

AWS State, Local, and Education Learning Days

Sacramento

10:15am – 11:15am

200
level

Practical AI for
Public Sector

Explore Generative
AI's potential in
public sector and
higher education



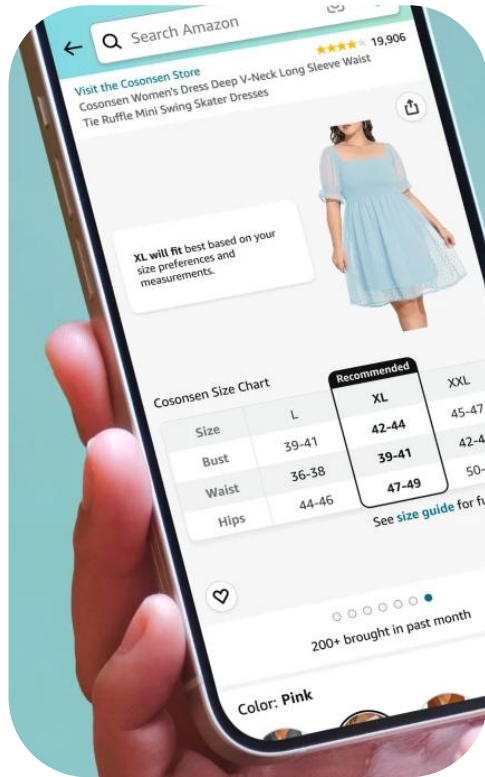
Practical AI for Public Sector

Leo Zhadanovsky

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Education/SLG/Elections, WWPS
AWS

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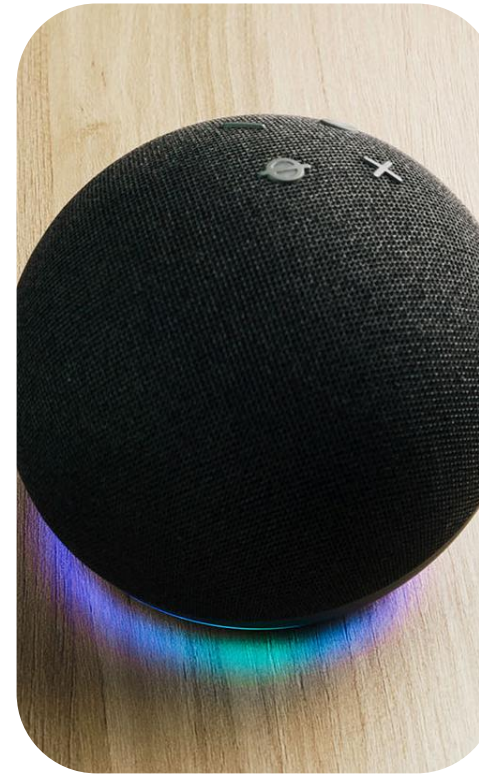
Amazon has been innovating with AI for over **25 years**



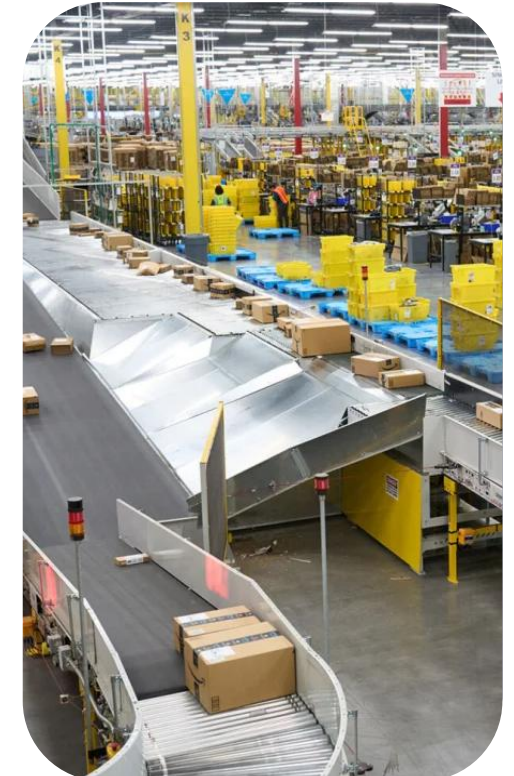
8,600 products per minute sold on Amazon.com



First Prime Air delivery on **December 7, 2016**



Billions of Alexa interactions each week



16M packages every day



Generative AI has potential to create significant business and customer value



NEW EXPERIENCES

Create new innovative and engaging ways of interacting with your customers and employees



