ABUNDANCE INSTITUTE

Improving Government Efficiency with AI Technologies

→ Neil Chilson*

April 9, 2025

* Head of AI Policy, Abundance Institute

Thank you, Chairman Schweikert and members of the Joint Economic Committee, for inviting me to discuss how artificial intelligence and data can enhance government efficiency. I am Neil Chilson, the Head of AI Policy at the Abundance Institute.

The Abundance Institute is a mission-driven nonprofit dedicated to creating the cultural and policy environment necessary for emerging technologies to thrive and drive widespread human prosperity.

The United States currently leads the world in advanced computing technologies commonly called "artificial intelligence." These technologies have the potential to significantly drive economic growth and improve human flourishing nationwide. The private sector is already deploying these technologies to increase efficiency, eliminate fraud, streamline complex processes, and improve quality of interactions with customers. Some forward-looking governments are heavily using AI technologies to improve government services and deploy new ones. For example, Estonia, which has the approximate population of San Antonio, Texas, has deployed over 160 AI projects across diverse areas, including border security, forest management, and public services.[1] Their *Bürokratt* system, a nationwide network of chatbots, provides citizens with information and basic government services directly on public websites.[2]

These benefits can and should be leveraged in the U.S. public sector as well. The U.S. federal government does have many implementations of AI technology, defined broadly. A January 2025 inventory counted 2133 use cases from 41 different agencies.[3] Approximately a quarter of those use cases identify efficiency or a related benefit.[4] Only 86 use cases identify waste, fraud, or abuse or related ideas in a description of

1 *See,* Estonia Ministry of Justice and Digital Affairs, *AI use cases* (visited Apr. 7, 2025), https://www.kratid.ee/en/ai-use-cases.

2 *See,* Estonia Ministry of Justice and Digital Affairs, *The virtual assistant Bürokratt* (visited Apr. 7, 2025), https://www.kratid.ee/en/burokratt.

3 Office of Management and Budget, *2024 Federal Agency AI Use Case Inventory* (visited Apr. 7, 2025), https://github.com/ombegov/2024-Federal-AI-Use-Case-Inventory. *See also,* CIO.gov, *2024 AI Use Case Inventory* (visited Apr. 7, 2025), https://www.cio.gov/policies-and-priorities/Executive-Order-13960-AI-Use-Case-Inventories-Reference/.

4 526 use cases mention "efficiency", "efficient", "reduce time", "speed", "streamline", "automation", "productivity", "fast', or "rapid" in response to the question "What is the intended purpose and expected benefits of the AI?".

the expected benefit.[5] Only 40 of those are currently operating, and a mere seventeen of those in-operation use cases appear intended to directly identify fraud, waste, or abuse, although others contribute indirectly. Of these seventeen systems, five are at the Department of Homeland Security; three are at each of Health and Human Services, Department of Treasury, and Department of Justice; and one each at the Social Security Administration, USAID, and Veterans Affairs. See Appendix A for more details.

In short, while there are many AI projects across the federal government, there remains a significant additional opportunity to take advantage of recently developed artificial intelligence technologies to reduce costs and improve government efficiency.

Key Technologies and Methods in AI and Data Analytics

Since OpenAI released ChatGPT in 2022, artificial intelligence has gained new prominence. Of course, powerful AI and data analysis tools existed before ChatGPT. Many of these technologies, new and old, are already in use across the private sector, and some have found their way into government as well. Yet government services have only begun to explore the full potential of these technologies. Here are some of the kinds of AI-related technologies that could offer substantial benefits:

Predictive analytics uses historical and real-time data combined with statistical algorithms and machine learning to forecast future events and manage risk. By identifying patterns in data, predictive models enable organizations to anticipate problems and optimize decisions before issues occur. For example, retailers use predictive models to anticipate customer demand and thus optimize inventory levels and logistics.[6] Government services with consumer-facing functions could apply insights from predictive analytics to right-size the number of service representatives, for example, on duty at certain times of the month, week, or day.

5 86 use cases mention “waste”, “fraud”, “abuse”, “misuse”, “integrity”, “compliance”, or “accountability” in response to the question “What is the intended purpose and expected benefits of the AI?”.

