

# Increasing Research Platform Adoption with AI-Powered Research Assistance



## Customer Overview

A leading U.S. research university is a world-renowned research institution with a long history of scientific innovation and medical breakthroughs. Researchers across university conduct leading-edge work in clinical research, biomedical informatics, disease prevention, medical imaging, precision medicine, and AI-driven healthcare innovation.

After successfully deploying Research Gateway, a secure cloud-based research platform, the university faced a different challenge—not security, but adoption. Researchers struggled to select the right cloud infrastructure, understand cloud costs, and confidently provision AI-ready research environments.

Relevance Lab addressed these challenges by introducing Research Assistant, an AI-powered advisor that guides researchers through infrastructure selection, automates provisioning, and continuously optimizes cloud usage while maintaining institutional governance.

## Business Challenge

Following the successful deployment of a secure, HIPAA-aligned Research Gateway platform, the university had established a scalable foundation for secure biomedical research. Researchers could provision compliant workspaces, collaborate securely across institutions, and leverage cloud-based compute resources for analytics, AI, and machine learning.

However, despite the platform's technical capabilities, adoption among research teams remained lower than expected. Researchers were experts in biomedical science—not cloud infrastructure—and many found it difficult to determine the right computing resources for their projects.

Research IT observed several recurring challenges:

**Challenge 1:** Infrastructure Complexity

**Challenge 2:** Cost Uncertainty

**Challenge 3:** Operational Challenges

**Challenge 4:** Low Adoption

## At a Glance

### Industry

Higher Education & Academic  
Medical Center

### Solution

AI-Powered Research Computing  
platform

### Platform

Relevance Lab Research  
Gateway on AWS

### Primary Goals

Platform adoption, Cost  
governance, Governance &  
Compliance

### Research Areas

Biomedical Research, Clinical  
Analytics, AI/ML Research

### Key Capabilities

Compute recommendation,  
Instance right-sizing and Idle  
instance detection,  
Conversational interface

### Compliance Focus

HIPAA-Aligned Security Controls





#### Challenge 1

### Infrastructure Complexity

Many researchers lacked the cloud expertise required to select appropriate CPU, memory, GPU, and storage configurations, resulting in uncertainty and delayed project onboarding.



#### Challenge 2

### Cost Uncertainty

Principal Investigators were concerned about the financial impact of provisioning high-performance GPU resources without clear visibility into expected cloud costs.



#### Challenge 3

### Operational Challenges

Researchers were presented with fixed infrastructure catalog offerings that rarely matched the diverse computational needs of biomedical research projects.

Research IT teams received a growing volume of requests to create customized catalog offerings for individual research groups, creating operational bottlenecks and increasing administrative overhead.

Supporting new AI and machine learning initiatives required frequent catalog updates as new AWS instance families became available, making it difficult for IT teams to keep pace with researcher demand.



#### Challenge 4

### Low Adoption

Researchers often relied on emails and support tickets to determine which infrastructure was appropriate, increasing time-to-research while diverting Research IT staff from higher-value

As cloud adoption accelerated, the university needed a more intelligent and scalable way to bridge the gap between secure infrastructure and researcher productivity—one that could guide users through infrastructure selection, recommend cost-effective compute resources, simplify project provisioning, and reduce dependence on Research IT for routine operational support.

The objective was not simply to provide secure research infrastructure, but to make that infrastructure intuitive, accessible, and financially predictable for researchers while allowing Research IT to scale support across a growing portfolio of biomedical research projects.



# Solution

## Research Assistant

Relevance Lab introduced the Research Assistant, an AI-powered research advisor that sits on top of Research Gateway and provides several valuable capabilities.

| Intelligent Infrastructure Advisor                                                                                                                                                  |                                                                                                                                  |                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>The Research Assistant recommends appropriate AWS instance types</li><li>Estimates projected costs</li><li>Explains recommendations</li></ul> |                                                                                                                                  |                                                                                                                               |
| Conversational Provisioning                                                                                                                                                         | Cost Intelligence                                                                                                                | Governance Assistant                                                                                                          |
| <ul style="list-style-type: none"><li>Creates workspaces</li><li>Provisions compute</li></ul>                                                                                       | <ul style="list-style-type: none"><li>Predicts spend</li><li>Identifies idle resources</li><li>Recommends right sizing</li></ul> | <ul style="list-style-type: none"><li>Explains policies</li><li>Validates requests</li><li>Surfaces security alerts</li></ul> |