PRODUCTIVITY

Radically improve productivity across all lines of business



INSIGHTS

Extract insights and clear answers from all your corporate information, enabling faster and better decisions



CREATIVITY

Create new content and ideas, including conversations, stories, images, videos, and music

Generative AI: Trends through the years

2023

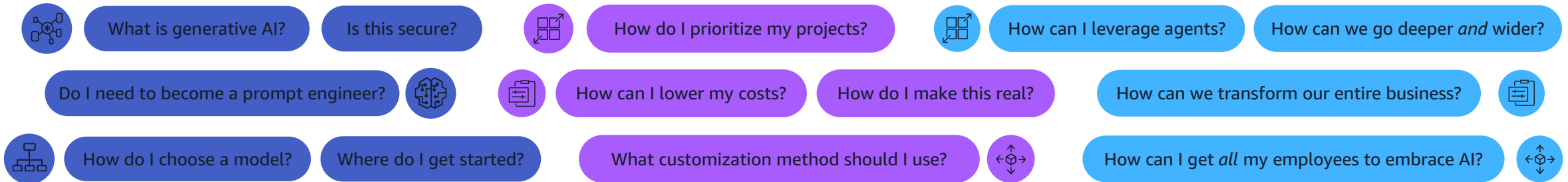
The year of POCs

2024

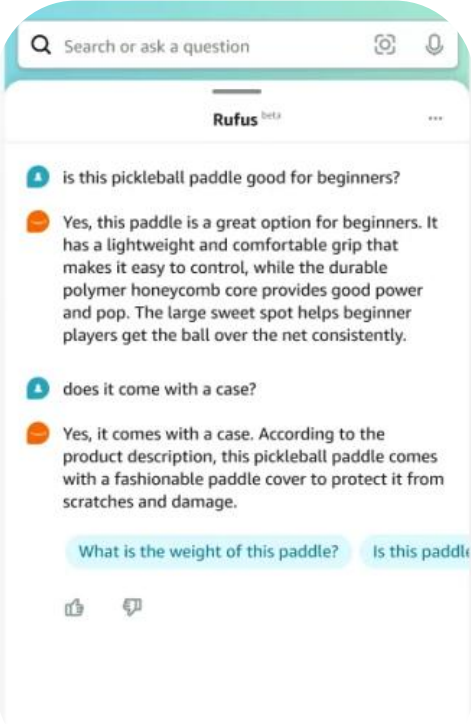
The year of Production

2025

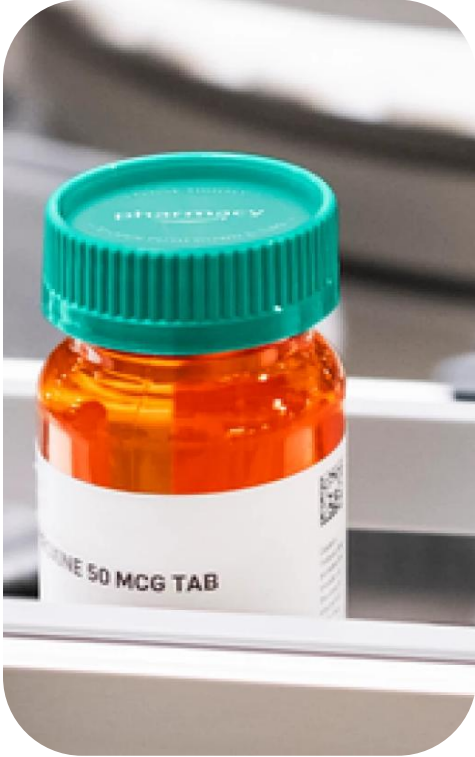
The year of Business Value



Generative AI innovations at Amazon: Built on AWS



Rufus



Pharmacy



Ads



AWS

You are here

Getting through the trough of disillusionment



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INNOVATION

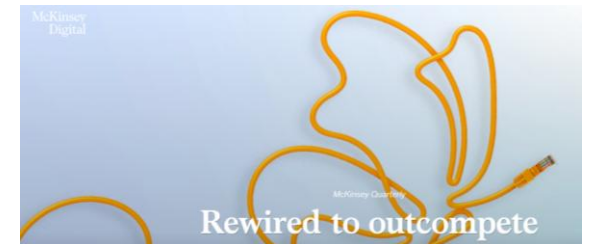
Why 85% Of Your AI Models May Fail

“Gartner predicts that through 2026, organizations will abandon 60% of AI projects unsupported by AI-ready data.”

