Cybersecurity and Technology

FLASH REPORT: ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING DEVELOPMENT AND OPERATIONS IN THE U.S. DEPARTMENT OF THE INTERIOR

We are issuing this flash report to provide an overview of Artificial Intelligence and Machine Learning technologies, selected use cases, and policies implemented within the U.S. Department of the Interior (DOI) as of October 2024. However, because these are rapidly evolving technologies and Executive Order No. 14148,[1] issued on January 20, 2025, rescinded most requirements and deadlines for agencies, we have updated our report to reflect selected preliminary changes in DOI's program. DOI will continue to update its plans as future Federal guidance dictates.

Background

The formal study of AI began in 1950 with Alan Turing's introduction of the Turing Test, a method for evaluating a machine's ability to imitate human-like conversation and establish its own sense of intelligence.[2] In 1997, IBM's Deep Blue made history by defeating world chess champion Garry Kasparov, showcasing the potential of AI in complex problem-solving scenarios.[3] Deep Blue helped to lead ML in achieving significant milestones, including combining multiple models to improve prediction performance.

Today, due to the introduction of generative AI, AI and ML have become household terms and their use drives innovations in diverse fields, such as conservation science, autonomous vehicles, personalized medicine, and financial forecasting. The U.S. Geological Survey (USGS) started developing ML models in the 1980s, and DOI formally developed its AI program in 2023. DOI's initial inventory of use cases included 38 use cases; as of fiscal year (FY) 2025, its published inventory has jumped to 180 use cases. The integration of these technologies into organizational frameworks demonstrates their capabilities and presents potential ethical, strategic, and operational challenges. The rapid speed of research and development within their respective fields further compounds the challenges organizations face when adopting and deploying AI.

Definitions

Artificial Intelligence (AI): A system that can, for a given set of objectives, generate outputs such as predictions, recommendations, or decisions influencing real or virtual environments.

Machine Learning (ML): A branch of AI that focuses on the development of systems capable of learning from data to perform a task without being explicitly programmed to perform that task. In this instance, learning refers to the process of optimizing model parameters through computational techniques such that the model's behavior is optimized for the task.

Neural Network: A computer system modeled on the human brain and nervous system.

Convolutional Neural Networks: Deep learning models designed to process data with a grid-like topology such as images. They are the foundation for most modern computer vision applications to detect features within visual data.

Deep Learning: An ML subset that focuses on using neural networks to perform tasks.

Support Vector Machine: A supervised ML model for data classification and regression analysis.

Random Forest Classifier: An ensemble method for classification using a multitude of decision trees.

Generative AI: A rapidly evolving technology that can generate content, including text, audio, images, or video, in response to a prompt or data input.

[1] Exec. Order No. 14148, 90 Fed. Reg. 8237, *Initial Rescissions of Harmful Executive Orders and Actions*, Jan. 20, 2025.

[2] Christopher Rigano, *Using Artificial Intelligence to Address Criminal Justice Needs*, NIJ Journal 280, Jan. 2019.

[3] IBM.com, *Deep Blue: IBM's computer checkmated a human chess champion in a computing tour de force*.

Selected Federal Guidance

In February 2019, the White House published Executive Order No. 13859, *Maintaining American Leadership in Artificial Intelligence*.[4] This executive order established five guiding principles: the United States must (1) drive technological breakthroughs in AI; (2) drive development of appropriate technical standards and reduce barriers to the safe testing and deployment of AI; (3) train current and future generations with the skills to develop and apply AI technologies; (4) foster public trust and confidence in AI and protect civil liberties, privacy, and American values in their application; and (5) promote an international environment that supports AI research and innovation.

In December 2020, the White House published Executive Order No. 13960, *Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government*.[5] This executive order established policy on AI and the following principles for the use of AI in Government:

- Lawful and respectful of our Nation's values;
- Purposeful and performance-driven;
- Accurate, reliable, and effective;
- Safe, secure, and resilient;
- Understandable;
- Responsible and traceable;
- Regularly monitored;
- Transparent; and
- Accountable.

The executive order also required the Office of Management and Budget (OMB) to update its policies to address the use of AI and required the Federal Chief Information Officers Council to establish parameters for agency inventories of AI use cases.[6]

In June 2021, the U.S. Government Accountability Office (GAO) issued *Artificial Intelligence: An Accountability Framework for Federal Agencies and Other Entities*,[7] which outlines key accountability practices, focusing on the principles of governance, data, performance, and monitoring of AI. The GAO report is intended to serve as a guide to help Federal agencies develop a robust AI accountability strategy, mitigate risks, and maximize the benefits of AI technologies. In May 2023, GAO's Chief Data Scientist provided testimony, summarized in *Artificial Intelligence: Key Practices to Help Ensure Accountability in Federal Use*,[8] where he emphasized the need for a comprehensive risk management strategy to address AI risks. Both provide guidance and recommendations to help Federal agencies develop strategies for the responsible use of AI.

The National Institute of Standards and Technology (NIST) also released guidance that includes standards and benchmarks for AI systems to ensure interoperability and consistency. Its *Artificial Intelligence Risk Management Framework* (AI RMF),[9] published in January 2023, is an outline of risk management efforts, assessment of AI systems' impact, and documentation for transparency and accountability.

In October 2023, the White House released Executive Order No. 14110, *Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence*.[10] Shortly thereafter, OMB released Memorandum M-24-10, *Advancing Governance, Innovation, and Risk Management for Agency Use of Artificial Intelligence*,[11] which also

[4] Exec. Order No. 13859, 84 Fed. Reg. 3967, *Maintaining American Leadership in Artificial Intelligence*, Feb. 11, 2019.

