mil/reports.html/.

### *(U) DoD OIG*

(U) Report No. DODIG-2020-098, "Audit of Governance and Protection of Department of Defense Artificial Intelligence Data and Technology" June 29, 2020

> (U) The DoD OIG determined that the Joint Artificial Intelligence Center (JAIC) had taken some steps to develop an AI governance framework and standards and offered six recommendations to ensure that the JAIC could meet the responsibilities outlined in the FY 2019 National Defense Authorization Act. Furthermore, the DoD OIG identified that the four DoD Components and

(U) two contractors did not consistently implement security controls to protect the data used to support AI projects and technologies from internal and external cyber threats.

(U) Report No. DODIG-2020-025, "Evaluation of the Algorithmic Warfare Cross-Functional Team (Project Maven)" November 8, 2019

(U) This report is classified.  To file a Freedom of Information Act request, please submit a request to FOIA Online.  This report is a result of Project No. D2019-DISPAZ-0032.

(U) Report No. DODIG-2018-110, "Defense Contract Management Agency's Information Technology Service Contracts" April 25, 2018

(U) The DoD OIG determined that Defense Contract Management Agency (DCMA) contracting officials did not properly award 11 of 14 Information Technology (IT) service contracts valued at $61 million. Moreover, DCMA officials used flexible ordering agreements to award 5 of the 14 contracts, which violated relevant FAR requirements.  As a result, DCMA contracting officials acquired $56.4 million in IT services on contracts with poorly defined or nonexistent performance work statements.

# (U) Management Comments

## (U) Assistant Secretary of Defense for Acquisition

**OFFICE OF THE UNDER SECRETARY OF DEFENSE**
3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

ACQUISITION
AND SUSTAINMENT

24-Nov-2021

MEMORANDUM FOR DEPARTMENT OF DEFENSE INSPECTOR GENERAL

SUBJECT:   Response to DoDIG Draft Report on Evaluation of Contract Monitoring and
Management for Project Maven (Project No. D2021-DEV0PD-0023.000)

As requested, I am providing responses to the general content and recommendations
contained in the subject report.

**Recommendation 1:**
We recommend that the Chief of the AWCFT formalize Project Maven's processes and
procedures for monitoring and managing AI development contracts to ensure knowledge
management, continuity, and efficiency when the project is transferred to a mission owner and
for reference by subsequent novel technology projects and cross-functional teams.

**Recommendation 2:**
We recommend that the Assistant Secretary of Defense for Acquisition conduct a review of the
Algorithmic Warfare Cross-Functional Team's emerging technology acquisition processes and
procedures. The review should evaluate whether any of the processes and procedures used by the
Algorithmic Warfare Cross-Functional Team should be further formalized in acquisition
policies, implemented by other programs and cross-functional teams, or incorporated into
relevant curriculum and training.

**Response:**   Concur with comment. I do not believe this response is exempt from release.

Our response is based on the information provided in the report. A deeper understanding of the
degree to which the detailed AWCFT processes and metrics should be incorporated into DoD-
wide policy or guidance would require further interaction with the project team.

The report finds that Project Maven successfully monitored and managed its four contracts and
one cooperative agreement in accordance with the applicable FAR, DFARS, DGARS, and
contract requirements. It noted that the team actively monitored contract deliverables using
reporting, metrics, processes, and procedures to meet Project Maven objectives in a fast-moving
AI development, testing, and implementation environment. These approaches could provide
valuable lessons learned and help establish best practices for other DoD Artificial Intelligence
(AI)/Machine Learning (ML) efforts. That said, we also recognize that DoD is not limited to
FAR-based contracting, and that there may be a variety of contracting authorities and associated
monitoring approaches that DoD programs may consider. Our supporting key findings follow.

The draft report discusses aligning reporting artifacts with contracts/Quality Assurance
Surveillance Plans (QASPs). In keeping with Agile software development practices, programs
should be afforded latitude for dynamic changes as a program evolves and learns. The QASP

## (U) Assistant Secretary of Defense for Acquisition (cont'd)

could be leveraged as an umbrella artifact, with specific performance evaluation processes and criteria established as part of planning sessions at the start of each sprint/iteration (much like the agile software development concept of "definition of done" is mutually agreed upon by government/contractor for each development activity).

Additionally, the DoDI 5000.87 Software Acquisition Pathway demonstrates how such issues can be documented in a dynamic way that supports accountability and speed of delivery at the same time. Just as requirements are expected to evolve in an Agile development environment, so should the corresponding assessment criteria, especially in the fast moving AI space. Maven has made great progress in identifying applicable assessment criteria; documenting the evaluation criteria and method of using the QASP as an overarching mechanism as best practices for specific AI development activities will be valuable to future DoD programs.

The Software Acquisition Pathway in DoDI 5000.87 is purpose built for innovation and speed in the digital age, and that policy and its associated guidance already generally aligns with many of the report's best practices (e.g., tight iterations, frequent reviews, empowered cross-functional teams, dynamic requirements and specific valuation criteria). As such, A&S can interact with the Project Maven team to gather further details concerning the report's best practices and then determine if and how they can be elaborated upon in A&S guidance. Such potential best practices for programs that A&S can explore further with Project Maven (and that are generally tenets of the Software Acquisition Pathway) include:

1. Adapt but Update: explore dynamic use of different metrics, processes and procedures for ensuring a quality AI/ ML product is delivered to the Government.
2. Frequent and Open Reviews: conduct frequent and transparent project performance and programmatic reviews to highlight performance and status.
3. Engage and Inspect: engage with contractors and inspect an algorithms' performance for each iteration of fielding/testing.
4. Cross-Functional Teams Emphasize Speed: integrate roles into a small empowered team focused on continuous improvement, to deliver better and faster solutions.
5. Identify Expertise: document desired skills and expertise in selecting a Contracting Officer's Representative (COR) or Technical Monitor (TM). For a TM, the program should specify what areas of AI they should be monitoring based on their expertise.

The Office of the Assistant Secretary of Defense for Acquisition has completed review of the DoD Inspector General's draft report on Evaluation of Contract Monitoring and Management for Project Maven and concurs with the findings and recommendations in the report.

Please contact ████████████████████████████████ if additional information is required.

Sincerely,

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Christopher C. O'Donnell
Performing the Duties of Assistant Secretary
of Defense for Acquisition

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# (U) Acronyms and Abbreviations

|          |                                                  |
|---------:|--------------------------------------------------|
| **ACC**   | Army Contracting Command                         |
| **AI**    | Artificial Intelligence                          |
| **ARL**   | Army Research Laboratory                         |
| **AWCFT** | Algorithmic Warfare Cross-Functional Team        |
| **COR**   | Contracting Officer's Representative             |
| **DFARS** | Defense Federal Acquisition Regulation Supplement|
| **DTM**   | Directive-type Memorandum                        |
| **ESG**   | Executive Steering Group                         |
| **FAR**   | Federal Acquisition Regulation                   |
| **KO**    | Contracting Officer                              |
| **PWS**   | Performance Work Statement                       |
| **QASP**  | Quality Assurance Surveillance Plan              |
| **TM**    | Technical Monitor                                |

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