Gartner Predicts 30% of Generative AI Projects Will Be Abandoned After Proof of Concept By End of 2025

organizations’ digital transformation.

Every year, poor data quality costs organizations an average \$12.9 million.



In established companies, data is often a source of frustration. As much as 70 percent of the effort involved in developing AI-based solutions can be attributed to wrangling and harmonizing data. Unless data is thoughtfully sorted and organized for easy

“Clearly, for digital and AI to deliver on their business transformation potential, the top team needs to be ready and willing to undertake the organizational “surgery” required to become a digitally capable enterprise.”

McKinsey [Rewired to Outcompete](#)

Amazon's approach to innovation:

Key considerations to deliver meaningful value at scale

**Customer
obsession**

**Working
backwards**

Scale

What we are hearing from Amazon leaders:



Commit to experimentation early



Stay flexible and try new ways of working



Make deployment the ultimate goal



Fuel continuous improvement with feedback loops & testing



Generative AI Application



Generative AI
Application



Data
Foundation

STORAGE

GOVERNANCE
& COMPLIANCE

DATABASES,
ANALYTICS,
& DATA LAKES

DATA
INTEGRATION

Your data is the **differentiator**



Generic
generative AI



Generative AI that
knows your business
and your customers

Security considerations for generative AI

COMPLIANCE & GOVERNANCE

The policies, procedures, and reporting needed to empower the business while minimizing risk

Create generative AI usage guidelines

Establish process for output validation

Develop monitoring & reporting processes

LEGAL & PRIVACY

The specific regulatory, legal, and privacy requirements for using or creating generative AI solutions.

Retain control of your data

Encrypt data in transit and at rest

Support regulatory standards

CONTROLS

The implementation of security controls that are used to mitigate risk.

Human-in-the-loop

Explainability & auditability

Testing strategy

Identity and access management

RISK MANAGEMENT

Identification of potential threats to generative AI solutions and recommended mitigations.

Threat modeling

Third-party risk assessments

Ownership of data, including prompts and responses

RESILIENCE

How to architect generative AI solutions to maintain availability and meet business SLAs.

Data management strategy

Availability

High Availability and Disaster Recovery strategy

Responsible AI Dimensions

FAIRNESS

Considering impacts on different groups of stakeholders

EXPLAINABILITY

Understanding and evaluating system outputs

CONTROLLABILITY

Having mechanisms to monitor and steer AI system behavior

SAFETY

Preventing harmful system output and misuse

PRIVACY & SECURITY

Appropriately obtaining, using and protecting data and models

GOVERNANCE

Incorporating best practices into the AI supply chain, including providers and deployers

TRANSPARENCY

Enabling stakeholders to make informed choices about their engagement with an AI system