6 *See,* Michael Hickins, Oracle, *What is Retail Analytics? The Ultimate Guide* (Mar. 17, 2023), https://www.oracle.com/retail/what-is-retail-analytics/.

Anomaly detection uses AI and statistical methods to identify outliers or unusual patterns in data that could indicate errors, fraud, or inefficiencies. Traditional rule-based systems often fail to detect novel or complex fraud schemes and frequently over-scrutinize legitimate transactions ("false positives"). In contrast, modern anomaly detection models quickly identify unusual activities by continuously learning what constitutes 'normal' behavior. You may have experienced the benefits of these systems when your credit card company occasionally texts or calls you after a transaction to ensure that it was a genuine transaction. These methods have been highly successful in the financial industry: for example, HSBC's anomaly detection upgrade helps them find two to four times more financial crime with 60% fewer false positives.[7]

Natural Language Processing (NLP) uses AI to understand and generate human language (text or speech). NLP enables computers to process large volumes of unstructured text data – such as documents, emails, support tickets, or voice transcripts – far faster and more consistently than people. Overall, NLP enhances human capacity by quickly interpreting and analyzing large volumes of text. This improves efficiency (faster processing, less paperwork) and can unveil fraud signals hidden in volumes of text.[8] NLP is also used for customer service and can handle routine inquiries, freeing human agents for complex issues. This can improve the customer experience while providing quicker responses. NLP can also streamline compliance, scanning through legal texts and regulations to ensure company filings or communications comply with required standards and flagging any deviations.

Robotic Process Automation (RPA) uses software "bots" to automate repetitive, rules-based tasks usually done by humans, such as clicking, typing, and copying data. These bots rapidly perform tasks without errors, significantly reducing manual workflow inefficiencies common in finance, operations, and customer service. They are particularly useful for integrating legacy systems. RPA streamlines routine tasks, cutting labor costs, eliminating human error, and improve customer and worker

7 Jennifer Calvery, HSBC, *Harnessing the power of AI to fight financial crime* (Jun. 10, 2024) https://www.hsbc.com/news-and-views/views/hsbc-views/harnessing-the-power-of-ai-to-fight-financial-crime.

8 Petros Boulieris, John Pavlopoulos, *et al., Fraud detection with natural language processing,* 113 Mach. Learn. 5087–5108 (2024), https://doi.org/10.1007/s10994-023-06354-5.

satisfaction.[9] Deloitte reports average efficiency gains of 22-31% from RPA, while reducing processing errors by 20-40%.[10] Companies often integrate RPA with other AI tools for more complex workflows. For example, bots extract data from invoices, while anomaly detection checks for fraud. In government agencies, where legacy paperwork and labor-intensive workflows are common, RPA has huge potential to reduce backlogs in areas like processing benefits or licensing applications.

Graph analytics map relationships between entities, such and customers, suppliers, or contractors. This enables the detection of patterns of abuse or fraud that span many entities in the real world. For example, banks use graph analytics to identify and shut down fraud rings much faster, and insurance companies use graph analytics to uncover networks of staged-accident rings (where multiple claims across different insurers are coordinated by criminals).[11]

Federated learning is a new mode of machine learning that shares patterns in sensitive data without sharing the data itself, making it possible, for example, for banks to catch cross-bank activity without having to share customer data.[12] This enhances financial institutions' ability to identify fraud that spans many institutions without creating new privacy or compliance risks.

These AI technologies are already widely used by businesses. They help improve efficiency, reduce fraud, and deliver better customer service. While each technology is valuable on its own, combining them can solve more complex problems. Government

9 McKinsey, *The value of robotic process automation* (Mar. 1, 2017), https://www.mckinsey.com/industries/financial-services/our-insights/the-value-of-robotic-process-automation.

10 Anastasiia Polner, David Wright, *et al., Automation with intelligence* at 8 (2022), https://www2.deloitte.com/us/en/insights/focus/technology-and-the-future-of-work/intelligent-automation-2022-survey-results.html; Deloitte, *The robots are here: Are you ready?* (visited Apr. 7, 2025), https://www2.deloitte.com/ca/en/pages/consulting/articles/Robots-are-here.html.

