## Enhancing Acquisition Outcomes through Leveraging of Artificial Intelligence

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MITRESOLVING PROBLEMS<br/>FOR A SAFER WORLD°

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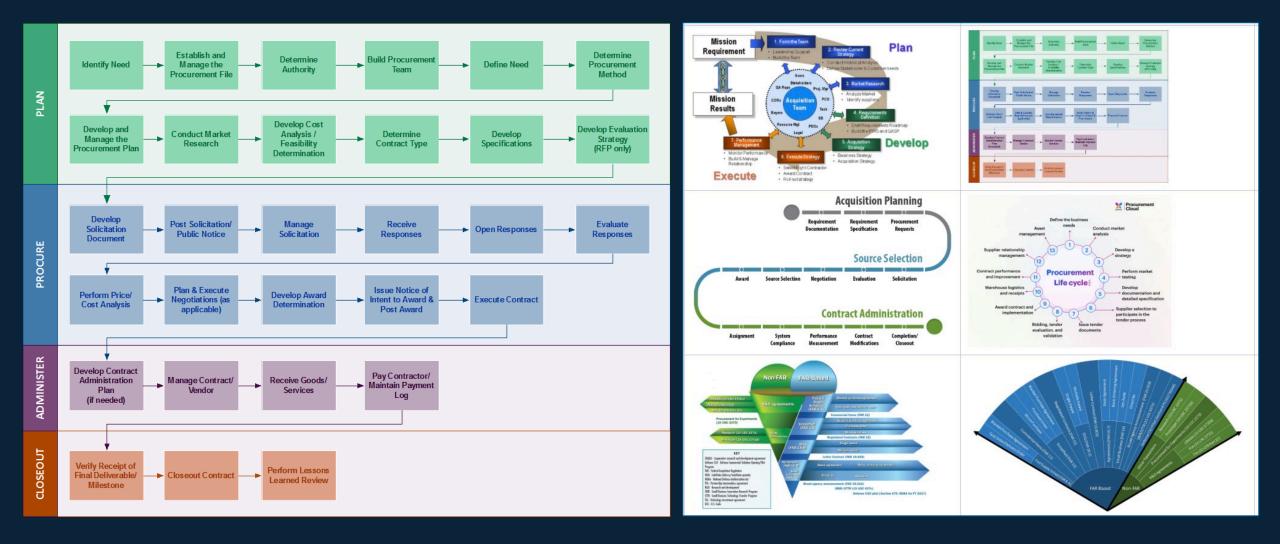
#### **Overview for Today**

- 1. What is AI in Acquisition?
- 2. Our Team and Why it Matters ...
- 3. The Paper ... Leveraging AI for Acquisition
- 4. The Big "Takeaway"
- 5. Al in Acquisition 2024: Where are we now?
- 6. Al in Acquisition 2035: Imagine if ...
- 7. Recommendations
- 8. Hypothesis, Algorithm, Recipe, & Onward!





# What is AI in Acquisition?



MITRE

#### **Our Cross-Enterprise Team**



Erin Schultz Bob Cherinka Rachel Hughes Steve Roe

Accomplishing this business transformation cannot happen in a singular bubble. Acquisition professionals must work alongside our technologists to ensure tools effectively improve the workflow.

#### LLM4ACQ Leads



Ryan Novak

**Kevin Forbes** 

#### **Acquisition Team**



**Justin Raines** 



**Rachel Giachinta** 



Christopher Barlow Zachary Levenson



#### **Development Team**



Mike Silvasy



Patrick O'Leary

#### **NPS Symposium Paper**

MIIRE

Enhancing Acquisition Outcomes Through Leveraging AI

Current State and Future State of AI in Federal Acquisition

> AI Threat Landscape and Mitigating Threats, Risks, and Biases

Sponsor-Focused AI Implementation Recommendations

Enduring sentiments	Areas to dig deeper
Cultural embracement of AI – intellectual curiosity, formal education/training, with a realistic account of risk	Al Maturity Model; Assurance Framework
Interdisciplinary teams at the tip of the spear of enterprise transformation	What's available today (USG-industry); need greater transparency on successes / lean into thought leadership on both sides
Criticality of AI actionable/involved governance structures	Continuous evaluation and assessment – how to get acquisition professionals thinking within this frame without introducing cognitive overload
Double tap on data hygiene prerequisite	Near term road-mapping – moving beyond the hype, into transition