VERACITY & ROBUSTNESS

Achieving correct system outputs, even with unexpected or adversarial inputs

Responsible AI: Best practices



Put your people first



Assess risk on a (use) case-by-case basis

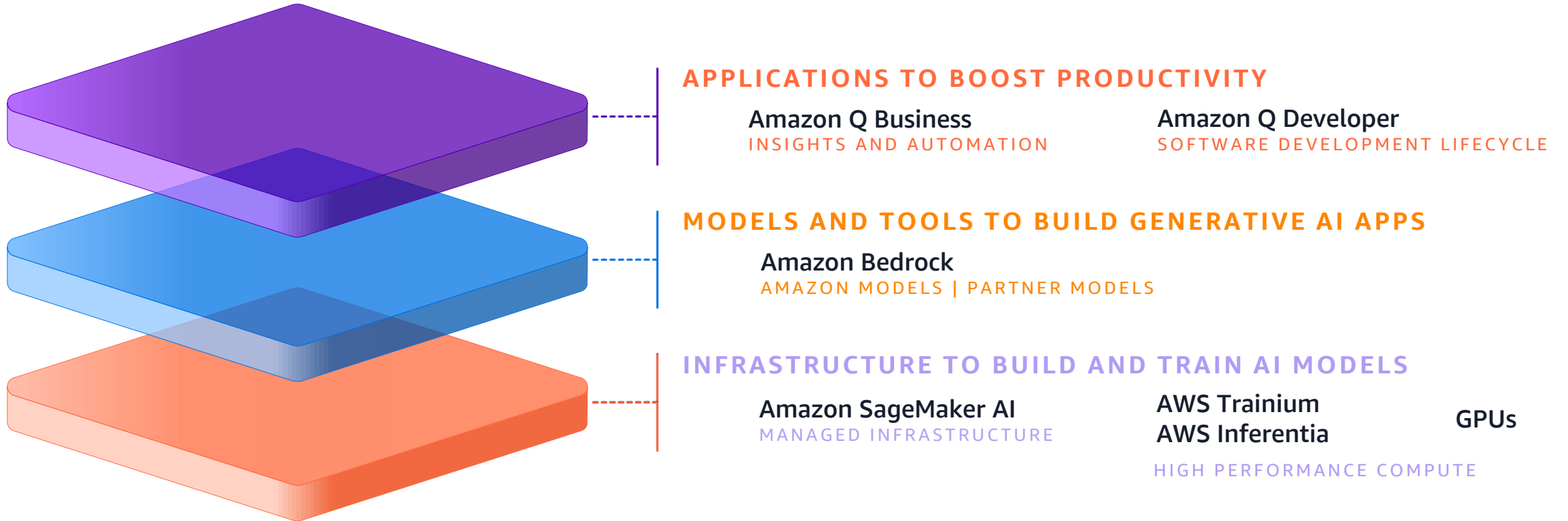


Iterate across the AI lifecycle

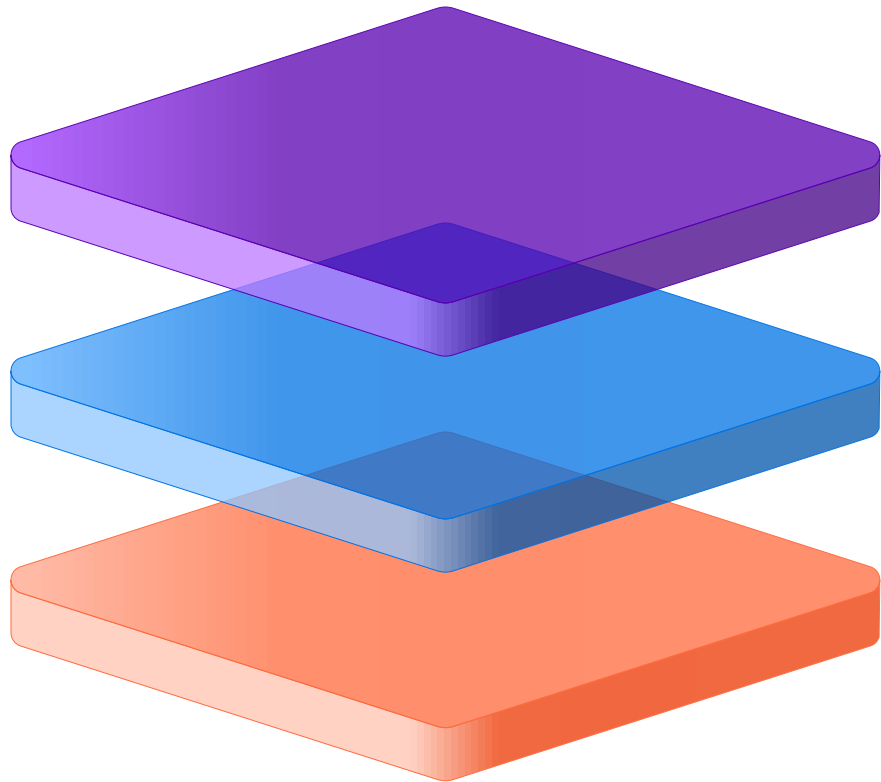


Test, test again, and then test again

AWS Generative AI Stack



Foundations of an AI Ready Organization



YOUR APPLICATIONS



Internal productivity



Domain Transformation



AI enhanced analytics

MODELS AND TOOLS TO BUILD GENERATIVE AI APPS



Amazon Bedrock Models



Agents, Knowledge Base, Data Automation; Quicksight

GenAI Data preparation and enrichment

FOUNDATIONAL INFRASTRUCTURE



Accessible and holistic Data



AI Governance

Storage

Use Cases Across Higher Education and SLG

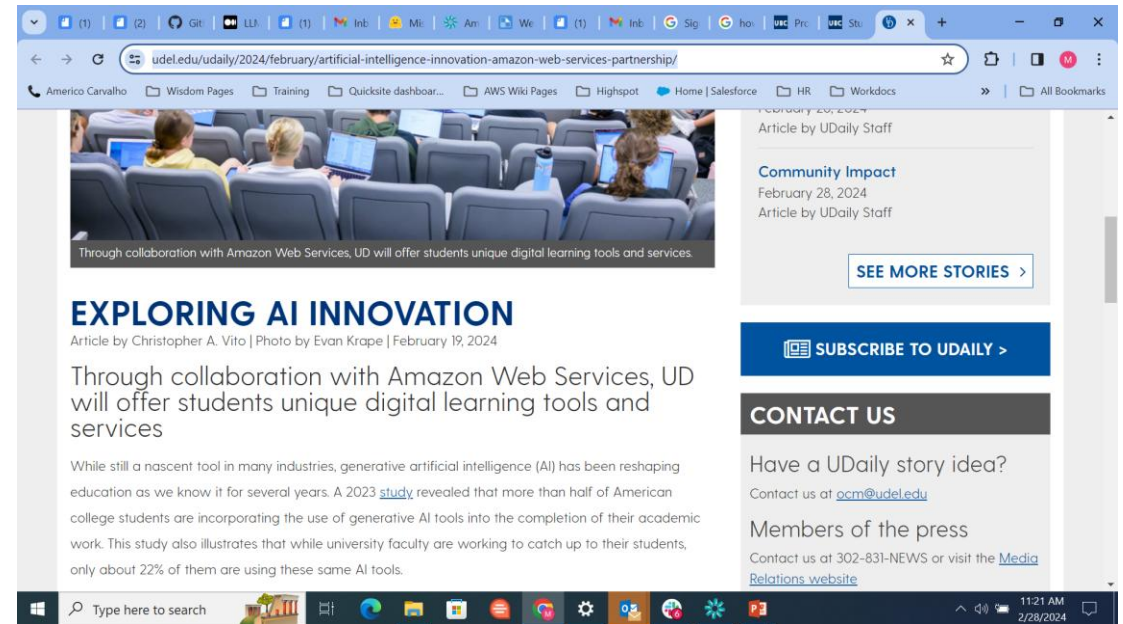


Virtual tutor: University of Delaware

UD Study AiDE

Leveraged 300K recorded classroom lectures