11 Todd Blaschka and Gaurav Deshpande, *How the World's Largest Banks Use Advanced Graph Analytics to Fight Fraud* (Jan. 22, 2020), https://www.rtinsights.com/how-the-worlds-largest-banks-use-advanced-graph-analytics-to-fight-fraud/; AWS, *Fraud Graphs on AWS* (visited Apr. 7, 2025), https://aws.amazon.com/neptune/fraud-graphs-on-aws/.

12 Vineet Dave and Arun Santhanagopalan, *Google Cloud and Swift pioneer advanced AI and federated learning tech to help combat payments fraud* (Dec. 10, 2024), https://cloud.google.com/blog/products/identity-security/google-cloud-and-swift-pioneer-advanced-ai-and-federated-learning-tech.

agencies, which often manage large amounts of data, outdated systems, and public-facing services, can greatly benefit from using these tools. The next section provides specific examples of how government agencies might effectively apply AI to improve operations and serve citizens better.

Potential Government Use Cases of AI

Government agencies frequently handle large amounts of data, rely on legacy systems, and provide many public-facing services. As a result, they can significantly benefit from the AI tools described earlier. This section explores two key areas—procurement and contracting, and benefits administration—where government agencies can effectively apply AI to enhance operations and improve citizen services.

Procurement and Contracting

Government procurement and contracting face significant challenges, including cost overruns, fraud, improper payments, bid-rigging, and vendor collusion. They also suffer from repetitive manual tasks, clerical errors, corruption, favoritism, and insufficient transparency.

Data analytics and AI technologies can address these challenges. Predictive analytics can proactively flag high-risk contracts and vendors by analyzing historical patterns *before* any money goes out the door. Anomaly detection can identify irregularities in invoices and payments to prevent improper transactions. Graph analytics can detect collusion by revealing hidden connections between bidders. RPA can speed the procurement process by automating repetitive procurement tasks, such as compiling all received bids into a comparison spreadsheet instantly.

These technologies collectively offer profound improvements in procurement. Fraud detection, streamlined workflows, and automated processes offer substantial cost savings and improve timely project delivery. Implementing these solutions requires upfront investment and training but promises a procurement system that is efficient, effective, and reliable.

Benefits Administration

Benefits administration – managing programs like unemployment insurance, food assistance (SNAP), Medicaid, Social Security, etc. – is another government domain that can reap huge rewards from AI and data analytics. These programs often suffer from fraudulent claims, eligibility errors, and processing backlogs, which lead to both financial losses and delays for legitimate beneficiaries. Here's how the technologies can help.

AI and related technologies offer powerful tools for improving benefits administration. Anomaly detection and predictive analytics can swiftly identify fraudulent or suspicious benefit claims by analyzing patterns such as unusual filing locations or multiple claims from a single address. NLP can efficiently verify applicant documentation, ensuring consistency and authenticity, such as assessing medical evidence against disability claims. RPA can streamline the application process, reducing manual errors and speeding approvals by automating tasks like income verification and reminders. Federated learning can facilitate anti-fraud collaboration across agencies without compromising privacy, detecting multi-agency fraud patterns like shared bank accounts across different states. Finally, predictive analytics allows agencies to forecast caseload trends, optimizing resource allocation and enhancing service delivery.

Adopting these tools in benefits administration means greater program integrity and faster service. Using AI in social service programs could substantially cut the estimated billions in annual improper payments (for example, Medicare and Medicaid combined for an estimated $85 billion in improper payments during 2024[13]) and ensure that public assistance reaches only those who truly qualify. Legitimate beneficiaries could receive quicker approvals and fewer wrongful denials (since AI can reduce human error and bias too), while fraudulent applicants find it much harder to get through the net.

13 U.S. Government Accountability Office, *Improper Payments: Information on Agencies' Fiscal Year 2024 Estimates* at 2 (Mar. 11, 2025), https://www.gao.gov/assets/gao-25-107753.pdf.

Conclusion

Commercial sectors like banking, insurance, and healthcare demonstrate that advanced technologies such as AI analytics effectively reduce waste, prevent fraud, and boost efficiency. Governments face similar challenges—including fraudulent claims, tax evasion, procurement inefficiencies, and bureaucratic delays—and can benefit significantly by adopting predictive analytics, NLP, RPA, federated learning, and graph analytics. Such technologies ensure funds reach intended purposes, improve citizen services through faster processing and transparent operations, and could lead to substantial savings.