[5] Exec. Order No. 13960, 85 Fed. Reg. 78939, *Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government*, Dec. 3, 2020.

[6] An AI use case refers to the mission-oriented uses of AI that have been implemented at Federal agencies.

[7] GAO report, GAO-21-519SP, *Artificial Intelligence: An Accountability Framework for Federal Agencies and Other Entities*, June 30, 2021.

[8] GAO report, GAO-23-106811, *Artificial Intelligence: Key Practices to Help Ensure Accountability in Federal Use*, May 16, 2023.

[9] NIST AI 100-1, *Artificial Intelligence Risk Management Framework (AI RMF 1.0)*, Jan. 2023.

[10] Exec. Order No. 14110, 88 Fed. Reg. 75191, *Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence*, Oct. 30, 2023; Revoked by Exec. Order No. 14148, *Initial Rescissions of Harmful Executive Orders and Actions*, Jan. 20, 2025.

[11] OMB Memorandum M-24-10, *Advancing Governance, Innovation, and Risk Management for Agency Use of Artificial Intelligence*, Mar. 28, 2024.

promotes the secure, transparent, ethical, and innovative uses of AI. The memorandum provided a framework for assessing and managing the risks associated with this new emerging technology.

In July 2024, NIST released a companion piece to the NIST AI RMF, the *Artificial Intelligence Risk Management Framework: Generative Artificial Intelligence Profile*.[12] The profile is designed to help organizations identify unique risks posed by generative AI and proposes actions for generative AI risk management that best align with organizational goals and priorities.

On January 20, 2025, Executive Order No. 14110 was revoked, and, on January 23, 2025, Executive Order No. 14179 directed the OMB Director, in coordination with the Assistant to the President for Science and Technology, to revise OMB Memoranda M-24-10 and M-24-18[13] as necessary to make them consistent with the executive order's policy.[14] On April 3, 2025, OMB issued two new memoranda that rescind and replace OMB Memoranda M-24-10 and M-24-18.[15]

See Figure 1 for a summary of the status of executive orders that pertain to AI and ML efforts in the Federal Government.

Figure 1: Summary of AI Executive Orders as of January 2025

Name	Date	Purpose	Status
Executive Order No. 13859, *Maintaining American Leadership in Artificial Intelligence*	Feb. 2019	Set the groundwork for promoting AI.	Active
Executive Order No. 13960, *Promoting the Use of Trustworthy Artificial Intelligence in the Federal Government*	Dec. 2020	Establishing the policies and principles for AI.	Active
Executive Order No. 14110, *Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence*	Oct. 2023	Promote the secure, transparent, ethical, and innovative uses of AI by providing a framework for assessing and managing the risks associated with AI. This executive order required agencies to create and submit an AI Strategy and AI Compliance plan that outlines their plans to meet the new requirements from this executive order.	Revoked: Jan. 20, 2025
Executive Order No. 14179, *Removing Barriers to American Leadership in Artificial Intelligence*	Jan. 2025	To revoke and/or revise "certain AI policies and directives" including OMB Memoranda M-24-10 and M-24-18.	Active

Source: DOI OIG-created using information from the U.S. Office of Personnel Management.

[12] NIST AI 600-1, *Artificial Intelligence Risk Management Framework: Generative Artificial Intelligence Profile*, July 2024.

[13] OMB Memorandum M-24-18, *Advancing the Responsible Acquisition of Artificial Intelligence in Government*, Sept. 24, 2024.

[14] Section 2 of the executive order states, "It is the policy of the United States to sustain and enhance America's global AI dominance in order to promote human flourishing, economic competitiveness, and national security."

[15] OMB Memorandum M-25-21, *Accelerating Federal Use of AI through Innovation, Governance, and Public Trust*, Apr. 3, 2025; OMB Memorandum M-25-22, *Driving Efficient Acquisition of Artificial Intelligence in Government*, Apr. 3, 2025.

Status of DOI's AI Program

As previously noted, DOI did not have a formalized AI program until 2023. However, beginning in 2023, DOI's Office of the Chief Information Officer (OCIO) began implementing a "whole DOI" approach to AI and initiated the earliest planning stages for agencywide AI guidance. From 2023 to mid-January 2025, DOI OCIO developed several Departmentwide AI program efforts, including publishing a website, developing goals, and creating a compliance plan. Our report provides the status of DOI's AI program as it existed prior to revocation of Executive Order No. 14110 in January 2025.