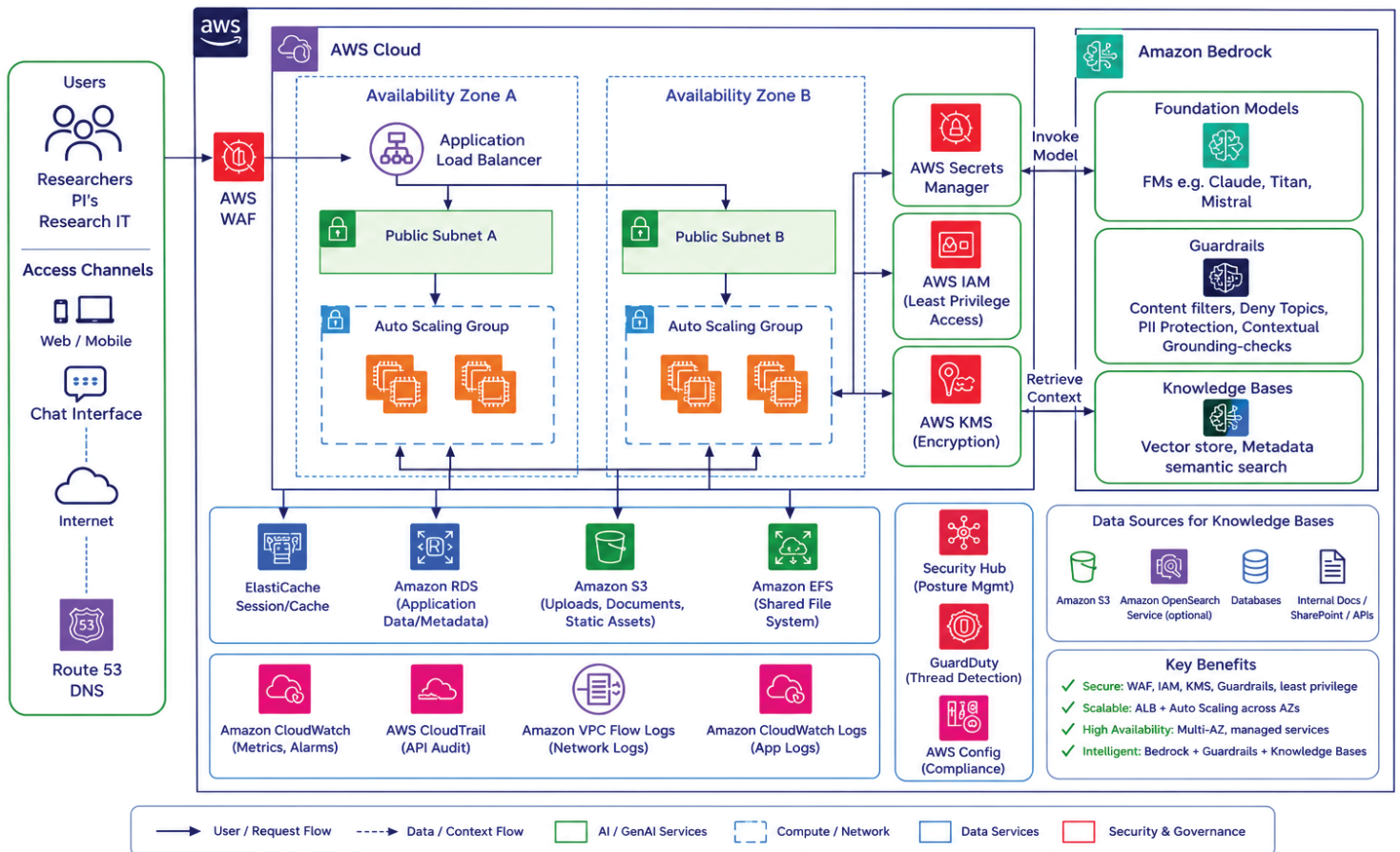
## Examples

|                                                        |                                  |                                    |
|--------------------------------------------------------|----------------------------------|------------------------------------|
| Create a GPU workspace for my Cancer Genomics project. | Show me yesterday's cloud costs. | Add Dr. Smith to my research team. |
| Which projects have idle GPU resources?                | Why was my data import rejected? | Summarize today's security alerts. |

The Research Assistant complements Research Gateway by acting as an intelligent advisory layer that continuously analyses project activity, cloud utilization, governance posture, and operational telemetry to proactively recommend improvements.