Generated flash cards, study guides, practice tests on UD content across disciplines



Student Advising Assistant: University of British

- Science advising office and the UBC CIC designed a solution that:

- Generates a conversational response that draws on relevant information from the UBC Calendar and web content by the Faculty of Science

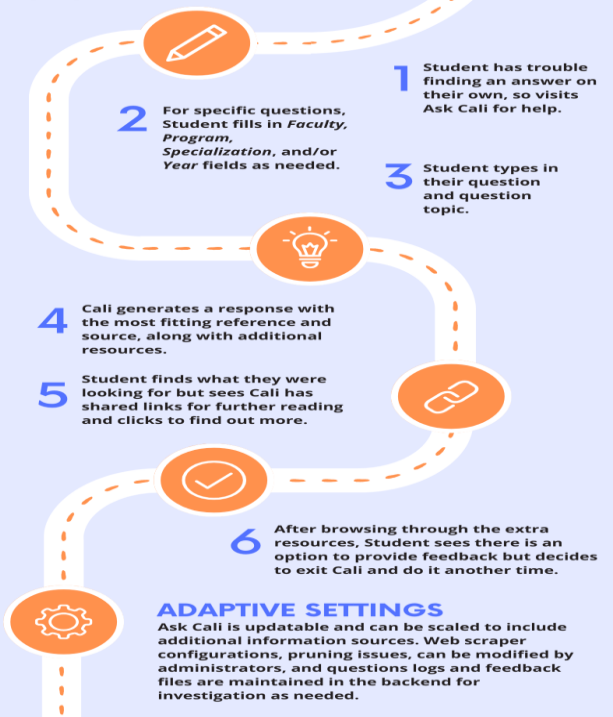
- Enhanced accessibility and readability of the information.



THE LIFE OF ASK CALI

OUR INSPIRATION

Many students come to Science Advising with inquiries that already have answers in the UBC Academic Calendar, but have trouble locating them. We developed Ask Cali to make these resources more accessible, thereby improving queue times and advising quality.



ADAPTIVE SETTINGS

Ask Cali is updatable and can be scaled to include additional information sources. Web scraper configurations, pruning issues, can be modified by administrators, and questions logs and feedback files are maintained in the backend for investigation as needed.