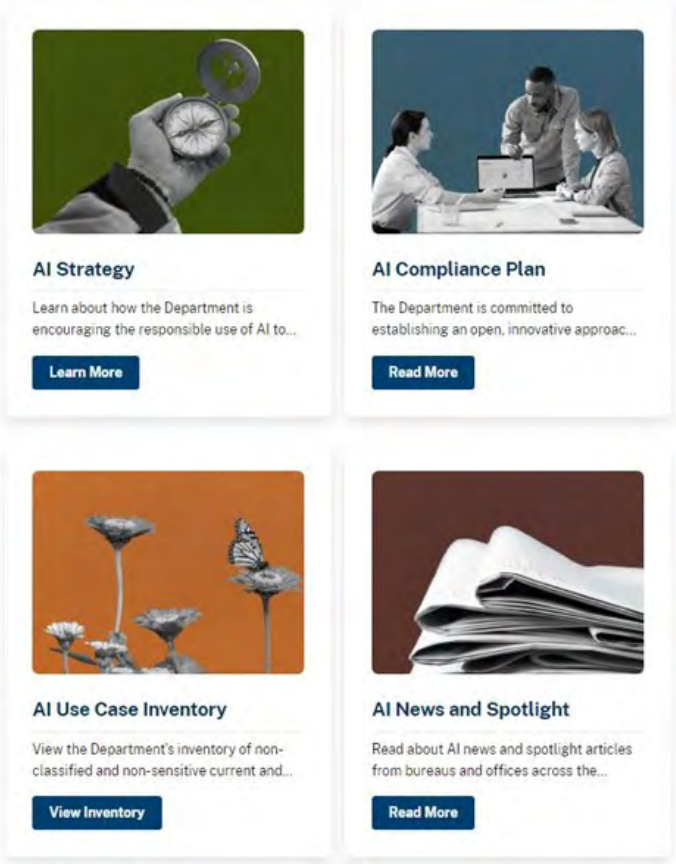
Program Efforts From 2023 To Mid-January 2025

The early stages of DOI's program involved developing a strategy, compliance plan, and a use case inventory. These were then published at https://www.doi.gov/ai. The website also included a section for featuring AI-related news from DOI bureaus and offices (see Figure 2).

DOI's stated AI strategy, as reflected on that website, consisted of a high-level outline of DOI's four main goals. These goals were:

- AI would be used to support and amplify mission and delivery;
- AI would drive innovation and increase effectiveness and efficiencies in the Department by increasing the maturity of AI;
- The Department would have an AI-ready workforce; and
- The Department's standards would be responsible, trustworthy, and accessible.

Figure 2: DOI's AI Webpage, as of December 2024



Source: DOI, https://www.doi.gov/ai, Dec. 9, 2024.

DOI's AI compliance plan described a newly launched AI use case "collection and intake process," which included a review and approval process and "conception to retirement" tracking of all AI use cases. As part of the intake process, DOI's compliance plan also stated that each submission "[would be] reviewed with the core values and the principles of safety and protecting civil rights and civil liberties in mind." The compliance plan outlined additional goals and initiatives for meeting the requirements in M-24-10, most of which were still in their respective planning phases.

Additionally, DOI partnered with third parties to host a number of AI training sessions, which were open to DOI employees and other Federal partners. These sessions included introductory AI courses that "focus on how AI technologies are reshaping job roles, transforming federal operations, and the necessary pathways to integrate AI into federal programs effectively."[16]

[16] DOI University, *Foundation: Artificial Intelligence in the Federal Workplace*, Sept. 19, 2024.

Status of DOI's AI Program

In 2023, GAO conducted a review of all Federal agencies' use of AI, with the objective to "(1) describe federal agencies' reported current and planned uses of artificial intelligence (AI); (2) assess the extent to which federal agencies' AI reporting was comprehensive and accurate; and (3) determine the extent to which federal agencies have complied with selected federal policy and guidance on AI." The GAO report, published in December 2023, included summary findings that affect some or all of the agencies audited and did not have findings that were specific to DOI. However, the GAO report made three specific recommendations to DOI, as identified in Figure 3.[17]

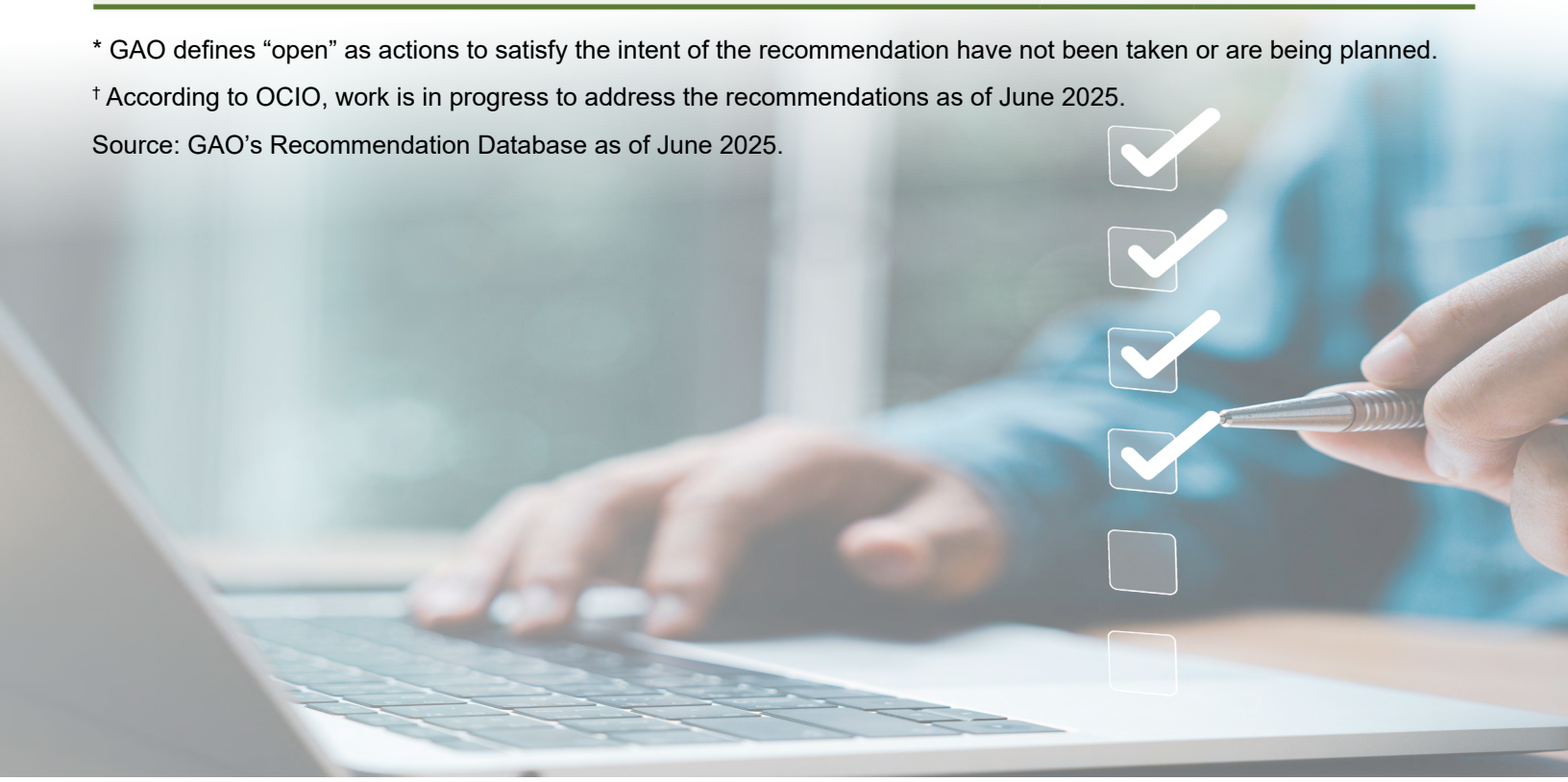
Figure 3: Status of GAO Recommendations (From GAO-24-105980)

