RelevanceLab

Enabling Secure AI-Assisted Research Computing with Amazon Bedrock at a Leading Higher Education Institution

Customer Overview

A leading higher education institution researchers working with large and often sensitive datasets spanning finance, economics, organizational behavior, marketing, healthcare, and public policy. As AI-powered coding assistants rapidly transformed software development and data science workflows, the institution recognized the opportunity to improve researcher productivity through tools such as Claude Code and Codex.

However, institutional policy required that sensitive research data remain under organization's control. Researchers could not send proprietary or confidential datasets to publicly hosted AI services outside the organization's cloud environment. The institution also required detailed visibility into the cost of AI model usage, enabling cloud spending to be allocated accurately to individual researchers, projects, and research workspaces.

Relevance Lab partnered with the institution to deploy a secure AI-enabled research platform that combined Amazon Bedrock with Research Gateway, allowing researchers to use enterprise AI coding assistants while maintaining institutional governance, security, and financial accountability.

Business Challenge

The institution wanted to make modern AI coding assistants available to researchers while ensuring institutional control over research data and cloud costs.

Several key challenges needed to be addressed.

Challenge 1: Secure AI-Assisted Development

Challenge 2: Governed AI Model Access

Challenge 3: Self-Service AI Infrastructure

Challenge 4: Cost Attribution

Challenge 5: Standardized Research Environments

At a Glance

Industry
Higher Education & Research

Solution
Secure AI-Assisted Research Computing Platform

Platform
Relevance Lab Research Gateway on AWS

Primary Goals
Secure AI Coding, Governance, Cost Attribution, Research Productivity

Research Areas
Business Analytics, Economics, Finance, Social Sciences, AI-Assisted Data Analysis

Key Capabilities
Claude Code & Codex on Amazon Bedrock, Secure Research Workspaces, GPU Provisioning, Bedrock Cost Tracking

Compliance Focus
Institutional Data Governance, Controlled AI Access, Secure Cloud Computing

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Challenge 1

Secure AI-Assisted Development

Researchers wanted to use AI coding assistants such as Claude Code and Codex to accelerate software development, statistical analysis, and data engineering workflows.

However, the institution could not permit confidential research data to be transmitted to publicly hosted AI model providers outside the university's AWS environment.

Challenge 2

Governed AI Model Access

Not every foundation model approved by Amazon Bedrock was appropriate for institutional use.

Research IT required the ability to centrally determine which Claude models and other Bedrock foundation models researchers were permitted to access while maintaining consistent governance across the institution.

Challenge 3

Self-Service AI Infrastructure

Researchers needed the flexibility to launch AI-ready compute environments on demand without waiting for Research IT to provision infrastructure manually.

The platform needed to support GPU-enabled workstations optimized for AI-assisted development while remaining simple enough for researchers to provision independently.

Challenge 4

Cost Attribution

Unlike traditional infrastructure costs, generative AI usage introduces variable API charges based on token consumption.

The institution required detailed visibility into Amazon Bedrock usage costs so that AI expenses could be attributed to individual researchers, research workspaces, and projects alongside traditional infrastructure costs.

Challenge 5

Standardized Research Environments

Every AI workspace needed to provide a consistent development environment with the required software stack already installed, allowing researchers to begin productive work immediately.

The objective was to deliver enterprise-grade AI coding capabilities that increased researcher productivity while ensuring data remained within the organization's AWS environment and AI usage complied with institutional governance policies.

Solution

Secure AI Coding Platform on AWS

Relevance Lab deployed a customized Research Gateway platform accessible exclusively to authenticated university users.

Each research project was provisioned within its own dedicated AWS account, providing strong isolation, simplified governance, and project-level cost management.

AI-Enabled Research Catalog

The standard Research Gateway catalog was extended with new AI-enabled workspace offerings including:

- Claude Code with Amazon Bedrock
- Codex with Amazon Bedrock

Researchers could provision secure AI workstations through the self-service portal without requiring administrator intervention.

Secure AI Research Workspaces

Each workspace provided a complete AI development environment.

Key capabilities included:

- Browser-based remote desktop using Amazon DCV
- Choice of GPU-enabled EC2 instances at launch
- NVIDIA GPU drivers pre-installed
- Claude Code pre-installed
- Python, R, Conda, Git, and common research tools pre-configured
- Persistent research storage mounted as Research Gateway Study folders
- Institution-managed software images
- Secure identity-based authentication

Researchers simply signed into Claude Code using their institutional credentials and immediately began working within an environment configured for AI-assisted research.