Enhancing Acquisition Outcomes through Leveraging of Artificial Intelligence

Christopher Barlow Kevin Forbes Rachel Giachinta Jay Kim Zachary Levenson Ryan Novak Justin Raines Steve Roe

The MITRE Corporation

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## Al in Government Today

#### Institutional Bodies

GSA's AI Center of Excellence
 DoD's Chief Digital and AI Office

Acquisition Facilitation Mechanisms

<u>Tradewinds</u>
<u>MITRE AI Assurance & Discovery Lab</u>

#### Guiding Frameworks

Al Blueprint: 12 Considerations when Developing an Al Roadmap DHS's Al/ML Strategic Plan GSA's Al Guide for Government



#### EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF MANAGEMENT AND BUDGET WASHINGTON, D.C. 20503

March 28, 2024

M-24-10

THE DIRECTOR

MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: Shalanda D. Young Shalanda D. Yang

SUBJECT: Advancing Governance, Innovation, and Risk Management for Agency Use of Artificial Intelligence

Artificial intelligence (AI) is one of the most powerful technologies of our time, and the President has been clear that we must seize the opportunities AI presents while managing its risks. Consistent with the AI in Government Act of 2020,<sup>1</sup> the Advancing American AI Act,<sup>2</sup> and Executive Order 14110 on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence, this memorandum directs agencies to advance AI governance and innovation while managing risks from the use of AI in the Federal Government, particularly those affecting the rights and safety of the public.<sup>3</sup>

OVERVIEW

THE WHITE HOUSE

While AI is improving operations and service delivery across the Federal Government, agencies must effectively manage its use. As such, this memorandum establishes new agency requirements and guidance for AI governance, innovation, and risk management, including through specific minimum risk management practices for uses of AI that impact the rights and safety of the public.

Strengthening AI Governance. Managing AI risk and promoting AI innovation requires



MEN

Executive Order on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence

OCTOBER 30 202

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1. Purpose. Artificial intelligence (A1) holds extraordinary potential for both promise and peril. Responsible A1 use has the potential to help solve urgent challenges while making our world more prosperous, productive, innovative, and secure. At the same time, irresponsible use could exacerbate societal harms such as fraud, discrimination, bias, and disinformation, displace and disempower workers; stifle competition; and pose risks to national security. Harnessing A1 for good and realizing its myriad benefits requires mitigating its substantial risks.

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## Future State of AI: Acquisition Use Cases for 2035

While the Future of AI in Acquisition in nearly limitless, MITRE identified 20 likely use cases of where AI will be regularly used in the acquisition process. These are key focal points for AI thought leadership and development

1	Building and "Assessing" a Request for Information (RFI) & Responses	
2	Industry Constructing Responses to Government	
3	Building Market Research Assessments	
4	Performing Open-Source Market Intelligence	
5	Assessing Risk of Existing Efforts	
6	Identifying Similar Programs	
7	Developing Analyses of Alternatives	
8	Building Management Plans	
9	Creating Work Statements and CDRLs	
10	Estimating Cost	
11	Building Contract Considerations and Recommendations	
12	Tailoring Training for New Team Members	
13	Compiling a Comprehensive Bidders Library	
14	Checking Proposals for Compliance	
15	Industry Generating Proposal Content	
16	Conducting Initial Proposal Scoring	
17	Building Source Selection Technical Reports	
18	Compiling Past Performance Data	
19	Accelerating Transition-In	
20	Detecting Performance Assessment Hot-Spots	
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# LLM4ACQ

## "Replacing anywhere you can, anything repetitive, and you step in as the critical thinker jockey."

Erin Schultz, MITRE, CAMS Acquisition Innovation Center Director, on leveraging AI in Federal Acquisition



#### Large Language Models (LLMs) for "Everyday" Tasks

- Brainstorming and Idea Generation
- Summarization and Information Extraction
- Document Creation
- Refining Communication
- Software Coding
- Image Creation