Recommendation	Status*	Target Closure Date†
The Secretary of the Interior should ensure that the department develops a plan to either achieve consistency with EO 13960 section 5 for each AI application or retires AI applications found to be developed or used in a manner that is not consistent with the order. (Recommendation 19)	Open	Jan. 15, 2025
The Secretary of the Interior should ensure that the department (a) reviews the agency's authorities related to applications of AI and (b) develops and submits to OMB plans to achieve consistency with the Regulation of AI Applications memorandum (M-21-06). (Recommendation 20)	Open	Dec. 1, 2024
The Secretary of the Interior should ensure that the department updates its AI use case inventory to include all the required information, at minimum, and takes steps to ensure that the data in the inventory aligns with provided instructions. (Recommendation 21)	Open	Dec. 31, 2024

* GAO defines "open" as actions to satisfy the intent of the recommendation have not been taken or are being planned.

† According to OCIO, work is in progress to address the recommendations as of June 2025.

Source: GAO's Recommendation Database as of June 2025.



[17] GAO report, GAO-24-105980, *Artificial Intelligence: Agencies Have Begun Implementation but Need to Complete Key Requirements*, Dec. 2023.

Status of DOI's AI Funding

DOI did not separately fund AI programs; instead, these expenditures were consolidated with other IT expenses. As a result, we could not identify total AI spending for FYs 2022 through 2024. DOI included AI in its FY 2025 budget request and, at the time of our review, stated that it planned to conduct an AI-specific data call during FY 2025 to support budget formulation going forward.

DOI's FY 2025 budget request reflected DOI's priorities and approaches at the time of our review and included $2.3 million to establish an AI governance program (see Figure 4). The budget request sought $1.4 million to permanently fill a Chief Artificial Intelligence Officer position and staff a new Artificial Intelligence Program Office with four full-time employees. According to the budget request, the new program office would be responsible for mitigating risks from the use of AI that impact human safety and rights and would develop a monitoring and evaluation process for AI applications.

As part of the $2.3 million budget request, DOI also requested $893,000 for AI Implementation Support to U.S. Digital Services (USDS)[18] to aid USDS' implementation of AI programs across the Government and an additional $50,000 under the Data Management program to support the development of DOI's Enterprise AI Strategy. At the time of our review, bureaus and offices were planning and funding AI through their mission and program areas.

Figure 4: DOI's FY 2025 Budget Justification for AI

Activity: Artificial Intelligence

Working Capital Fund	2023 Actual	2024 Annualized Continuing Resolution	2025 Request	Change from 2024 (+/-)
Funding requested	+0	+0	+$2,330,000	+$2,330,000
Staffing requested	+0	+0	+5	+5

Summary of Program Changes

Request Component	Funding Requested	Staffing Requested
Artificial Intelligence (AI) Enablement and Adoption	+$1,437,000	+5
AI Implementation Support to U.S. Digital Services (USDS)	+$893,000	+0
Total Program Changes	**+$2,330,000**	**+5**

Source: DOI OIG-created using information from DOI's FY 2025 Budget Request.

[18] A January 20, 2025, Executive Order No. 14158, 90 Fed. Reg. 8441, *Establishing and Implementing the President's "Department of Government Efficiency"* (DOGE), states, "The United States Digital Service[s] is hereby publicly renamed as the United States DOGE Service (USDS) and shall be established in the Executive Office of the President." The order also states, "There is further established within USDS, in accordance with section 3161 of title 5, United States Code, a temporary organization known as 'the U.S. DOGE Service Temporary Organization'. The U.S. DOGE Service Temporary Organization shall be headed by the USDS Administrator and shall be dedicated to advancing the President's 18-month DOGE agenda. The U.S. DOGE Service Temporary Organization shall terminate on July 4, 2026."