PDF Accessibility: The Ohio State University

- A scalable GenAI powered solution that can quickly and efficiently bring parts of its collection into compliance with WCAG 2.1 Level AA standards.

- Open source: available now



College Athletics: Recruitment

- Thousands of recruits enter transfer portal
- Generative AI provides summaries of player profiles
- Coaches are able to more quickly evaluate more players, enhancing opportunities for recruitment



UCLA Anderson School of Management : Fundraising

innovation around their approach to alumni fundraising

UCLA engaged AWS partner Slalom, to personalize fund training

Results

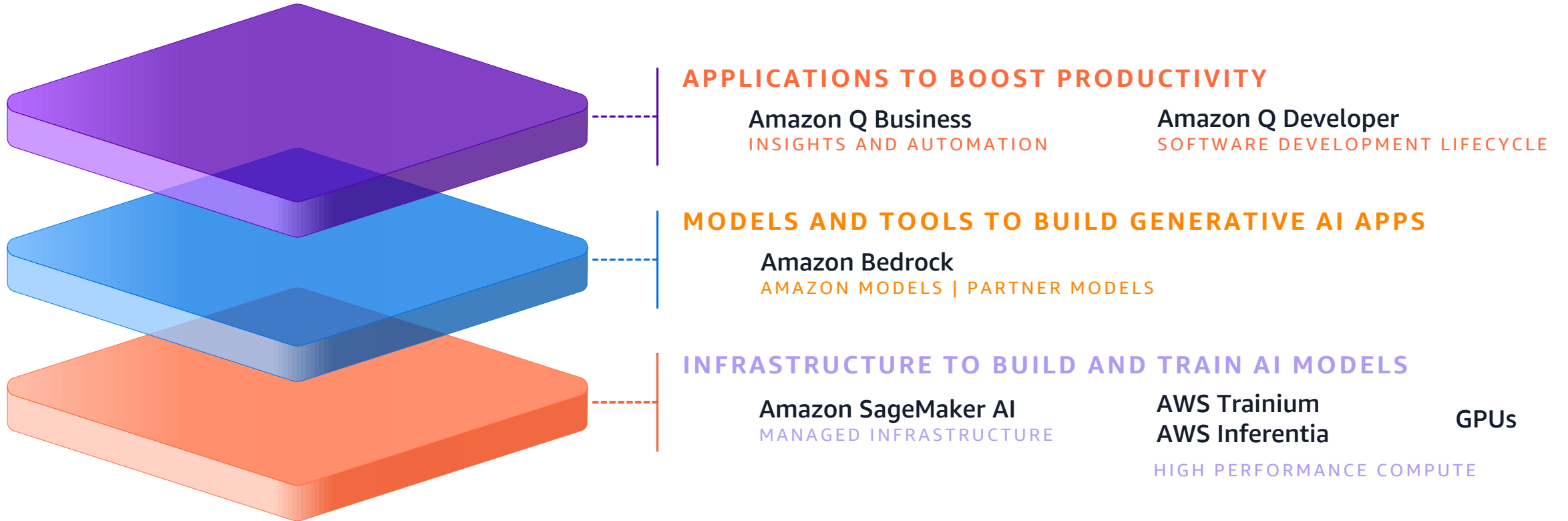
- 19% improvement in email open rate
- 66% improvement in email click-through rate
- 132% improvement in dollars raised



AWS Generative AI Services



AWS Generative AI Stack



Amazon Bedrock

The easiest way to build and scale generative AI applications with foundation models (FMs)

Choice of leading FMs through a single API

Model customization

Retrieval Augmented Generation (RAG)

Agents that execute multistep tasks

Security, privacy, and safety

Amazon Bedrock

Helps keep your 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 for customization is securely transferred through customer's VPC

Data remains in the Region where the API is processed

Support for GDPR, SOC, ISO, CSA compliance, and HIPAA eligibility

Amazon Bedrock Guardrails

Apply safeguards customized to your gen AI application requirements and responsible AI policies

Evaluate prompts and model responses for agents, knowledge bases, FMs in Amazon Bedrock, and self-managed or third-party FMs



Configure thresholds to filter undesirable and potentially harmful text and image content, jailbreaks, and prompt attacks



Identify, correct, and explain factual claims in responses using Automated Reasoning



Define and disallow denied topics with short natural language descriptions



Remove personally identifiable information (PII) and sensitive information in gen AI apps



