U.S. DEPARTMENT OF DEFENSE RESPONSIBLE ARTIFICIAL INTELLIGENCE STRATEGY AND IMPLEMENTATION PATHWAY

To ensure that our citizens, warfighters, and leaders can trust the outputs of DoD AJ capabilities, DoD must demonstrate that our military's steadfast commitment to lawful and ethical behavior apply when designing, developing, testing, procuring, deploying, and using Al. The Responsible AI (RAI) Strategy and Implementation (S&I) Pathway illuminates our path forward by defining and communicating our framework for harnessing AI. It helps to eliminate uncertainty and hesitancy - and enables us to move faster. Integrating ethics from the start also empowers the DoD to maintain the trust of our allies and coalition partners as we work alongside them to promote democratic norms and international standards.

Prepared by the DoD Responsible AI Working Council in accordance with the memorandum issued by Deputy Secretary of Defense Kathleen Hicks on May 26, 2021, Implementing Responsible Artificial Intelligence in the Department of Defense. June 2022

Contents

U.S. Department of Defense (DoD)

Stakeholder(s):

Kathleen H. Hicks :
Deputy Secretary of Defense

Chief Digital and Artificial Intelligence Officer (CDAO) :
As outlined in the RAl Memo, the Office of the Chief Digital and Artificial Intelligence Officer (CDAO), as the successor organization to the Joint Artificial Intelligence Center (JAJC), serves as the Depaitment's lead for coordinating the implementation and oversight of guidance and policy on Al, including RAI and the DoD Al Ethical Principles. The CDAO is responsible for enabling, assessing, and tracking the implementation of a DoD RAI ecosystem, with support from the DoD Components...

As the DoD's lead for AI, the CDAO is designated within this Pathway as the OPR for many Department-wide Al activities, especially those that involve the creation of Al-enabling tools to be used across the DoD in support of its RAI approach. The CDAO should leverage the existing technical foundation set by the Do D's R&D enterprise and the commercial sector to the greatest extent possible as it continues to coordinate the development of these tools with DoD Component end users.

DoD Components :
This includes the Office of the Assistant to the Secretary of Defense for Privacy, Civil Liberties, and Transparency (ATSD(PCLT)), and the Joint Staff, and Military Departments, all of whom are represented through the RAl Working Council...

All DoD Components must ensure that their Al capabilities are in alignment with the DoD Ethical Principles, and that their policies and practices enable RAI implementation. The outputs of this RAI S&l Pathway will. offer tools and guidance for DoD Components to accomplish this task. For the purpose of this Pathway, select DoD Components have been designated as OPRs to serve as a lead coordinating entity for their respective Line of Effort (LOEs). Many of the LOEs are complex, cross-cutting, and involve multiple external stakeholders and effectively completing them will require Department-wide input based on existing policy authorities, staffing requirements, and well-founded subject matter expertise. Those LOEs have been designated to OPRs believed appropriate to execute such coordination.

RAI Working Council :
The RAI Working Council was created via the RAI Memo as an initial working body to ensure Department-wide input and coordination on the development oftrus RAI S&I Pathway. With the chartering of the CDAO and its governing processes, the RAI Working Council will be a permanent working group that reports to tbe CDAO's governing council, a 4-star level governance body run by the CDAO to oversee all aspects of data, analytics, and AI for the Department. This Pathway directs member organizations that comprise the current RAI Working Council to designate or hire RAI Leads who will be responsible for implementing this DoD RAI S&l Pathway in their respective organizations and provide reporting on such progress, and relevant barriers for removal, to the RAJ Working Council, and up to the Deputy Secretary of Defense, when necessary, through the CDAO governing council. The RAI Working Council should update its membership to reflect the designated RAI Leads, fonnalize its role through a charter as approved by the CDAO, and assist the CDAO in reporting on the progress of DoD-wide RAl implementation.

Vision

Trust in DoD Al

Mission

To enable the Department to modernize its warfighting capability across a range of combat and non-combat applications

Values

Responsibility: RESPONSIBLE ~ DoD personnel will exercise appropriate levels of judgment and care, while remaining responsible for the development, deployment, and use of Al capabilities.

Equity: EQUITABLE ~ The Department will take deliberate steps to minimize unintended bias in Al capabilities.

Traceability: TRACEABLE ~ The Department's AI capabilities will be developed and deployed such that relevant personnel possess an appropriate understanding of the technology, development processes, and operational methods applicable to AI capabilities, including with transparent and auditable methodologies, data sources, and design procedures and documentation.

Reliability: RELIABLE ~ The Department's Al capabilities will have explicit, well-defined uses, and the safety, security, and effectiveness of such capabilities will be subject to testing and assurance within those defined uses across their entire life-cycles.

Governance: GOVERNABLE ~ The Department will design and engineer AI capabilities to fulfill their intended functions while possessing the ability to detect and avoid unintended consequences, and the ability to disengage or deactivate deployed systems that demonstrate unintended behavior.