Status of Bureau and Office AI Programs

At the time of this report, bureaus and offices did not have dedicated AI program areas or staff. Instead, AI responsibilities have been assigned to existing roles, such as program managers, project managers, business analysts, data architects, enterprise architects, system administrators, developers, and other scientists (for example, biologists and physical scientists).

Bureau and Office AI Funding

We surveyed the bureaus and offices to find out how much was being spent on AI; their responses indicated that AI funding between FYs 2022 and 2024 varied widely among bureaus and offices. For example:

- The Bureau of Reclamation (BOR) reported its Research and Development Office funded $3.1 million in AI and ML research projects.
- The Bureau of Trust Funds Administration was unable to obtain the total dollar amount spent due to year-end activities, but it reported spending $1.5 million on software that contains an AI Optical Character Recognition engine.
- The U.S. Fish and Wildlife Service (FWS) reported spending $175,000 on AI projects; additionally, FWS is seeking grants and nongovernmental partnerships to fund future AI use cases.
- USGS stated that it has made significant progress on AI-based projects. USGS stated that AI funding is determined by program and mission areas; however, the funding amounts were not available at the time of this report.

The remaining eight bureaus and offices reported that there were no dedicated funds for AI projects.

Bureau and Office AI Policies and Strategies

On August 9, 2023, OCIO issued a policy memo titled *Risk Managed Use of Generative Artificial Intelligence*. This memo prohibits employees from disclosing non-public data to any generative AI system unless or until that system is authorized by the Department for use. It also notifies employees that generative AI systems will be subject to the Department's prohibition on installing unauthorized software on agency devices.

As of October 2024, two bureaus have published their own internal AI policies. BOR has issued an Acceptable Use for Generative AI policy that outlines expectations for the use of generative AI within BOR and restrictions for employee use of both internal and external generative AI applications. FWS has published an Information Resources and Technology Management IT Bulletin containing policy related to the use of AI tools and applications. FWS' policy applies to all types of AI, including generative AI and ML. It has additional requirements for the use of generative AI, such as ensuring adequate human training, ensuring human involvement in decision making, and providing a notice when AI is used. Both bureaus' policies prohibit employees from uploading sensitive information to public generative AI systems, such as personally identifiable information, Controlled Unclassified Information, or predecisional materials.

USGS is in the process of drafting an AI strategy, which it expects to publish in early 2025, that will complement DOI's AI strategy. The remaining bureaus and offices reported that they rely on the 2023 policy memorandum published by OCIO.

Bureau and Office AI Use Cases

DOI's AI website states, "Artificial Intelligence (AI) tools offer an opportunity to increase the effectiveness and efficiency of the Department of the Interior's (DOI) work in our efforts to steward the nation's resources. . . . With careful and deliberate implementation, DOI can use AI to increase benefits to people, climate and nature."[19] We invited the surveyed bureaus and offices to showcase some of their most impactful AI use cases. We are highlighting the examples we received below, as described by the respective bureaus.

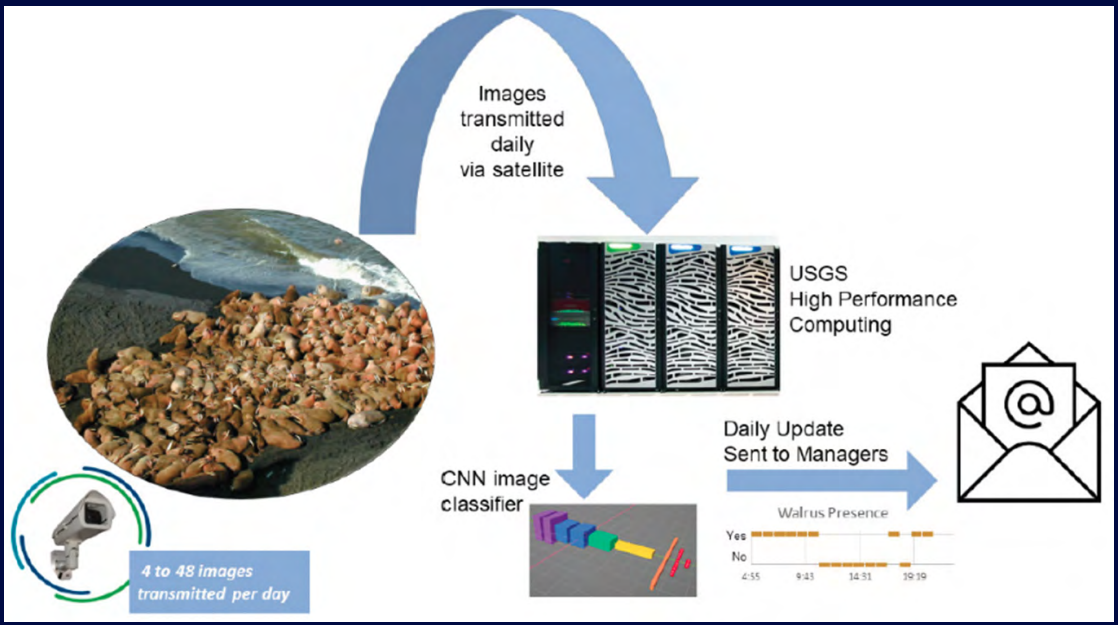
USGS' ML for Pacific Walrus Management

Federal, international, and local agencies recognize a need to protect Pacific walruses at coastal haulouts. Coastal haulouts are places where walruses rest; if disturbed, walruses may trample each other if the herd moves in a panic toward the water. USGS uses ML to help protect and manage Pacific walruses at the Alaska Science Center and currently has two projects related to the Pacific walrus for FWS and the Eskimo Walrus Commission. The first is detection of Pacific walrus herds at coastal haulouts using optical satellite imagery. The second is using photo imagery collection for presence/absence classification and automatic near-real-time data delivery to managers. USGS stated that with advanced warning of walrus herd location, staff can better prepare movements to minimize disturbance by human presence. USGS' goal over the next year is to develop a prototype system for automated walrus haulout monitoring and notification and then improve that system over subsequent years.