Amazon Bedrock Integration

Every research workspace was configured with an IAM role granting access only to approved Amazon Bedrock foundation models.

Research IT retained centralized control over:

- Approved Claude models
- Approved foundation models
- Model availability
- Access policies
- IAM permissions

Because all inference requests were routed through Amazon Bedrock, research prompts and model interactions remained entirely within organization's AWS environment.

This approach enabled researchers to benefit from leading AI coding assistants while satisfying institutional security and governance requirements.

Integrated AI Cost Monitoring

Research Gateway extended its cost management capabilities to include Amazon Bedrock API usage.

The platform automatically tracked:

- Bedrock API costs by researcher
- Bedrock API costs by workspace
- Bedrock API costs by project
- Infrastructure costs
- GPU compute costs
- Combined workspace operating costs

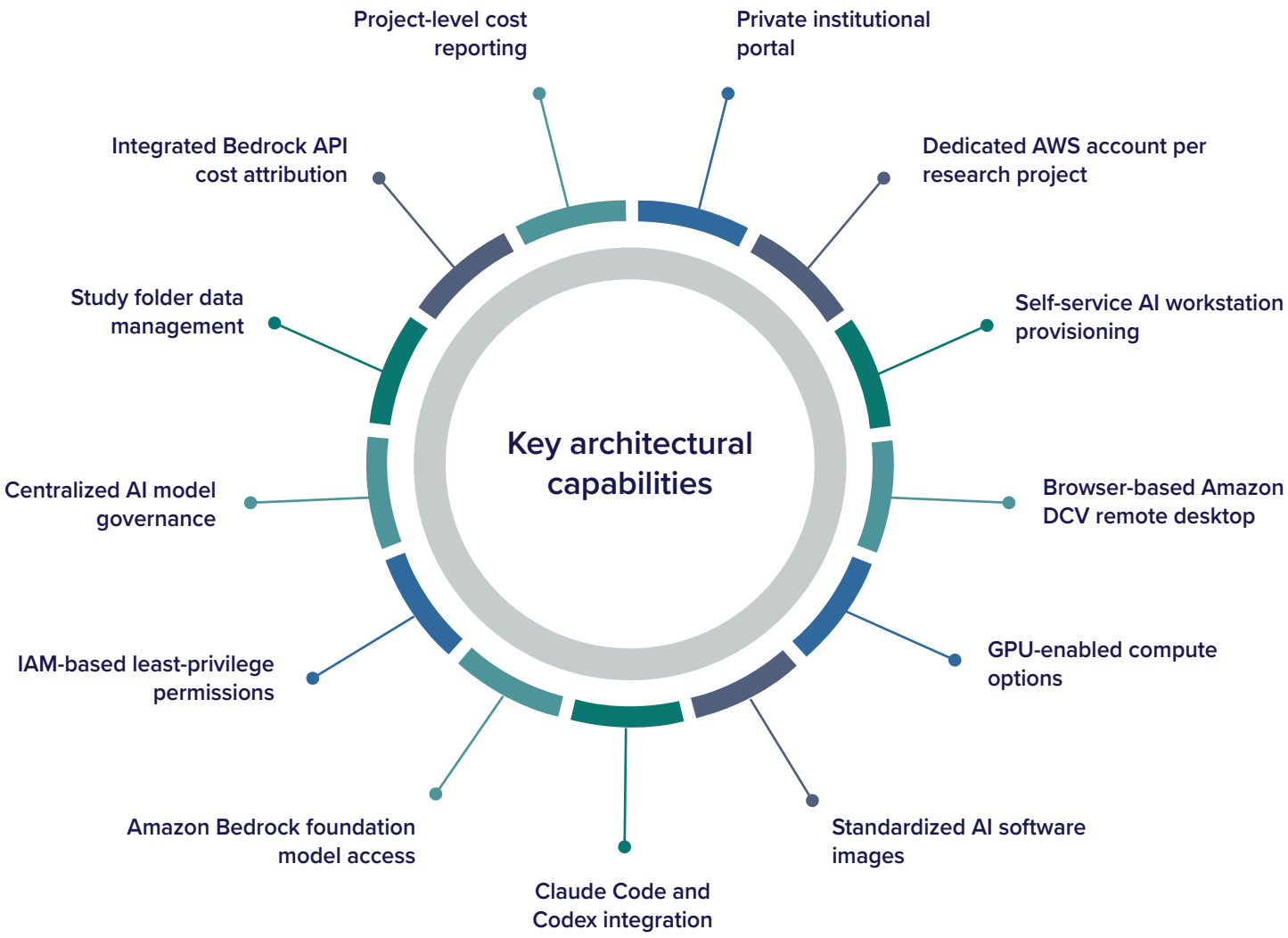
Researchers and administrators gained complete visibility into the true cost of AI-assisted research computing from a single portal.