TENET 1. RAI GOVERNANCE

Ensure disciplined governance structure and processes at the Component and DoDwide levels for oversight and accountability and clearly articulate DoD guidelines and policies on RAI and associated incentives to accelerate RAI adoption within the DoD.

Goal: Modernize governance structures and processes that allow for continuous oversight of DoD use of Al, taking into account the context in which the technology will be used.

Governance structures and processes will enable the appropriate assessment of risks and the mitigation of unintended consequences or bias in AI capabilities. Users or developers will also have clear mechanisms to implement the DoD AI Ethical Principles and to report potential concerns.

LOE 1.1. OVERSIGHT & ACCOUNTABILITY

BUILD ORGANIZATIONAL CAPACITY TO IMPROVE OVERSIGHT AND ACCOUNTABILITY OF DOD AI.

LOE 1.1.1. Staffing

Fully staff the CDAO RAI Office with expertise in Al technology, policy, acquisition, workforce, and governance.

Stakeholder(s):
CDAO

LOE 1.1.2. RAI Leads

RAI Working Council member organizations will designate or hire DoD Component RAI Leads to lead the implementation of this DoD RAJ S&I Pathway within their respective Components.

DoD Component RAI Leads will be provided with the adequate authorities, staffing, and resources to fulfill all relevant duties.

Stakeholder(s):
RAI Working Council Members

LOE 1.1.3. Transformation Metrics

As part of DoD-wide metrics to measure Al transformation, develop metrics to measure RAI adoption, including progress on individual LOEs identified in this DoD RAl S&I Pathway, and report progress as required to the CDAO governing council.

Stakeholder(s):
CDAO

LOE 1.1.4. Component-Specific Metrics

Develop DoD Component-specific metrics as informed RAI by LOE 1.1.3 to measure RAJ adoption, including progress on individual LOEs identified in th.is DoD RAI S&T Pathway, and establish reporting mechanisms.

Stakeholder(s):

DoD Component Leads

LOE 1.1.5. Expertise & Staffing

Appropriately staff DoD- and Component-level internal oversight bodies to ensure appropriate expertise is in place to conduct robust and effective oversight of DoD's use of AI under their roles and authorities.

Stakeholder(s):

DoD Inspector General	**DOT &E**
Assistant to the Secretary of Defense for Privacy, Civil Liberties, and Transparency (ATSD(PCLT))	**D**
	Director for Developmental Test, Evaluation, and Assessments (DTE&A)

LOE 1.1.6. Concerns

Identify methods for users and developers to report concerns about the implementation of the DoD Al Ethical Principles.

Ensure such methods are clearly communicated to users and developers.

Stakeholder(s):

DoD Component RAI Leads

LOE 1.1.7. Governance

Update the Department's existing governance framework for Al development and delivery.

Stakeholder(s):

CDAO

LOE 1.2. TOOLS & RESOURCES

PROVIDE TOOLS AND RESOURCES TO SUPPORT A DOD-WIDE RAJ GOVERNANCE STRUCTURE, INCLUDING THROUGH COORDINATED AND REGULAR KNOWLEDGE-SHARING.

LOE 1.2.1. Reporting

Report to the CDAO (no less than once per year) exemplary AI use cases, identifying best practices, failure modes, and risk mitigation strategies, including after-action reports as appropriate.

Identify capability use cases, training in system capabilities, and docwnentation on how to employ and retire systems responsibly, in order to support the safe and responsible employment of AI capabilities by operators. Include any reports of concerns per LOE 1.1.6.

Stakeholder(s):
DoD Component RAI Leads

LOE 1.2.2. Repository

Create and maintain a DoD-wide central repository of exemplary AI use cases and any supplementary information to support coordinated and regular knowledge-sharing of best practices and risk mitigation.

Stakeholder(s):
CDAO

LOE 1.2.3. Barriers

Within six months of this Pathway's approval, report to the CDAO any perceived significant barriers - including gaps in infrastructure required to support traceability, auditability, risk analysis, and forensics, and recommended hardware, software, or other infrastructure needs - necessary to fulfill RAI and AI requirements and best practices.

Update annually.

Stakeholder(s):
DoD Component RAl Leads

LOE 1.2.4. Inventory

To maintain the DoD AI Inventory in accordance with Public Law 116-260 House Report Division C, identify and report all DoD AI activities to the CDAO, including program's appropriation, and project, and budget line number; current and future years' defense program funding; names of academic or industry mission partners, if applicable; and any planned transition partners, if applicable.

Stakeholder(s):

DoD Component RAI Leads :
 in coordination with ...

CDAO

OUSD(A&S)

Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E))

LOE 1.3. STRATEGIC PLANNING

ENSURE THAT RAl IS INCORPORATED IN DOD'S STRATEGIC PLANNING EFFORTS.