Define a set of words to detect and block user inputs and model responses



Filter hallucinations by detecting groundedness and relevance of model responses based on context

Amazon Q

Reinvent work with AWS'
generative AI-powered assistant

Unites your data sources, repositories, and
enterprise systems

Available where you work

Delivers industry-leading assistance



Reinvent work with Amazon Q

BUSINESS

Amazon Q Business

KNOWLEDGE SEARCH
SUMMARIZATION
CONTENT CREATION
EXTRACT INSIGHTS
RESEARCH & ANALYSIS

Amazon Q in QuickSight

UNDERSTAND DATA
BUILD & REFINE VISUALS
BUILD CALCULATIONS
EXECUTIVE SUMMARIES
CREATE DATA STORIES

DEVELOPERS

Amazon Q Developer

PLAN APPLICATION
CODE GENERATION
UNIT TESTING
SECURITY SCANNING
CODE REMEDIATION
CODE MIGRATION
TROUBLESHOOTING
DEVELOPER KNOWLEDGE

SPECIALIZED USERS

Amazon Q in Connect

AGENT ASSIST

Amazon Q in AWS Supply Chain

SUPPLY CHAIN

Amazon Nova

State-of-the-art foundation models that deliver frontier intelligence and industry leading price performance

UNDERSTANDING MODELS

Amazon Nova
Micro

Amazon Nova
Pro

Amazon Nova
Lite

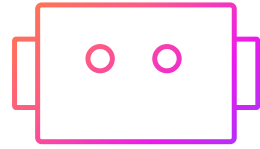
Amazon Nova
Premier
COMING SOON

CREATIVE CONTENT GENERATION MODELS

Amazon Nova
Canvas

Amazon Nova
Reel





What are AI Agents?

Autonomous software systems that leverage AI to reason, plan, and complete tasks on behalf of humans or systems

Evolving into Agentic AI

MORE
HUMAN
OVERSIGHT

Generative AI
assistants

- Follow a set of rules
- Automate repetitive tasks

Generative AI
agents

- Achieve a singular goal
- Address broader range of tasks
- Automate entire workflows

Agentic AI
systems

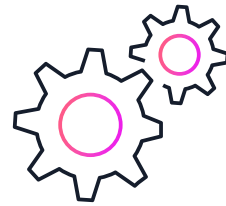
- Fully autonomous
- Multi-agent systems
- Mimic human logic and reasoning

LESS
HUMAN
OVERSIGHT

Businesses are creating value with AI agents



Workplace
productivity



Business
workflows



Innovation
and research

Agents are transforming Amazon's internal systems

10,000+

A P P S M I G R A T E D

4,500+

D E V E L O P E R Y E A R S S A V E D

\$260M

A N N U A L S A V I N G S



Creating business value with AI agents

INNOVATION AND RESEARCH

AUTOMATING

43,000+ hours

OF MANUAL WORK

A photograph of two scientists in a laboratory. A woman in a white lab coat is standing and looking down at a piece of equipment. A man in a white lab coat and glasses is sitting at a desk, looking at a laptop. The scene is dimly lit with blue tones.