Government adoption of these innovations will face challenges. The government will need to update legacy IT systems, safeguard data privacy and security, and address policy considerations like audit standards. Nonetheless, as demonstrated by private sector successes, these technologies offer government agencies powerful tools for stronger oversight, increased efficiency, and better outcomes. Adopting them will greatly benefit American governance—and the people our government serves.

Appendix A

The below content is an excerpt of selected records from the 2024 Federal Agency AI Use Case Inventory as of January 23, 2025. All language used is from the original inventory, including a few typos.

AGENCY	USE CASE NAME	WHAT IS THE INTENDED PURPOSE AND EXPECTED BENEFITS OF THE AI?
DEPARTMENT OF HOMELAND SECURITY	Customs Broker License Exam - Proctor Support	The model supports remote proctoring of the exam and ensure the integrity of the testing process, by ensuring the exam is conducted under secure conditions, preventing cheating or fraud, while also verifying the identity of exam takers to confirm they meet the necessary requirements.
	CBP One	TVS uses facial recognition to compare live or uploaded images with CBP's database, enabling real-time identity verification. This automation streamlines border processes, enhances accuracy, and reduces fraud.
	USCIS Consular Consolidated Database (CCD) Facial Recognition (FR) On Demand Report (VISA Only)	USCIS uses the Facial Recognition (FR) on Demand report (Visa only) to combat fraud by benefit applicants whose fingerprints are not in IDENT but who may have photos in the Department of State's (DoS) Consular Consolidated Database (CCD) that predate the fingerprinting of visa applicants.
	Text Analytics Data Science Sentence Similarity Model	Text Analytics augments the tedious and time-consuming manual process to identify potential fraud, national security, and/or public safety concerns and enables the identification of such concerns across jurisdictional boundaries. It increases the integrity of immigration programs, strengthens officers, confidence in their work, and contributes to the reduction in customer wait times.
	Automated Realtime Global Organization Specialist (ARGOS) for Company Registration Submissions to E-Verify	ARGOS sentiment analysis produces a risk score and keyword extraction identifies the keword category of interest to the VAC MPAs (management and program analyst) for the aggregated open-source information to help quickly identify any pertinent information to aid the MPAs in their open-source investigation of company applications. This saves potentially thousands of MPA man hours in open-source investigation and creates a single source-of-truth for each MPAs investigation of a company application. This, in turn, allows for quicker application processing and, if risk of company fraud exists, much faster referral processing time quickening the next-step referral to FDNS for further investigations.

AGENCY	USE CASE NAME	WHAT IS THE INTENDED PURPOSE AND EXPECTED BENEFITS OF THE AI?
DEPARTMENT OF HEALTH AND HUMAN SERVICES	**Enhanced Direct Enrollment Outlier Detection**	Enhanced Direct Enrollment (EDE) allows consumers to apply for and enroll in an exchange plan directly through an approved partner, UI, without being redirected through the Healthcare.gov application. These partner systems directly interface with the APIs developed by the FFE. As EDE Partners gain more control over their application process, the FFE must ensure program integrity. Ensure FFE EDE program integrity
	Risk Adjustment Outlier Analysis	The RA program spreads the financial risk borne by Issuers due to offering a variety of plans meeting the need of the diverse population. RA payments are distributed based on population risk levels. The FFE uses a distributed data solution to calculate plan average actuarial risk and associated payments and must avoid potential impacts to annual calculations. Maintain RA Program risk integrity
	Agent/Broker Fraud Analysis	Agent/Brokers (A/Bs) support the consumer enrollment and eligibility process. Because of this, they have learned the intricate details of the FFE for accessing applications, submitting eligibility determinations, and adding enrollments to their line of business, opening up the possibility of fraud. Improves the oversight and integrity of Marketplace Applications and Enrollments assisted by Agents and Brokers. Helps CCIIO identify suspicious behaviors to refer to CPI.
SOCIAL SECURITY ADMINISTRATION	**Representative Payee Misuse Model**	This AI use case identifies possible representative payee fraud and flags for review. This use case reduces representative payee fraud.
DEPARTMENT OF THE TREASURY	**DATA Act Bot for Procurement Data Matching**	Purpose: The Digital Accountability and Transparency Act (DATA) Act Bot automates verifying that IRS Federal Procurement Data System (FPDS) reporting matches the information in contract documents (e.g. dollar amounts, dates, location of work). Supervised learning and natural language processing are used to extract unstructured information from contract documents. F1 accuracy scores are used to measure performance of validation models for each specific data element. Benefits: The AI improves operational efficiency by validating consistency and accuracy of contract metadata.