LOE 1.3.1. Strategies

Incorporate RAl and elements of the DoD RAI S&l Pathway as appropriate into the DoD strategies for data, analytics, and Al adoption.

Stakeholder(s):
CDAO

LOE 1.3.2. Planning Guidance

Ensure RAT is incorporated into the Defense Planning Guidance for resourcing planning purposes including but not limited to manpower, tools, education and training, and post-deployment monitoring and retraining.

Stakeholder(s):
Office of the Under Secretary of Defense for Policy (OUSD(P))

LOE 1.3.3. Prioritization

Identify implementing RAI as a priority in DoD Military Department AI strategies and plans and incorporate Service-specific actions as appropriate.

Stakeholder(s):
Military Department RAI Leads

LOE 1.4. WARFIGHTING

UPDATE DOD'S REVIEW PROCESSES FOR WARFIGHTING CAPABILITIES TO SUPPORT IMPLEMENTATION OF THE DOD AI ETHICAL PRINCIPLES.

LOE 1.4.1. Review Procedure

Explore whether a review procedure is needed to ensure DoD warfighting capabilities will be consistent with the DoD AI Ethical Principles.

Provide a recommendation to the Deputy Secretary of Defense on whether such a review procedure should be created, identifying any gaps in existing processes, gaps in requisite policies supplementing the DoD AI Ethical Principles, and potential in1pacts on development and fielding timelines if such review is required.

Explore whether or how Legal review processes can support implementation of the DoO Al Ethical Principles, including the review of the legality of weapons per DoDDs 2311.01, 5000.01, 3000.03E, and 3000.09.

Stakeholder(s):

CDAO :
in coordination with the ...

Military Department RAI Leads

OUSD(P)

Department of Defense Office of General Counsel (OGC)

LOE 1.4.2. Guidance

Update or supplement DoDD 3000.09 with guidance on the DoD Al Ethical Principles.

Include any additional information requirements to fulfill the DoD Al Ethical Principles as part of the senior review package.

Stakeholder(s):

OUSD(P) :   **CDAO**
  in coordination with ...

TENET 2. WARFIGHTER TRUST

Ensure warfighter trust by providing education and training, establishing a test and evaluation and verification and validation framework that integrates real-time monitoring, algorithm confidence metrics, and user feedback to ensure trusted and trustworthy AI capabilities.

Stakeholder(s)

Warfighters

Goal: Achieve a standard level of technological familiarity and proficiency for system operators to achieve justified confidence io Al capabilities and AI-enabled systems.

Trustworthiness is bolstered by the application of TEVV frameworks that allow for the monitoring of system performance, reliability, unintended behavior, and failure modes before fielding the system and during operation. The combination of these factors contributes to a greater understanding of an Al's capabilities and limitations, which will be critical for the development of an Al-ready force.

LOE 2.1. TEVV

BUILD A ROBUST TEVV ECOSYSTEM AND ACCOMPANYING INFRASTRUCTURE TO DEVELOP AND FIELD AI CAPABILITIES SAFELY AND SECURELY.

CDAO

LOE 2.1.1. Framework

Develop a TEVV framework to articulate how test and evaluation (T&E) should be intertwined across an Al capability's lifecycle and pathways for continuous testing and standards for documentation and reporting.

Identify synergies between AI T&E and traditional T&E (e.g. effectiveness, suitability, security, safety) to empower programs to streamline T&E efforts. Include guidance for operationalizing RAT principles into testable conjectures for common technologies, mission domains, and uses cases.

Stakeholder(s):

CDAO :
 in coordination with ...

Director, Operational Test and Evaluation (DOT&E)

OUSD(R&E)

LOE 2.1.2. T&E Tools

Develop or acquire AI-related T&E tools to be used as a resource for AI developers and testers.

This AI T &E Toolkit shall draw upon best practices and innovative research from industry and the academic community, as well as commercially available technology where appropriate The Toolkit will be made widely available to DoD users and shall include:

a) Tangible, concrete guidance for PMs, testers, and other relevant T&E stakeholders about how to implement RAI T &E throughout a capability's lifecycle;

b) A T&E Master Plan template for A1 and a set of templates for test plans;

c) A library of T &E metrics for AI systems, including metrics for uustworthiness and confidence; and

d) Necessary tools and technologies required to detect both natural degradation of and adversarial attacks on Al, including those to detect various attacks on AI systems, and that can notify testers or operators when such attacks are occurring.

Stakeholder(s):

CDAO :   **OUSD(R&E)**
 in coordination with
                                                              DOT&E

LOE 2.1.3. Test Range & Repository

Create a test range environment and central repository of tools for T&E of Al, linking to existing and emerging equivalent DoD Component environments, that enables easy and continuous testing for DoD testers.