Genentech

A Member of the Roche Group



Emerging Trends in Agentic AI



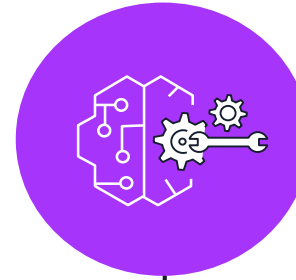
1

Powerful Multi-Agent Systems



2

Hyper Personalization



3

Advanced Memory



4

Hybrid human-AI Team Dynamics

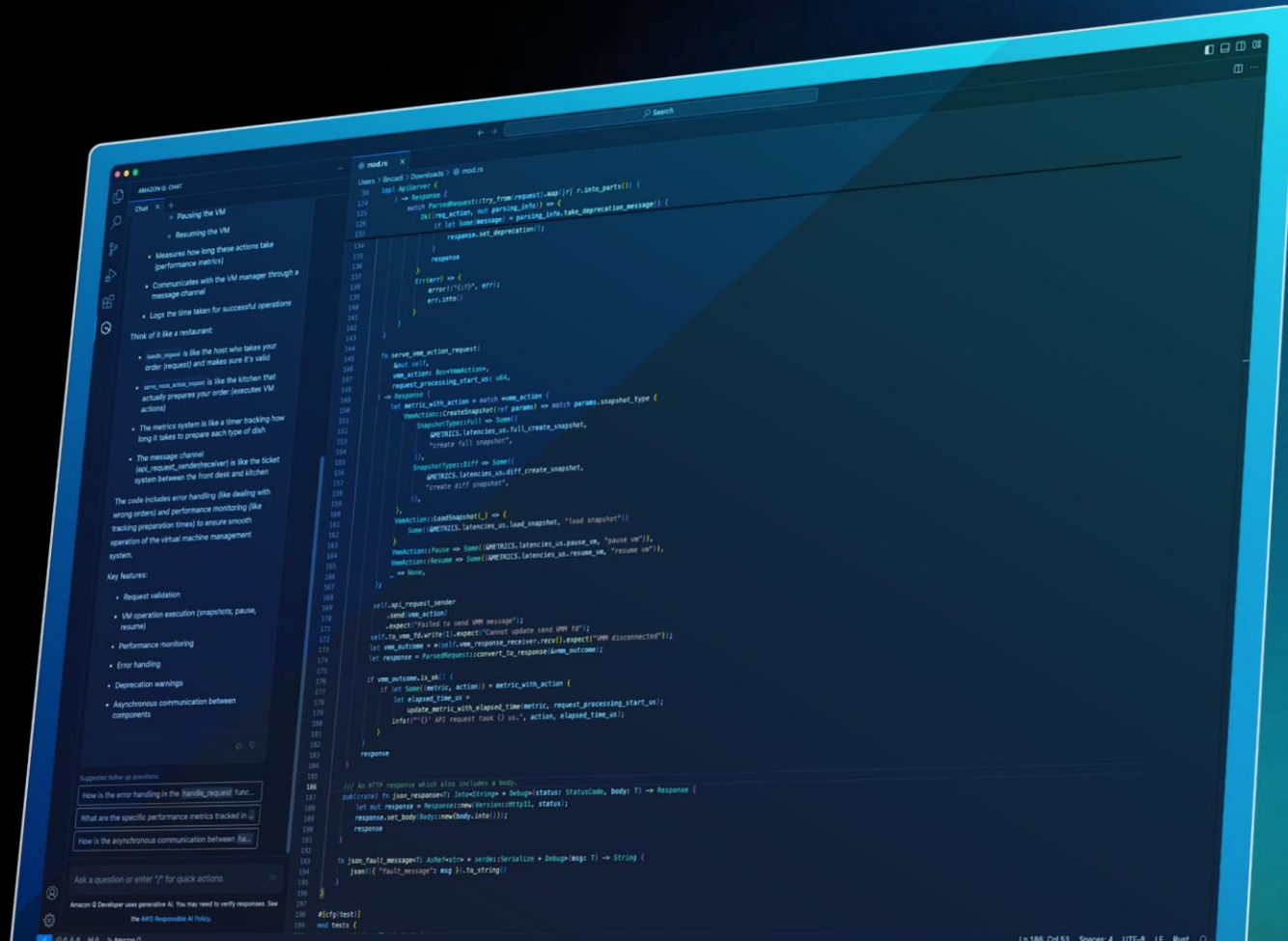


Amazon Q Developer

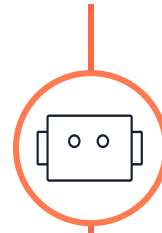
The most capable generative AI-powered assistant for software development.



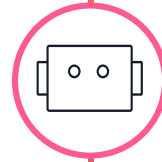
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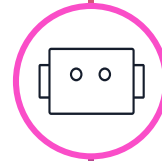
Amazon Q Developer specialized agents can automate tasks across the SDLC



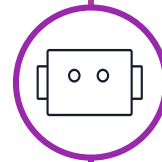
Software Development Agents write and implement entire application features in minutes



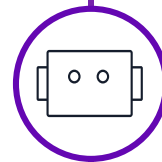
Unit Test agent generates and add tests to the project, helping improve code quality, fast.



Documentation agent generates and updates README files, create data-flow diagrams, and keep projects fully documented.



Code review agent catches bugs and security vulnerabilities, or misconfigurations



Transformation agents accelerate large-scale enterprise workload migration and modernizations

Thank you!

Leo Zhadanovsky

leozh@amazon.com

Please complete the survey
for this session



Track: AI / ML

Session: Practical AI for Public Sector

Coming up NEXT

11:30am – 12:30pm

300
level

**Generative AI
Masterclass**

A comprehensive
masterclass on AI,
covering technology
evolution,
implementation
strategies, responsible
practices.