USGS Prototype of Automated Monitoring of Pacific Walrus Haulouts

USGS' software package, the Walrus Camera Station Image Classifier, provides the tools to evaluate convolutional neural networks for classifying images and automatically running them against directories of images to produce comma separated value files that can be used to generate notifications.

Source: USGS, Walrus Research.



[19] Artificial Intelligence (AI) | U.S. Department of the Interior.

BOR's ML Analysis on Quagga Mussel Habitat Suitability

Quagga mussels are a highly invasive and destructive freshwater species (see Figure 5).[20] They can clog water intake systems and cause damage to water treatment and power plants. BOR reported that its research into quagga mussel invasion employed advanced ML techniques to unravel complex ecological predictors of species establishment. Using a gradient-boosted machine and neural network models, researchers analyzed ecological data from 20 stations across Arizona's water bodies. According to BOR, this advanced predictive approach offers a more sophisticated understanding of invasive species dynamics and potential migration patterns.

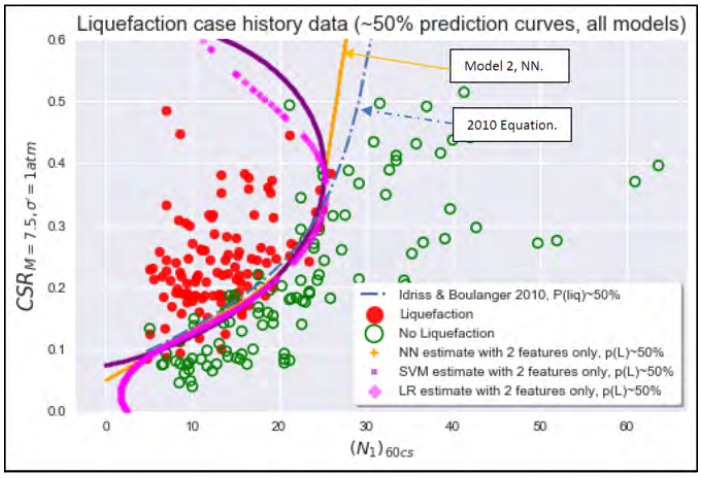
Figure 5: Quagga Mussels

Source: BOR.

BOR's Seismic Liquefaction Predictive Modeling

Soil liquefaction occurs when soil loses significant strength during or after a seismic event, which can lead to reduced soil resistance and potentially catastrophic failures like landslides or earthquakes.

Figure 6: Soil Liquefaction Predictive Model Using ML



Source: BOR.

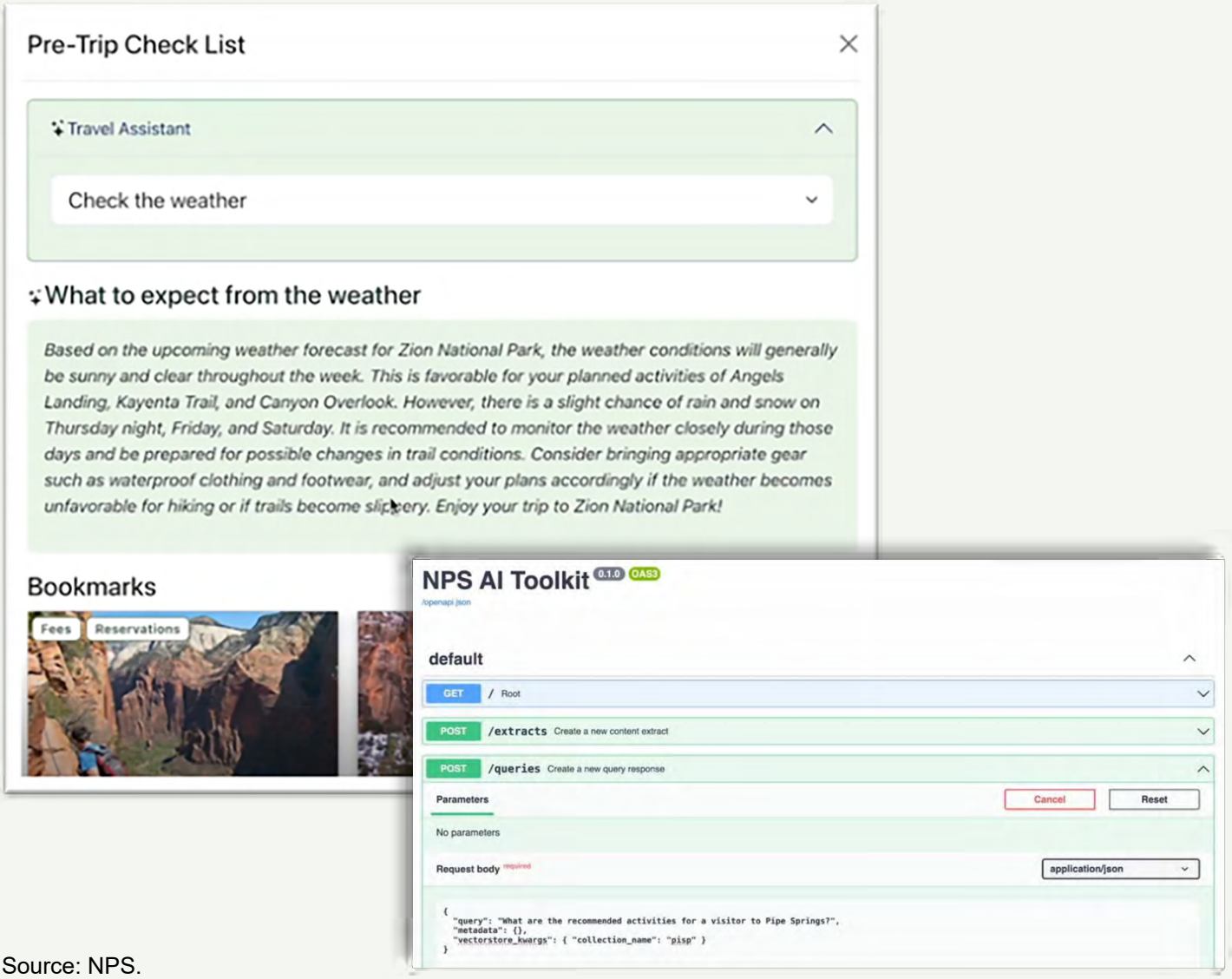
BOR reported that it is using statistical methods applied to seismic analysis projects, which it states is an example of the transformative potential of ML in geotechnical engineering risk assessment. By implementing advanced statistical learning algorithms, potentially including support vector machines or random forest classifiers, researchers developed predictive models that, according to BOR, outperform traditional seismic liquefaction assessment methods. BOR stated that these model-based approaches use complex pattern recognition capabilities to analyze multiple geological and seismic input variables, thereby creating more nuanced probability predictions of soil liquefaction during seismic events. Figure 6 is an example of BOR's ML model comparison.

