New AI/ML solutions in AWS GovCloud (US) underpin responsible innovation

Technology leaders in the public sector want to explore artificial intelligence and machine learning (AI/ML) solutions to enhance mission impact and achieve business goals. At the same time, they are obligated to safeguard sensitive government data through alignment with strict regulatory compliance programs, standards, and Executive Orders such as 14110 requiring Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence.

How can these technology leaders rapidly deliver responsible AI-based innovation while aligning with the broad spectrum of strict regulatory requirements? The answer is simple: Amazon Web Services (AWS) GovCloud (US) provides the technology that underpins a solid foundation for securely and compliantly building and deploying AI capabilities.

AWS is a long-term AI/ML innovator in highly regulated hyper-scale cloud

AWS realized more than a decade ago that technology leaders with US data residency, ITAR, FedRAMP High, and DoD SRG IL-4/5 compliance requirements needed a technology platform with AI/ML capabilities to promote innovation responsibly. Innovation like classifying images, conducting enterprise searches, processing and analyzing documents, transcribing audio, translating languages, and enabling computer-generated speech and conversation chat. AWS answered this need many years ago by deploying a suite of AI/ML capabilities, including Amazon SageMaker, Amazon Rekognition, Amazon Kendra, Amazon Textract, Amazon Transcribe, Amazon Translate, Amazon Polly, and Amazon Lex. This is why AWS added these AI capabilities to AWS GovCloud (US).

AWS has believed that technology leaders need the power of choice when selecting AI/ML solutions for years. This is why AWS has focused on democratizing AI/ML technologies and promoting industry partnerships so that technology leaders using AWS GovCloud (US) can achieve a broad spectrum of mission and business benefits.

Recent generative AI innovation is the dawn of a new technology era.

The rapid pace of AI advancement in the early 2020s, coupled with 2023's Executive Order 14110, elevated the visibility of the benefits of AI/ML solutions. Many technology leaders within highly regulated environments began 2024 by developing a strategy to responsibly take advantage of the vast opportunities to innovate with generative AI technologies. This is because they realized this new technology era provides innovative possibilities to elevate business and mission outcomes in ways that previously seemed impossible or uneconomical to achieve.

Shortly after Executive Order 14110, AWS introduced managed generative AI capabilities to AWS GovCloud (US) with the availability of Amazon Bedrock. And Amazon Bedrock in AWS GovCloud (US) is now available with Guardrails for Amazon Bedrock, and Llama and Claude 3 Sonnet/Haiku models to complement Amazon Titan. Amazon SageMaker is now available with Studio v2, which adds support for Mistral, Llama, Falcon, GPT, and Mixtral, plus additional features, including Inference, Feature Store, Model Registry, Evaluations, and Management. Bookmark our what's new with AWS GovCloud (US) page for more updates.

The value of these AI solutions to technology leaders operating highly regulated environments is extreme: AWS GovCloud (US) customers can now responsibly advance their generative AI experimentation and development journey in a secure, resilient, sovereign, and isolated hyperscale cloud environment.

Showcase of mission outcomes using AI/ML

AWS AI/ML capabilities, infrastructure, and compliance programs position technology leaders to responsibly deploy AI/ML using AWS GovCloud (US). Here are some examples:

Transform and enhance citizen experience — AI/ML-enabled Amazon Lex chatbots in webpages and contact centers powered by Amazon Connect can increase customer satisfaction and call velocity. Conversation analytics during customer interactions may be used to reduce time to resolution, improve customer experience, and create tailored customer experiences.

Elevate patient care quality and outcomes — AI/ML-enabled Amazon Textract and Amazon Comprehend underpin an AI/ML-based intelligent document processing (IDP) solution that will not only extract text and structured data from documents but will also employ AI/ML capabilities to provide business insights and determine relationships between patient datasets. The velocity of IDP helps healthcare providers efficiently manage patient care and automatically reduce the potential for information errors so providers can focus on positive patient health outcomes rather than on managing patient records and bills.

Improve employee experience and impact — AI/ML-enabled Amazon Kendra provides employers with solutions to help employees spend less searching intranets and data repositories and opening countless documents to find answers to their questions. This results in increased productivity and decreased stress. AI/ML-enabled Amazon Transcribe and Amazon Comprehend enable employees to summarize meetings and dialogues through automated audio note collection, which saves employees time and improves information accuracy. This empowers leaders to make more informed business decisions and increases decision-making velocity.

These are just a few examples of how technology leaders can take advantage of the AI/ML capabilities available in AWS GovCloud (US) today—the possibilities are seemingly endless. How

should technology leaders responsibly, compliantly, and securely start their AI/ML journey in AWS GovCloud (US)?

What should I do first?