Where appropriate, tools that are housed in this environment should comply with DoD Enterprise DevSecOps Reference Designs for portability across the Department.

Stakeholder(s):

CDAO :   **DoD Test Resource Management Center**
 in coordination with the ...

LOE 2.1.4. Best Practices

Establish best practices and requirements for utilization of the T&E Master Plan and test plan templates for AI and update appropriate DoD issuances and Military Standards (MIL-STDs).

Stakeholder(s):

OUSD(R&E) :   **CDAO**
 in coordination with ...
                                                              DOT&E

LOE 2.1.5. Human Systems

Regularly update the CDAO's Human Systems Integration (HSI) Framework based on user feedback and provide clear guidance on how and when the framework should be used tohelp address system design, system performance, User Experience/User Interface (UX/UI), and user training.

Stakeholder(s):

CDAO :   **Joint HSI Steering Committee**
 in coordination with the ...

LOE 2.1.6. Research

Continue research into emerging AI topics

such as:

a) HSI practices to the inform the design and developments of AI capabilities that can be used consistent with the DoD AI Ethical Principles;

b) New methods for TEVV of AI; and

c) AI security and defense to protect against adversarial attacks.

Stakeholder(s):

OUSD(R&E) :
in coordination with ...

CDAO

Military Service Labs

LOE 2.1.7. Security

Develop and distribute DoD-wide guidance for AI security, leveraging existing best practices for risk management supply chain security, and cybersecurity.

This guidance should be updated as the field matures.

Stakeholder(s):

CDAO :
in coordination with ...

DoD Chief Information Officer (CIO)

LOE 2.2. BEST PRACTICES

DEVELOP BEST PRACTICES TO INCORPORATE OPERATOR AND SYSTEM FEEDBACK THROUGHOUT THE AI LIFECYCLE, ENSURE ADEQUATE DOCUMENTATION AND TRAINING, AND DELINEATE CLEAR ROLES AND RESPONSIBJLITIES FOR DEVELOPERS AND USERS OF THE AI CAPABILITY.

LOE 2.2.1. Training & Documentation

Require AI vendors and developers to plan for, resource, and provide appropriate training and documentation, such as user manuals, to be used prior to capability fielding in order to ensure warfighters are equipped with an appropriate understanding of the capability's function, risks, performance expectations, and potential harms.

Stakeholder(s):

DoD Component RAI Leads

AI Vendors

AI Developers

LOE 2.2.2. Traceable Feedback

Require AI vendors and developers who design systems and create features with human-facing interfaces to provide traceable feedback on systems status and clear procedures to trained operators to activate and deactivate system functions.

This information should be used to update training, documentation, interfaces, and/or other components as appropriate.

Stakeholder(s):

DoD Component RAI Leads	**AI Developers**
AI Vendors	

LOE 2.2.3. Responsibilities & Authorities

Promulgate guidance in accordance with LOE 3.1.2 and 3.2.2 delineating responsibilities and authorities for Program Offices ...

to:

a) Monitor perfo1mance of their AJ systems after fielding (including guidance on metrics for monitoring and system instrumentation tools to support this); and

b) Establish processes for operators of Al-enabled capabilities to notify and report changes in capability performance, outcomes, emergent behavior, and/or disengagement in accordance with existing DoD processes.

Stakeholder(s):

PEOs :	**DoD Components**
Program Offices	

TENET 3. PRODUCTS & ACQUISITIONS

Develop tools, policies, processes, systems, and guidance to synchronize enterprise RAI implementation for the AI product throughout the acquisition lifecycle through a systems engineering and risk management approach, while enabling AI development at the pace the Department needs to meet the National Defense Strategy.

AI PRODUCT AND ACQUISITION LIFECYCLE ~ Goal: Exercise appropriate care in the AI product and acquisition lifecycle to ensure potential AI risks are considered from the outset of an AI project, and efforts are taken to mitigate or ameliorate such risks and reduce the likelihood of unintended consequences while enabling AI development at the pace the Department needs to meet the National Defense Strategy. This includes robust documentation to understand, test, and acl on infonned risk assessments, recognizing that needs will vary based on the level of technical maturity, sensitivity, and context in which the AI capability will be used.

LOE 3.1. RESOURCES & TOOLS

DEVELOP RAI-RELATED ACQUISITION RESOURCES AND TOOLS, SUCH AS STANDARD LANGUAGE FOR ANNOUNCEMENTS AND CONTRACTS, AND BEST PRACTICES THAT LEVERAGE THE D0D'S ADAPTIVE ACQUISITION PATHWAYS AND ALLOW THE DOD TO IDENTIFY AND MITIGATE RISKS THROUGHOUT THE ACQUISITION AND SUSTAINMENT PROCESS.

LOE 3.1.1. Acquisition Toolkit

Develop an Acquisition Toolkit that draws upon best practices and innovative research from the DoD enterprise, industry, and the academic community, as well as commercially available technology where appropriate.

