

Generative AI/ML and AI governance for the public sector

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Al/Machine learning (ML) is at an inflection point Key drivers: Compute capacity increase | Data growth | Model sophistication



AI, ML, deep learning?



Artificial Intelligence (AI)

Any technique that allows computers to mimic human intelligence using logic, if-then statements, and machine learning



Machine learning (ML)

A subset of AI that uses machines to search for patterns in data to build logic models automatically



Deep learning (DL)

A subset of ML composed of deeply multi-layered neural networks that perform tasks like speech and image recognition



Generative Al

Powered by large models that are pretrained on vast corpuses of data and commonly referred to as foundation models (FMs)

Challenges we are hearing from public sector customers

Demand for government services is rising while resources and capacity to deliver them aren't keeping pace



Citizens increasingly expect the government to provide modern digital experiences for conducting online transactions

Aging infrastructure for data capture, storage, and management creates friction for leveraging data for analytics and machine learning

Complex security, privacy, and compliance requirements create barriers to change and block adoption of many SaaS solutions



Risk averse culture and institutional inertia slow innovation



Machine learning is going mainstream in public sector







Grants and benefits administration, workforce development, corporate relations, land clearance/redevelopment

Top AI/ML use cases for state and local government



SampleOutput.pdf (1 page

Employment Applicatio

This is a sample employment application form. and answer all questions.

Personal Information	1				
Full Name:	Jane Doe				
Phone Number:	555-0100				
Home Address:	123 Any Street, Any Town, USA				
Mailing Address:	Same as home address				
Work History					
Current Company:	Any Company (2018-Current)				
	Any Role				
Company#1:	Previous Company # 1 (2014-201				
	Previous Role # 1				
Company#2:	Previous Company #2 (2010-2014				
	Previous Role # 2				



Speech and language

Intelligent document processing

Computer vision





Predictions and insights

Top AI/ML use cases for state and local government







Speech and language

Intelligent document processing

Computer vision





Predictions and insights

Generative AI-Enabled Citizen Engagement

Engage citizens and drive improvements in customer satisfaction

- Improve contact center agent effectiveness with real-time translation and decision support using Amazon Connect and Contact Center Intelligence
- Analyze call and text interactions with • citizens to spot issues and trends and drive improvement
- Improve self service





Using Al to improve agent efficiency

"During peak hours, previously you're 45-50 minutes on hold, and now that's has been reduced to about three and a half minutes. One of the other benefits we've gotten from Amazon Connect is sentiment analysis. On a call, we get real-time feedback on whether or not the customer was happy, frustrated, or angry..."

—Benny Chacko, Deputy General – LA County Internal Services Department





Top generative AI use cases for state and local government



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	Previous Role # 1				
Company#2:	Previous Company #2 (2010-2014				
	Previous Role # 2				



Speech and language

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Predictions and insights

Extract insights from unstructured content

Extract insights from unstructured documents and forms, like images, PDFs, and audio

- Analyze text with natural language processing (NLP) to identify topics, extract entities, understand sentiment, and classify documents with Amazon Textract, Amazon Rekognition, and Amazon Comprehend
- Translate content at scale with Amazon Translate





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King County Assessor's Office



CHALLENGE

Reduce data entry, eliminate data errors, and improve data time lines.

SOLUTION

Intelligent documents processing for documents and electronic files, streamlining and unlock data and information from paper documents and electronic files

RESULT

King County employees will focus on higher value, more satisfying work, and ultimately help the county realize its vision for connected communities, connected data, and connected government."





THE ATIVE ALW SOVEMILE FOR THE PUBLIC ECTOR

Broadest and most complete set of machine learning capabilities

	Vision	Chatbots	Business tools	Search
AI SERVICES	Rekognition	Lex	Personalize Forecast Fraud Detector Lookout for Metrics	Kendra
	Speech	Text		Code + DevOps
	Polly	Comprehend Translate Textract	Contact centers	CodeGuru
	Transcribe		Contact Lens Connect Voice ID	DevOps Guru





Healthcare

HealthLake Comprehend Medical Transcribe Medical

Industrial

Panorama Appliance and SDK, Monitron, Lookout for Equipment, Lookout for Vision

Amazon Generative Al







Question: What is generative artificial intelligence (AI)?