[20] DOI, *Invasive Species/Water Resources*, Mar. 3, 2020.

NPS' Generative AI To Improve Visitor Experience on NPS.gov

NPS has explored using AI to improve the visitor experience by providing information on topics of particular interest to park visitors to help with their trip planning (see Figure 7). To accomplish this, NPS developed a prototype website that uses ML to sift through publicly available NPS content and synthesize data relevant to what the visitor may be seeking. In addition, NPS reported that the prototype reads through unstructured, publicly available NPS data to provide recommendations to content authors to help ease the burden of data entry.

Figure 7: NPS Website Use of AI To Improve Visitor Experience



Source: NPS.

DOI's AI and ML Challenges

We surveyed the Department, bureaus, and offices regarding what they consider their biggest challenges with AI. We asked them to broadly point out concerns with security, adoption, development, and any other issues they may be facing. They responded with multiple concerns, with the most prevalent being that the increasing advancement of AI and ML technologies presents both unprecedented opportunities and complex challenges. As DOI and its bureaus seek to use cutting-edge technologies to enhance mission effectiveness, they encounter strategic, organizational, and human capital barriers. This section explores the reported challenges faced by DOI and its bureaus as they have attempted to meaningfully incorporate AI and ML into their operational programs.

Reported Strategic and Organizational Challenges

Each bureau and office responded to our survey with its own unique set of challenges; however, some respondents noted common concerns. For example, multiple bureaus and offices stated that the landscape of AI adoption DOI-wide is marked by significant strategic uncertainties and institutional barriers. Many bureaus stated that they are confronting "fundamental gaps" in their technological readiness, with what they called a pronounced absence of comprehensive AI strategies and clear implementation and execution policies. As a result, some bureaus, like FWS and the Bureau of Safety and Environmental Enforcement, are currently awaiting broader departmental policy to inform and guide their future approaches.

Additionally, according to survey results from the bureaus and offices, data management and engineering is emerging as a critical bottleneck, with bureaus struggling to address data challenges. According to the bureaus, these obstacles lie in collecting data as well as in cleansing, standardizing, and preparing datasets to ensure reliable and meaningful AI outcomes. Bureau and office program areas moreover stated that they face challenges in identifying and securing funding for what they termed essential data preparation efforts.