#### 6 Amazing Things ChatGPT Can Do

ChatGPT is a powerful artificial intelligence (AI) system developed by OpenAI

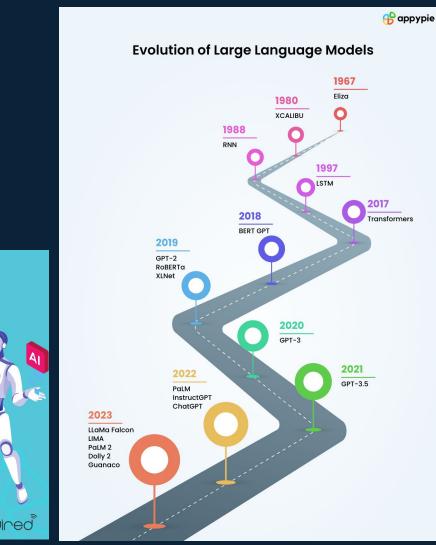
> Automate simple tasks and workflows Generate viral social media content Generate content ideas Write goal-oriented articles and

blog posts

to write your code

Explain complicated concepts, processes, and phenomena in easily understandable terms

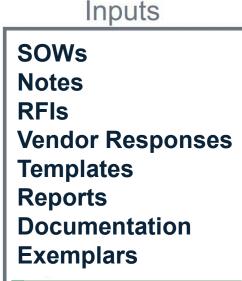
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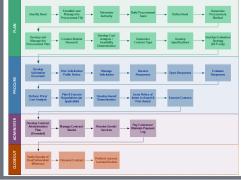




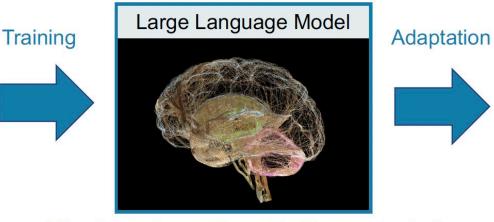
Slide in whole from or adapted from: Introduction to Artificial Intelligence for the Office of Financial Systems, Policy and Oversight (OFSPO) February 2024, Authors: Patrick Costello (MITRE), FX Campion (MITRE), and Lucia Lykke (MITRE)

# Large Language Models (LLMs) are attracting particular attention for integration in workflow processes





A **language model** is a probabilistic model of natural language that generates likelihoods of a sequence of words, based on the text corpora used for its training.<sup>1</sup>



Words can be mathematically represented (<vector>) and mathematically manipulated. <Berlin> - <Germany> + <France> = <Paris>

Outputs of LLMs are based on word probabilities from the data used to train the model.

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<sup>1</sup> Jurafsky, et al. (2021). "N-gram Language Models". Speech and Language Processing.

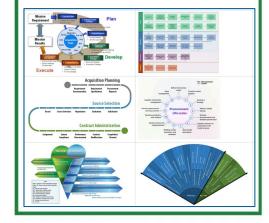
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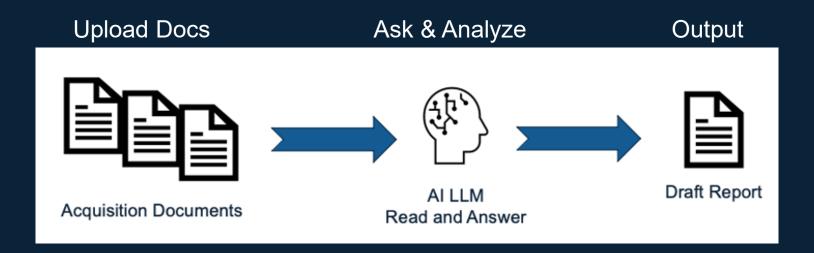
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Documentation Assessments Recommendations Summaries Compliance Check Minutes vs Days Learning



## **Applying AI for Acquisition Today**

- The Problem: The Government Acquisition Process is lengthy, expensive, complex and manual.
- Our Hypothesis: We believe there is a basic activity pattern applied to some acquisition processes suited for AI / LLMs to assist and empower humans, not replace them.



## **Starting your Al Journey?:** 9 Recommendations for Success...

- 1. "Lean into" the use of AI in Acquisition
- 2. Establish a Cross-Functional Team of Experts
- 3. Establish a holistic AI acquisition framework
- 4. Promote transparency/accountability
- 5. Foster collaboration and information sharing
- 6. Advocate policy and regulatory updates
- 7. Understand the drivers of AI success
- 8. Develop training and education programs for an "AI Ready Workforce"
- 9. Adopt a security-forward mindset



## Questions