What can technology leaders do to dive into this fast-paced AI/ML era safely and responsibly? Here are three pieces of advice from the AWS GovCloud (US) team:

1. Start experimenting today, but don't try to boil the ocean

Don't make AI/ML adoption harder than it must be, or wait to get started. Start with a small yet well-defined AI/ML project with short-term measurable outcomes, broad executive support, and minimal risk. Demonstrate the success of this first project, and then kick off a slightly larger project with more impactful measures. Keep repeating this cycle in time-bound iterations and demonstrate increasing incremental mission impact using a "crawl, walk, run" approach. This is how Amazon started over two decades ago when we launched our Amazon.com e-commerce recommendations engine underpinned with AI/ML technology. This AI/ML solution allowed us to elevate customer experience by providing a tailored shopping experience. Leaders can take similar approaches to address their unique business challenges, solve their most challenging problems, and responsibly innovate at scale—ultimately for the benefit of society. Technology leaders will benefit more from this approach than endless planning and waiting for the "perfect time" to start their journey.

2. Implement a data strategy that underpins a foundation of AI/ML innovation

Creating a robust enterprise data strategy is critical to implementing successful AI/ML solutions. Generative AI and foundation models (FMs) have elevated the need for clean training data. Quality and clean data are necessary to fine-tune generative AI models to unlock and maximize business and mission value. Technology leaders sometimes face situations where their data strategy does not provide quality training data, which causes the results from AI/ML solutions to produce inferior outcomes due to the "garbage in, garbage out" phenomena.

A well-defined data strategy will pay dividends to organizations embarking on their AI/ML journey. Whether you are building your model or customizing one, all leaders need a data strategy that ensures relevant, high-quality data is available. Some data may be more than 20 years old residing on a mainframe, while others might be massive unstructured datasets living in a legacy storage system. Data must be up-to-date, complete, accurate, discoverable, and available when needed. AWS can help accomplish these goals with Amazon Redshift for data warehouses, Amazon Simple Storage Service (Amazon S3) for data lakes, and Amazon EMR for big data. In turn, these services can increase the value of data as a component of an enterprise AI/ML solution.

3. Partner with AWS to promote positive, mission-driven outcomes

AWS offers our customers access to AI/ML-focused AWS GovCloud (US) specialist solutions architects and AI/ML-focused professional services. It also has a broad partner community of consultants and integrators. Visit the <u>AWS AI/ML solutions library</u>, download our <mark>public sector solutions guide</mark> to learn more, or visit <u>AWS in the Public Sector</u> to request assistance.

The bottom line on AI/ML and regulated cloud solutions

The intersection of GPU-based cloud computing, AI/ML services, networking, and data storage with security and compliance enables highly regulated customers to confidently and responsibly deploy AI/ML solutions on AWS GovCloud (US). AWS encourages technology leaders to think big, experiment, responsibly innovate and take advantage of AWS GovCloud (US) as a strategic technology enabler to achieve their AI/ML-based mission outcomes.

About the authors:

David Schatzman
David is a technical business development manager for Amazon Web Services (AWS), which is focused on serving public sector civilian and financial customers using the AWS GovCloud (US) Regions. In this role, David works closely with customers to ensure alignment of their mission goals and technology strategies with the capabilities of the AWS GovCloud (US) Regions. David is also interested in global economics, digital assets, fog computing, and cloud resiliency and is the lead for the AWS GovCloud (US) digital assets and resiliency product strategies. Before working at AWS, David served as a public sector business development.

Aaron Sengstacken

Aaron is a machine learning specialist solutions architect at Amazon Web Services. Aaron works closely with public sector customers of all sizes to develop and deploy production machine learning and generative AI applications. He is interested in machine learning, technology, and space exploration. Aaron earned a BS in mechanical engineering from the University of Missouri and an MS in aeronautics and astronautics from Purdue University.

Michael Greenwald

Michael is the global head of financial innovation and digital assets at Amazon Web Services (AWS) and leads AWS Global Executive Relations. He works with US and international governments on cloud computing and is responsible for emerging technology innovation and implementation. In 2023, he was appointed to represent Amazon on the U.S. Commodity Futures Trading Commission's (CFTC) Technology Advisory Committee. He previously served as the first U.S. Treasury attaché to Qatar and Kuwait and has served in senior roles with two presidential administrations and under three Treasury Secretaries.

Scott Bourn is a technical business development manager for Amazon Web Services (AWS) driving ISV and SaaS partner success in public sector using the AWS GovCloud (US) regions. In this role Scott works closely with partners to break through market barriers and drive campaign

fulfillment aligned with their strategic plan and goals, all with the capabilities of the AWS GovCloud (US) regions. Scott is also interested in privacy, cyber security, network virtualization, cloud FinOps, edge computing, and cloud resiliency, and is the lead for the AWS GovCloud (US) telecommunication and network provider partnerships. Prior to AWS, Scott served as a Senior Manager for Deloitte Consulting's public sector focused cloud managed services and Program Manager for Akamai Technologies' DoD managed CDN. Scott earned a MBA at University of Maryland, and holds PMP, CISSP, ITIL, and DevOps certifications.

Shawn Asfeld is a Senior Solutions architect for AWS GovCloud (US). He has extensive experience working with federal and civilian agencies to build a large variety of secure and compliant workloads both on premises and in the cloud. Shawn's current focus is on helping customers and partners to build solutions on AWS GovCloud (US) to meet various levels of compliance, including FedRamp, CMMC and DoD authorization. Shawn earned a BS degree from Texas A&M university and is an AWS certified solutions architect professional.