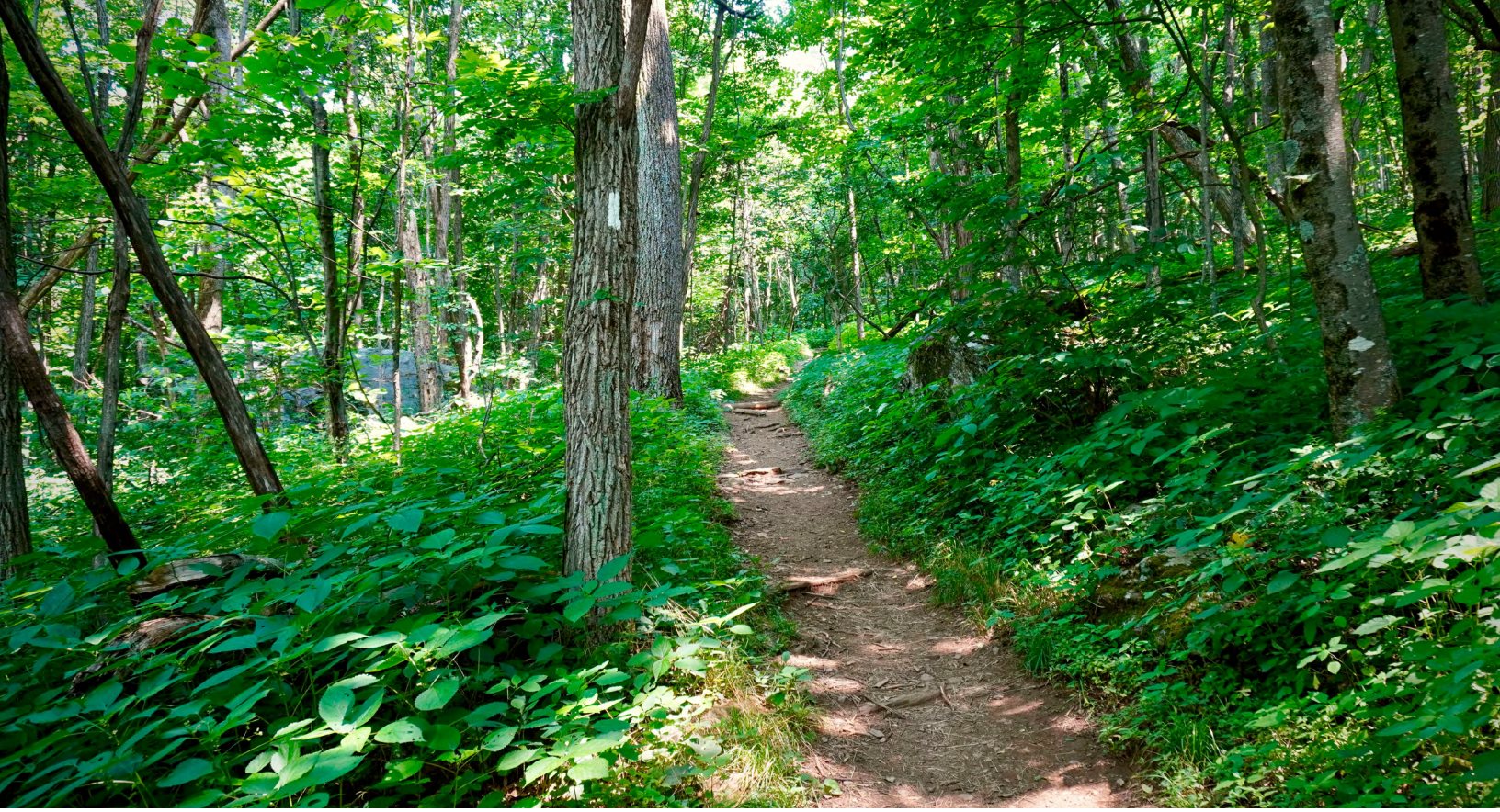
Finally, many of the survey respondents expressed their belief that cultural resistance and a limited understanding of AI's transformative potential further complicate technological integration, creating a multilayered barrier to effective implementation.

Reported Workforce and Infrastructure Challenges and Perceived Risks to AI and ML Adoption

According to the responses we received, the human capital dimension of AI and ML adoption represents a multifaceted challenge for DOI. Representatives from 10 bureaus and offices surveyed stated that training a workforce in AI and ML systems is challenging because the subject is complex and requires more than technical training. For example, BOR reported that it is attempting to develop an AI-literate workforce that can simultaneously innovate, implement, and responsibly manage emerging technologies. BOR believes that this requires creating a collaborative community of AI experts that it termed a "nuanced ecosystem of AI professionals"—from technical development of systems to informed consumers who understand when and how to leverage AI and ML capabilities strategically.

Furthermore, representatives from 10 bureaus and offices surveyed reported that what they describe as the workforce development challenge is compounded by the need for comprehensive education programs that teach technical skills and cultivate an understanding of responsible AI use, ethical considerations, and potential organizational risks. They stated that these programs do not exist at this time within DOI. All 10 of the bureaus and offices stated that the technological skill gap is particularly evident among technical staff and leadership, necessitating not just training programs, but fundamental shifts in organizational learning and technological adoption strategies. Development and operation of new AI systems require significant technical skillsets that are not available to all bureaus and offices. In addition, utilization and prompt engineering (designing questions or instructions to elicit specific responses from AI) will also require significant training across the user base.

Lastly, bureaus identified infrastructure limitations as a compounding factor, stating that there are multiple bureaus struggling to secure access to the high-performance computing resources necessary for AI and ML development. According to survey respondents, funding constraints are a bottleneck, with bureaus such as USGS reporting that they found themselves limited in their ability to financially support pilot projects and science-based investigative initiatives.



Scope and Methodology

We conducted our inspection in accordance with the *Quality of Standards for Inspection and Evaluation* as put forth by the Council of the Inspectors General on Integrity and Efficiency. To accomplish our objectives, we obtained background information on DOI; we queried the Department, bureaus, and offices for documentation related to AI use cases, AI policies, funding, hiring, and spending; and we discussed details with OCIO officials to determine how they plan to spend funds and manage oversight. We gathered the information in this flash report directly from DOI and its personnel or from publicly available sources.

LOOKING AHEAD

Our future oversight efforts of DOI activities related to AI may include the following:

- Reviewing DOI's AI use case approval and implementation processes.
- Reviewing DOI's AI resource management and prioritization.
- Reviewing proposals and related expenditures to ensure each use case complies with applicable laws, regulations, policies, and procedures.
- Following DOI's progress in developing its AI use case inventory.

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