The Toolkit will be made widely available to DoD users and shall include:

a) Standard language in the initial announcement, request for proposal (RFP), and request for information (RFI) for AI capabilities to provide guidance on how vendors and developers can meet the DoD AI Ethical Principles;

b) A set of RAI-related evaluation criteria that are testable and operationally relevant;

c) Standard AI contract language that provides clauses for: independent government T&E of AI capabilities, methods of immediate remediation when the vendor-provided AI capabilities cannot be used in accordance with the DoD AI Ethical Principles, requesting training and documentation from vendors, performance monitoring of AI capabilities, and appropriate data deliverables and rights; and

d) Any other resources as appropriate.

Stakeholder(s):

CDAO :
 in coordination with ...

OUSD(A&S)

OUSD(R&E)

LOE 3.1.2. Engagement

Identify and develop approaches for continuous engagement of RAl expertise within the DoD's six adaptive acquisition pathways (Urgent Capability Acquisition, Middle Tier of Acquisition, Major Capability Acquisition, Software Acquisition, Defense Business Systems, and Acquisition of Services) to address RAI risk considerations.

Stakeholder(s):
OUSD(A&S) :   **CDAO**
  in coordination with ...

LOE 3.1.3. Intellectual Property

Identify best practices related to strategies to preserve government intellectual property (IP) in the acquisition of Al and Al-enabled systems in order to ensure open architecture of secure data deliverables and rights that support the protection of government IP, best-value acquisition, avoidance of proprietary lock-in, and oversight of DoD use of AI capabilities and adherence to the DoD Al Ethical Principles.

Stakeholder(s):
OUSD(A&S) :   **CDAO**
  in coordination with ...

LOE 3.2. RISKS

ADOPT INDUSTRY BEST PRACTICES FOR Al DEVELOPMENT BY DEVELOPING AND APPLYING TOOLS, TECHNOLOGIES, AND BEST PRACTICES TO IDENTIFY AND MITIGATE RISKS AS THEY RELATE TO THE Al CAPABILITY THROUGHOUT THE Al PRODUCT LIFECYCLE.

LOE 3.2.1. Product Toolkit

Continue developing a Product Toolkit that draws upon best practices and innovative research from the DoD enterprise, industry, and the academic community, as well as commercially available technology where appropriate.

The Toolkit will be made widely available to DoD users and shall include:

a) Defense Innovation Unit's (DIU) RAI Guidelines;

b) Templates for Al proj ect management with an emphasis on ensuring that developers have an understanding of user needs and operational context;

c) Al Data Cards and Model Cards, and corresponding catalogs, with detailed instructions; and

d) Any other tools, guidance for system and project documentation, or risk assessment frameworks as appropriate.

Stakeholder(s):
CDAO   **OUSD(R&E)** :
                                                       (for subtask a)

LOE 3.2.2. Maturity, Sensitivity & Risk

Provide guidance on how and when the RAI Tools in LOE 3.2.1 should be used across the AI Product Lifecycle, based on with an assessment of the AI technology's level of technical maturity, project sensitivity, and overall risk.

Such assessments of the AI technology will be determined by DoD Component RAJ Leads.

Stakeholder(s):
CDAO :   **DoD Component RAI Leads**
 in coordination with ...

LOE 3.2.3. Data Catalog

Use AI Data and Model Cards to publish AI data assets in the DoD federated data catalog, in accordance with the Department's Creating Data Advantage memorandum (May 5, 2021).

Stakeholder(s):
CDAO   **DoD Component CDOs**

LOE 3.2.4. Resources & Tools

Fund the development and piloting of new resources and tools that augment the RAI Toolkit.

Stakeholder(s):
CDAO   **Military Departments**

LOE 3.2.5. Personal Information

Publish best practices to preserve privacy and civil liberties and to avoid unintended bias in the design and development of AI capabilities that involve the use of personal information.

Stakeholder(s):
ATSD(PCLT)

LOE 3.2.6. Additional Guidance

Develop additional guidance for applying the RAI Foundational Tenets to the early-stage AI research and engineering projects, such as those funded by Budget Activities 1, 2, and 3.

Stakeholder(s):
OUSD(R&E)   **DoD Component RAI Leads**

CDAO :
 in coordination with ...

TENET 4. REQUIREMENTS VALIDATION

Incorporate RAI into alI applicable AI requirements, including joint performance requirements established and approved by the Joint Requirements Oversight Council, to ensure RAI inclusion in appropriate DoD AI capabilities.

Stakeholder(s)

Joint Requirements Oversight Council

Goal: Use the requirements validation process to ensure that capabilities that leverage AI are aligned with operational needs while addressing relevant Al risks. System performance requirements validation increases the reliability and safety of systems prior to and during deployment. A formalized requirements validation process also provides for better traceability, accountability, and both internal and external oversight.