- Creates new content and ideas, including conversations, stories, images, videos, and music
- Powered by large models that are pretrained on vast corpuses \bullet of data and commonly referred to as foundation models (FMs)











Common use cases







Search



Video generation

Generative AI public sector application examples



Constituent Communications

Citizen engagement and feedback, transparency



Public Health

Personalized care, population health assessments



Public Safety

Public safety and crime prevention, Emergency response and disaster management



Transportation

Trafic optimization, autonomous vehicle control, personalized transportation experiences



Finance

Budget Optimization, fraud detection, risk assessment and mitigation



Constituent Services Urban planning, Personalized urban services



Energy and utilities Energy management, Waste management, Smart grid

optimization



Research and Engagement

Environmental monitoring



GENERATIVE AI/ML AND AI GOVERNANCE FOR THE PUBLIC SECTOR

Instead of sending your data to the model, bring the model to your data.



Generative Al stack

APPLICATIONS THAT LEVERAGE FMs

Amazon Q

Amazon Q in Amazon QuickSight

TOOLS TO BUILD WITH FMS AND LLMS

Amazon Bedrock Customization capabilities Guardrails Agents

INFRASTRUCTURE FOR FM TRAINING & INFERENCE

	GPUs	Ê	Trainium	Ê	Inferentia
Ô	UltraClus	ters	EFA	Ó	EC2 Capaci

Amazon Q in Amazon Connect



Amazon CodeWhisperer



SageMaker

ity Blocks

4 Nitro

Neuron

GENERATIVE AI/ML AND AI GOVERNANCE FOR THE PUBLIC SECTOR

Amazon generative AI portfolio – Your choice Choice of many foundation models



GENERATIVE AI/ML AND AI GOVERNANCE FOR THE PUBLIC SECTOR

Demos



Visual authoring in QuickSight

Use everyday language to generate and fine-tune visuals in seconds



aws

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= DistinctCustomersThisYear	FinanceHub Site Analytics				1 4	Premium	
# Free Trial	Marketing Suite Big OI Database			Vancouver	The R.	Standard	
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Order ID	SaaS Connector P				XICO	+	
Product	\$0.00 \$10	0.00к \$200.00к \$300.00 Sales (Sum)	K \$400.00K \$500.0	б		-	
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# Sales	Usage	Active customers		Trial sign-ups	Month-over-month usage	Product usage by in	
+ CALCULATED FIELD	MTD usage sessions	MTD	14	мтр	Total Usage Sessions for Jun 2023		



Amazon Bedrock keeps data secure and private



None of the customer's data is used to train the underlying model

All data is encrypted in transit and at rest

Data used to customize models remains within your VPC

Support for standards, including GDPR and HIPAA





Guardrails for Amazon Bedrock

Safeguard your generative AI applications with your responsible AI policies

AVAILABLE IN PREVIEW

Easily configure harmful content filtering based on your responsible AI policies

Apply Guardrails to any FM or agent

Redact PII information in FM responses (coming soon)



Pillars of responsible AI

Value alignment

Systems should be designed and used in ways that align with the organization mission, social norms, and legal regulations





Inclusion

Inclusion of diverse and unique skills, experiences, perspectives, and cultural backgrounds





Training and education Appropriate knowledge sharing and education to understand purpose, use, and impact

Accountability



Structured, maintaining human involvement and responsibility for design, development, decision processes, and outcomes

Fairness

Systems must be designed to minimize bias and promote inclusive representation

Transparency and explainability Understanding how data is used and how decisions and outcomes are made understandable to a human









- How can we support you in ensuring accuracy and authority of model outputs?
- How can we use "guardrails" to minimize inappropriate content?
- How can we maximize the public investment and minimize cost?
- What are your latency requirements for specific use cases?
- What are the potential regulatory, data privacy, and security considerations that may dictate model architecture.
- How can we ensure proprietary, copyrighted, and IP concerns are addressed?



Please Provide Your Feedback



Step 1: Select Artificial Intelligence and Machine Learning Track Step 2: Select Generative AI for public sector



Learning Day Content

https://sanfrancisco2024.awslearningday.com/









Thank you!

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