Architecture Highlights

Secure AI Research Platform with Enterprise Governance

Researchers authenticate to the private Research Gateway portal and provision AI-enabled workspaces through approved catalog offerings.

Each workspace runs within its own project AWS account, providing strong isolation between research programs.



Business Outcomes

Deployment of the AI-enabled Research Gateway platform enabled the institution to introduce enterprise AI coding assistants while maintaining complete institutional governance over research data and cloud operations.

Researcher Productivity

Researchers gained immediate access to secure AI-assisted development environments optimized for large-scale data analysis and software development.

Benefits included:

- Rapid provisioning of AI-ready research workspaces
- Accelerated code development and data analysis
- Consistent development environments across research teams
- Reduced environment setup time
- Immediate access to GPU-enabled infrastructure

Secure Enterprise AI Adoption

By integrating Claude Code and Codex with Amazon Bedrock, the institution enabled researchers to use state-of-the-art AI coding assistants without exposing institutional data to externally hosted AI services.

Capabilities included:

- All AI inference remained within organization's AWS environment
- Centralized governance of approved AI models
- Secure access through IAM
- Project-level isolation
- Institutional control over AI adoption

Operational Efficiency

Research Gateway automated provisioning and lifecycle management of AI workspaces, reducing administrative effort while allowing researchers to operate independently within approved governance boundaries.

Administrative improvements included:

- Self-service workspace deployment
- Standardized AI workstation images
- Centralized software maintenance
- Simplified GPU infrastructure management
- Reduced manual provisioning effort

Financial Visibility

Research Gateway combined traditional infrastructure costs with Amazon Bedrock API consumption to provide comprehensive project cost reporting.

This enabled the institution to:

- Allocate AI costs to individual researchers
- Monitor AI usage across projects
- Track workspace operating costs
- Improve budget forecasting
- Optimize cloud and AI spending

Customer Perspective

> Research Gateway enabled the Business School to adopt AI-assisted software development in a secure and governed manner. By combining Claude Code and Codex with Amazon Bedrock, our researchers can leverage state-of-the-art coding assistants while keeping sensitive research data within the organization's AWS environment. The platform has simplified onboarding, improved visibility into AI usage costs, and significantly reduced operational overhead for Research IT."
>
> **— Research IT Leadership**

Key Outcomes

- ✓ Secure enterprise deployment of Claude Code and Codex using Amazon Bedrock
- ✓ AI-assisted research computing without exposing institutional data to public AI services
- ✓ Self-service provisioning of GPU-enabled AI workstations
- ✓ Browser-based secure remote desktop using Amazon DCV
- ✓ Standardized AI-ready research environments with pre-installed development tools
- ✓ Centralized governance of approved Amazon Bedrock foundation models
- ✓ Per-researcher and per-workspace Amazon Bedrock API cost tracking
- ✓ Unified reporting of infrastructure and AI consumption costs
- ✓ Improved researcher productivity with minimal administrative effort

About Relevance Lab Research Gateway

Secure AI. Governed by Policy. Built for Research Innovation.

Research Gateway is Relevance Lab's cloud-native platform for secure research computing, AI-enabled research environments, and scientific collaboration. The platform enables universities, healthcare organizations, government agencies, and research institutions to rapidly deploy governed cloud workspaces, integrate enterprise AI services such as Amazon Bedrock, simplify research operations, optimize cloud and AI costs, and accelerate discovery while maintaining institutional security and compliance.

Learn More About Research Gateway

Recognized as a trusted AWS partner

aws PARTNER Advanced Tier Services

aws PARTNER Solution Provider

aws PARTNER AWS Service Catalog Delivery

aws Qualified Software

www.relevancelab.com

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