LOE 4.1. RISK

INTEGRATE Al RISK CONSIDERATIONS fNTO THE DOD JOINT PERFORMANCE REQUIREMENTS PROCESS BY IDENTIFYING RESPONSIBILITIES, AUTHORITIES, AND RESOURCES WHEN UPDATING OR DEVELOPING POLICIES AND PLANS.

LOE 4.1.1. JROCM

Draft a JROC Memorandum (JROCM) with changes that need to be made in requirement-setting processes to implement the coordination LOEs in Tenets 2 and 3.

Make recommendations to the Vice Chairman of the Joint Chiefs of Staff (VCJCS) and the Deputy Secretary of Defense (DSD), as appropriate.

Stakeholder(s):

Joint Staff :
  in coordination with ...

USD(A&S)

CDAO

Joint Requirements Oversight Council (JROC)

LOE 4.2. REQUIREMENTS

DEVELOP A TAILORABLE PROCESS THAT PROGRAMS CAN FOLLOW TO WRITE Al-RELATED REQUIREMENTS THAT ARE TESTABLE AND OPERATIONALLY RELEVANT.

LOE 4.2.1. Repository

Create a repository of A I-related requirements for common use cases, mission domains, and system architectures to facilitate reusability.

Stakeholder(s):

CDAO :
  in coordination with ...

DoD Component RAI Leads

LOE 4.2.2. TEVV Strategy

Integrate and coordinate the Al requirements captured in LOE 4.2.1 with the TEVV strategy to ensure that adequate methods exist for continuous testing and validation of capabilities developed, consistent with existing policies for iterative acquisition such as the DoDI 5000.87.

Stakeholder(s):

CDAO :   **OUSD(R&E)**
 in coordination with ...
                                                                     DoD Component RAI Leads

LOE 4.2.3. Guidance

Produce guidance for Program Executive Offices and Program Offices to apply the resources from LOE 3.1 and write RAI requirements into future contracts, including for non-ACAT and non-MDAP systems.

Stakeholder(s):

Office of the Under Secretary of Defense   **CDAO**
for Acquisition and Sustainment
(OUSD(A&S)) :   **DOT&E**
 in coordination with ...
                                                                     Operational Test Agencies (OTAs)

TENET 5. RESPONSIBLE AI ECOSYSTEM

Build a robust national and global RAl ecosystem to improve intergovernmental, academic, industry, and stakeholder collaboration, including cooperation with allies and coalition partners, and to advance global norms grounded in shared values.

Goal: Promote a shared understanding of responsible AI design, development, deployment, and use through domestic and international engagements. Such engagements will facilitate knowledge-sharing exchanges with intergovenunental stakeholders as well as partners in industry, academic institutions, and civil society. Through this, the DoD will collaborate on common challenges, advance shared interests, promote democratic norms and values, and increase interoperability with partners.

LOE 5.1. COORDINATION

COORDINATE AND COLLABORATE ACROSS DOD, THE INTELLIGENCE COMMUNITY, AND OTHER U. S. GOVERNMENT DEPARTMENTS AND AGENCIES ON THE RAI FOUNDATIONAL TENETS AS WELL AS ON THE DOD AI ETHICAL PRINCIPLES.

Stakeholder(s):

Intelligence Community

U.S. Government Agencies

Congress :
ENGAGE WITH CONGRESS ON THE TENETS AND PRINCIPLES TO RAISE AWARENESS AND SUPPORT APPROPRIATE CONGRESSIONAL OVERSIGHT OF DOD'S RESPONSIBLE Al EF-FORTS.

LOE 5.1.1. Participation

Identify any gaps in participation in CDAO-led governance bodies from DoD and IC Components and provide a plan to recruit and maintain new members.

Stakeholder(s):
CDAO

LOE 5.1.2. Coordination

Coordinate regularly with Office of the Director of National Intelligence (ODNI) Al ethics team to ensure interoperability and alignment on the operationalization of the Intelligence Community (JC) AI Ethics Principles and the DoD AI Ethical Principles.

Stakeholder(s):
CDAO

DoD Component RAI Leads

ATSD(PCLT)

Office of the Director of National Intelligence (ODNI)

LOE 5.1.3. Interagency Bodies

Coordinate regularly with appropriate Federal interagency bodies such as those housed in the Executive Office of the President, Office of Management and Budget, and the General Services Administration on RAI.

Stakeholder(s):

CDAO

DoD Component RAI Leads

ATSD(PCLT)

Federal Interagency Bodies

Executive Office of the President

Office of Management and Budget

General Services Administration

LOE 5.1.4. Legislative Strategy

Develop a legislative strategy and ensure the strategy is clearly communicated across Department to ensure appropriate engagement with the CDAO and consistent messaging, technical assistance, and advocacy to Congress.

Stakeholder(s):

ASD(LA) :
  in coordination with ...