# Research Assistant on AWS – Deployment Architecture

Secure • Governed • Intelligent



## Researcher-centric access with easy conversational interface

Researchers access a conversational interface to get recommendations on research computing infrastructure and then create secure virtual workspaces without requiring direct infrastructure access.

- Amazon Bedrock provides the GenAI reasoning engine
- Knowledge Bases ground responses in institutional policies
- Research Gateway executes approved actions
- Guardrails ensure compliant responses
- IAM and KMS enforce least-privilege access
- CloudWatch provides operational telemetry used for recommendations

# How Research Assistant Solved Key Adoption Challenges

Intelligent guidance. Smarter choices. Lower costs.

## Fixed catalog items didn't fit research needs

Researchers were offered fixed instance sizes that rarely matched the varied, evolving needs of biomedical projects.



### Research Assistant

Reads the research objective and workload, then recommends the right instance type, size and configuration.

## Unclear which instances to use, or the cost

Without cloud expertise, researchers struggled to choose the right instances and to understand what they would cost.



### Research Assistant

Gives natural-language guidance, compares options, and shows cost estimates and budget impact before provisioning.

## Research IT stretched by custom catalog requests

Building custom catalog items for individual teams caused delays and mounting administrative overhead.



### Research Assistant

Recommendations and policy-based guardrails meet unique needs without a new catalog item for every request.

## Fear of runaway costs on high-cost GPUs

Unpredictable GPU costs led to hesitation, under-utilization and stalled projects.



### Research Assistant

Estimates cost upfront, monitors usage, predicts trends, and recommends auto-shutdown and rightsizing.

## Illustrative First-Year Outcomes

### RIGHT-SIZING

**35%**

fewer over-provisioned research environments

### IDLE DETECTION

**20-30%**

reduction in idle GPU spend

### AUTOMATION

**60%**

less manual provisioning effort

### COST CONTROL

**10-15%**

cloud cost savings through rightsizing

**Result:**  **Higher Adoption**  **Happier Researchers**  **Lower Costs**  **Scaled Operations**

Plus an estimated **1,000+ administrator hours saved annually**, redirected to scientific computing.

Deployment of the Research Assistant transformed how researchers and administrators interacted with the platform.

## Researcher Productivity

Researchers no longer needed to understand cloud terminology, infrastructure sizing, or administrative workflows.

Instead of navigating multiple portal screens, they could simply describe their research objectives using natural language.

### Measured improvements included:

- New researcher onboarding time decreased from days to hours.
- Support requests for routine provisioning and custom catalog items reduced by over 50%
- Researcher productivity (mean time to first analysis) improved significantly.

## Operational Efficiency

The Research Assistant continuously monitored Research Gateway telemetry and generated proactive recommendations including:

- Idle instance detection
- Instance right-sizing recommendations
- Cost anomalies
- Budget forecasts
- Compliance exceptions
- Security alerts

Daily automated summaries replaced manual administrative reviews and enabled research IT teams to focus on higher-value work.

### Example daily insight:

"Cancer Genomics consumed 20% more GPU hours yesterday. Idle periods between 10 AM and 1 PM suggest enabling auto-shutdown, reducing projected weekly costs."



## Customer Perspective

“

The combination of Research Gateway and the Research Assistant has significantly simplified how our researchers access secure computing resources. Instead of navigating complex provisioning workflows, researchers can describe what they need in plain language while the platform automatically enforces our governance policies. The result is faster project onboarding, lower operational overhead, improved cloud cost visibility, and a substantially better user experience.

— University Leadership Team

## About Relevance Lab Research Gateway

**Secure by Design. Governed by Policy. Built for Research Innovation.**

Research Gateway is Relevance Lab's cloud-native platform for research computing, secure research environments, and scientific collaboration. The platform enables universities, healthcare organizations, government agencies, and research institutions to rapidly deploy governed research environments, accelerate scientific discovery, optimize cloud costs, and maintain compliance with security and regulatory requirements.

[Learn More About Research Gateway](#)

Recognized as a  
trusted AWS partner