AGENCY	USE CASE NAME	WHAT IS THE INTENDED PURPOSE AND EXPECTED BENEFITS OF THE AI?
DEPARTMENT OF THE TREASURY (CONT'D)	EFTPS Fraud Monitoring	The Electronic Federal Tax Payment System (EFTPS) Fraud Initiative performs fraud detection within the Direct Pay and EFTPS Online payment channels. It supports near-real-time identification, profiling, scoring, and alerting of suspicious transactions and behavior. When user activity is captured, the model compares features of the activity/payment to EFTPS historical data and produces a score based on assessed risk level. This risk score generates an alert in the solution case manager for further review by a fraud analyst. The results of the [human] review could warrant blocking of the user account, monitoring of future activity, or escalation to law enforcement for further investigation.
	Check Fraud Pipeline	Since the dramatic spike in Economic Impact Payments and Advance Child Tax Credit checks, there has been a sharp uptick in U.S. Treasury check fraud. Specifically, fraudsters have been stealing U.S. Treasury checks and altering the names on the checks. The situation is not typically detected until a payee claimed non-receipt to issuing agency (often long after fraud occurred, also after time limits to recover from FI). Additionally, Law Enforcement has been challenged in recovering evidence (e.g., ATM footage) to prosecute, as well as identifying organized fraud at the transactional level. This pilot has enabled the streaming of check images into the payment analytics environment and is leveraging AI/ML to read check image and check settlement data for comparison against check issue data. To date, 30 million check images and settlement transactions have been analyzed identifying 12K fraudulent altered items worth over $100M
UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT	DARTS: Accurate, accountable cash transfer data and reconciliation	DARTS: A web app that uses advanced machine learning to enable WFP country offices to ensure accurate, accountable cash transfer data and reconciliation. DARTS (Data Assurance and Reconciliation Tool Simplified) is a user-friendly web app. It enables WFP to implement controls on large cash transfer data and generate reconciliation reports, which is vital in cash assistance programs. This ensures accountability, evaluating efficiency, building trust and ensuring accurate fund distribution. Funded through WFP Innovation Accelerator.
DEPARTMENT OF VETERANS AFFAIRS	Payment Redirect Fraud (PRF) Model	Criminals make direct deposit (DD) changes to steal Veterans benefit payments. Most direct deposit changes are safe, but 1-2 out of 1,000 (.1% - .2%) are fraudulent. The goal of the Payment Redirect Fraud (PRF) model is to identify which DD changes are likely to be fraudulent and refer them to team investigators for review and remediation.

AGENCY	USE CASE NAME	WHAT IS THE INTENDED PURPOSE AND EXPECTED BENEFITS OF THE AI?
DEPARTMENT OF JUSTICE	National Insurance Crime Bureau ISO ClaimSearch	Purpose: The purpose of the AI features in National Insurance Crime Bureau ISO ClaimSearch is to analyze insurance claim data and highlight suspicious patterns or anomalies more efficiently. By applying AI-driven pattern recognition, risk assessment, and anomaly detection, this tool streamlines what would be a lengthy manual review process. This leads to faster fraud identification, more accurate identification of problematic claims, and better resource utilization, ultimately strengthening investigative outcomes. Expected benefits: The expected benefit is more effective resource use, identifying claims that differ from typical patterns.
	Medical Claims Adjudication	Purpose: FBOP uses Quantum Choice to adjudicate medical claims and analyze system data. Expected benefits: Cost savings and increased compliance with billing regulations and contract pricing terms. It also provides data analysis to assist with the FBOP's mission.
	SAS Enterprise Miner - Grant risk assessment model	Purpose: To estimate a financial assistance award & questioned costs during an audit. Expected benefits: Provide auditors with an additional resource in performing risk assessments that assist in the audit selection process. Allowing auditors to focus work on higher-risk grants can allow for the recovery or redirection of misused government funds and improve auditor effectiveness and efficiency.