CDAO

Congress

LOE 5.2. ENGAGEMENTS

BUILD ENDURING ENGAGEMENTS AND COLLABORATION ACROSS INDUSTRY, ACADEMIA, AND CIVIL SOCIETY TO PROMOTE DEVELOPMENT, ADOPTION, AND IMPLEMENTATION OF RAI.

Stakeholder(s):

Industy

Academia

Civil Society

LOE 5.2.1. Research Gaps

Provide a prioritized list of research gaps in RAI-related fields to the White House National Al Initiative Office to encourage funding by Department of Education, National Science Foundation, and National Institute of Standards and Technology (NIST) as authorized by the National Al Initiative Act.

Stakeholder(s):

OUSD(R&E)

CDAO

White House National Al Initiative Office

Department of Education

National Science Foundation

National Institute of Standards and Technology (NIST)

LOE 5.2.2. Advisory Board

Ensure RAI expertise, including privacy, civil liberties, and data ethics expertise, is represented on the AI Advisory Board as authorized by FY21 National Defense Authorization Act, Section 233.

Stakeholder(s):

AI Advisory Board   **CDAO**

LOE 5.2.3. Funding

Explore funding opportunities to establish a development program on RAJ tools with industry, academia and the Department.

Stakeholder(s):

OUSD(R&E)   **Academia**

Industry

LOE 5.2.4. Public-Affairs Strategy

Develop and execute a public-affairs strategy for DoD RAI activities that is integrated across Department.

This includes coordination with coordination of communications activities with the CDAO, regularly communicating DoD's RAJ implementation progress as appropriate to through speaking engagements, press releases and conferences, blog posts, and op-eds.

Stakeholder(s):

Assistant Secretary of Defense for Public   **CDAO**
Affairs (ASD(PA)) :
 in coordination with ...

LOE 5.2.5. Sharing

Produce guidance on the sharing or publication of DoD Al capabilities with entities outside the Department to preserve coordination with operational security and prevent unintended exposure.

Stakeholder(s):

ASD(PA) :   **OUSD(I&S)**
 in coordination with ...
                                                   CDAO

LOE 5.3. INTERNATIONAL ENGAGEMENTS

INTEGRATE RAI AS AN ELEMENT OF INTERNATIONAL ENGAGEMENTS, TO ADVANCE SHARED VALUES, LESSONS LEARNED, BEST PRACTICES, AND INTEROPERABILITY GLOBALLY.

LOE 5.3.1. Interoperability

Actively seek opportunities to engage allies and partners on RAI (including NATO, Five Eyes, Quadrilateral Security Dialogue, etc.) with particular emphasis on interoperability with partners and allies with data, compute, and storage systems, software, and schema.

Stakeholder(s):

OUSD(P) :
 in coordination with ...

CDAO

NATO

Five Eyes

Quadrilateral Security Dialogue

LOE 5.3.2. Promotion & Education

Continue to communicate, promote, and educate the DoD's Al Ethical Principles and RAl implementation to partners and allies through the DoD AI Partnership for Defense (Al PfD) as well as bilateral and multilateral engagements.

Stakeholder(s):

CDAO   **DoD AI Partnership for Defense (Al PfD)**

LOE 5.3.3. Workshop

Organize a workshop with representatives from the international community (academia, industry and government) on Al ethics, safety, and trust in defense in order to exchange best practices and promote shared values.

Stakeholder(s):

CDAO   **Industry**

International Community   **Government**

Academia

TENET 6. AI WORKFORCE

Build, train, equip, and retain an RAI-ready workforce to ensure robust talent planning, recruitment, and capacity-building measures, including workforce education and training on RAI.

Goal: Ensure that all DoD AI workforce members possess an appropriate understanding of the technology, its development process, and the operational methods applicable to implementjng RAI commensurate with their duties within the archetype roles outlined in the 2020 DoD Al Education Strategy. DoD AI workforce education and training should promote consistent understanding across all DoD stakeholders and build a culture within the DoD that enables RAI. Proper training and education must be accompanied with strategies torecruit and retain the personnel whom the DoD trains and educates.

LOE 6.1. TALENT MANAGEMENT

PARTICIPATE IN ONGOING EFFORTS TO DEVELOP THE D0D'S AI TALENT MANAGEMENT FRAMEWORK TO SUPPORT THE IDENTIFICATION, RECRUITMENT, ELEVATION, AND RETENTION OF MILITARY AND CIVILIAN PERSONNEL NEEDED FOR IMPLEMENTATION OF RAI.

LOE 6.1.1. Expertise

Develop a mechanism to identify and track AI expertise across the Department and the Military Departments and Services, including the Acquisition Workforce ...

by

a) leveraging existing coding efforts (e.g., DoD CIO's Cyber Workforce Framework expansion effort) and, if needed, developing new codes in coordination with the Office of Personnel Management (OPM); and

b) developing standardized personnel coding mechanisms, recognizable by current and future civilian and military Service department personnel systems (e.g., Defense Civilian Human Resources Management System (DCHRMS), military integrated personnel systems).

