Future State of Test & Evaluation of Artificial Intelligence

MITRE support to the Director, Developmental Test, Evaluation, and Assessments (D, DTE&A)

September 2022

Sponsor: OUSD DTE&A
Project No.: 0721D320

McLean, VA

MITRE | SOLVING PROBLEMS FOR A SAFER WORLD™

BLUF

We are projecting a future state for the test and evaluation (T&E) of Artificial Intelligence (AI) to better handle the tidal wave of AI enabled capabilities.

- Statistical measures are useful, but don't address how AI enables the mission
- Data to train AI is in short supply, a critical gap that limits robust evaluation
- Infrastructure to build and test AI is not readily available when/where needed
- Cybersecurity of AI can only be achieved by processes that extend the whole AI lifecycle
- DoD does not yet put urgency on T&E of AI policy development, the tide is turning
- User Engagement is critical across the whole lifecycle of AI to ensure trustworthiness in the deployed system

Developmental Test, Evaluation, and Assessments (DTE&A) is working to help the Department of Defense (DoD) community get ahead of this challenge through investigation and collaboration.

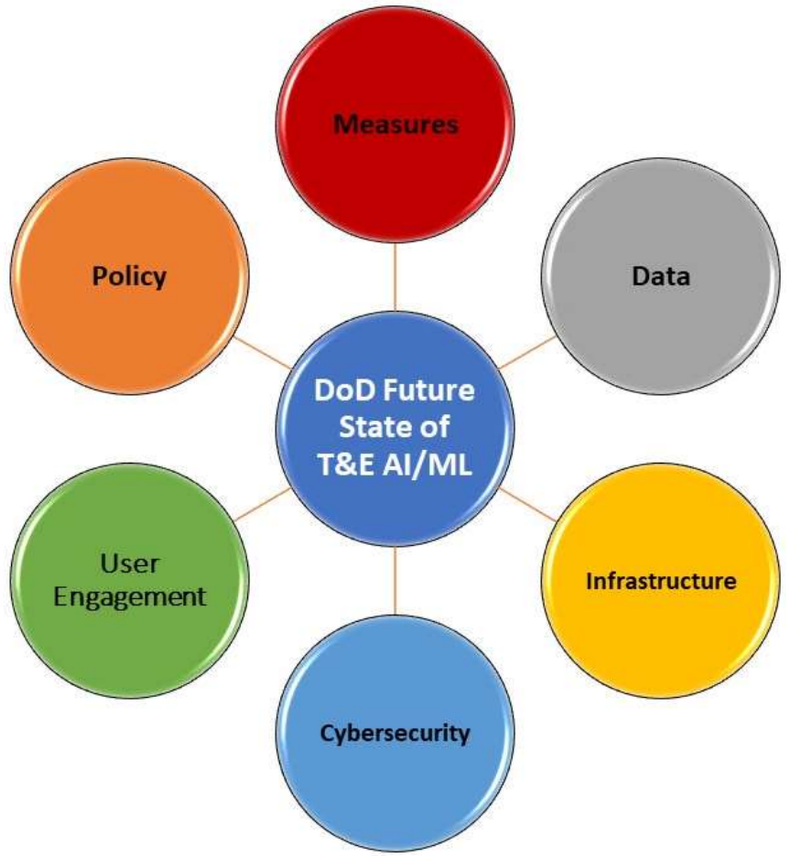
Future State of T&E of AI – DTE&A's

AI is a critical technology that the DoD must use to meet certain mission needs to keep pace with its near-peer adversaries. The Undersecretary for Research and Engineering cited "trusted AI" as among the top research priorities.*

Each AI employment carries with it varied risk to the mission if the AI enabled system does not operate as expected whether due to system error, environment change, or unintended use. The challenge for the T&E community is to find approaches and processes to mitigate these mission risks before and after AI enabled systems are deployed.

In partnership with the T&E community, DTE&A researched the best practices for T&E of AI to help define what the future state could look like.

By pausing to periodically project this future state, organizations can take the necessary steps to achieve the significant potential AI provides to the DoD by working to mitigate the gaps to evaluate AI sufficiently and independently.



The figure illustrates the significant areas the T&E of AI enabled systems where defined projections of future state were developed.

Dedicated focus is required to achieve this state. The goal of the Future State of T&E of AI document is to further drive innovation by showing a vision for the future state of T&E of AI through analyses of six key areas.

* "AI, Networks, Hypersonics Are the Pentagon's Top Research Priorities," Tirpak, John A., Air Force Magazine, Jan 2022

MITRE