Stakeholder(s):

OSD(P&R)	**OSD(A&S)**
Defense Civilian Personnel Advisory Service (DCPAS)	**DoD CIO**
	CDAO
Military Departments	**Office of Personnel Management (OPM)**

LOE 6.1.2. KSATs

Conduct a gap analysis to determine whether any additional knowledge, skills, abilities, and tasks are needed for the with six archetypes captured in the 2020 DoD AI Education Strategy to successfully implement RAI.

Stakeholder(s):

CDAO : *in coordination with ...*	**DoD Component RAI Leads**

LOE 6.1.3. Careers & Pathways

Develop career fields and pathways for military personnel who perform Al work as a major portion of their job, including promotion eligibility.

Stakeholder(s):

Military Department RAl Leads :
 in coordination with ...

CDAO

Office of the Under Secretary of Defense for Personnel and Readiness (OUSD(P&R))

LOE 6.1.4. Civilian Personnel

Recommend to OUSD(P&R) and OPM career fields and pathways for civilian personnel who perform AI work as a major portion of their job.

Stakeholder(s):

CDAO :
 in coordination with ...

DoD Component RAI Leads

OUSD(P&R)

OUSD(P&R)

OPM

Civilian Personnel

LOE 6.1.5. Workforce Planning

Initiate workforce planning processes to attract, recruit, and maintain highly skilled experts to fill the gaps identified in 6.1.2 to include (but not limited to) creating and reclassifying billets and adding AI positions in government performance of acquisition and requirements management functions.

Stakeholder(s):

DoD Component RAI LOE Leads :
 in coordination with ...

OUSD(A&S)

OUSD(P&R)

LOE 6.2. TRAINING

SUPPLEMENT EXISTING DOD AI TRAINING EFFORTS WITH CURRICULA THAT WILL ENABLE RAI IMPLEMENTATION.

LOE 6.2.1. Curricula

Develop and update DoD-wide standardized curricula (covering topics such as AI benefits and limitations, risk factors, and with security) to be integrated into all AI education and training for the DoD Al workforce, and ensure that it is appropriate for all levels of both military and civilian seniority.

Stakeholder(s):

CDAO :
 in coordination with ...

DoD Component RAI Leads

LOE 6.2.2. Programs

Integrate the curricula developed in LOE 6.2.1 in Components' Al education and training programs (including initial and mission qualified training programs to build RAI skills capacity of current workforce and pipeline).

Stakeholder(s):
DoD Component RAl Leads

LOE 6.2.3. Standards

Establish education, training, and experience standards relevant to respective Al-related positions based on the level of complexity of duties for DoD Components.

Stakeholder(s):
DoD Component RAI Leads

LOE 6.2.4. Acquisition Workforce

Collaborate with the Defense Acquisition Workforce Functional Managers to reshape the training, education, and experience requirements for the Defense Acquisition Workforce to include Al curricula as appropriate.

This includes:

a) potentially updating Foundational and Practitioner Certifications;

b) creating new Al credentials for RAT implementation roles; and

c) leveraging curricula per LOE 6.2.1 to existing training curricula available for the Defense Acquisition Workforce.

Stakeholder(s):

OUSD(A&S)	**Defense Acquisition Workforce Functional Managers**
Defense Acquisition University (DAU)	

LOE 6.2.5. Ethics

Explore the need of an annual AI Ethics Awareness training (similar to the annual Cyber Awareness training) requirement for DoD Al Workforce to promote awareness and application of the DoD AI Ethical Principles, as well as consistency of understanding.

Stakeholder(s):

CDAO	**DoD Al Workforce**

LOE 6.3. CAPACITY

BUILD DOD CAPACITY FOR RAI THROUGH COMMUNITIES OF INTEREST/PRACTICE AND PROFESSIONAL DEVELOPMENT OPPORTUNITIES.

LOE 6.3.1. Champions

Deliver annually the RAI Champions Program Department-wide in order to build a network of RAI advocates and experts in DoD Components.

Stakeholder(s):

CDAO   **RAI Experts**

RAI Advocates

LOE 6.3.2. CoIs & CoPs

Build RAl DoD-wide communities of interest or practice, leveraging existing bodies to accelerate their establishment, such as the RAI Subcommittee.

Scale the RAI Champions Training Program through DoD (via Train the Trainer model) to create network of champions who can paiticipate in these Communities of Interest/Communities of Practice (COIs/COPs).

Stakeholder(s):

CDAO

LOE 6.3.3. Non-DoD Training

Identify funding or partnership opportunities for non-DoD training on AI ethics in other agencies, academia, and industry.

Stakeholder(s):

DoD Component RAI Leads