Legacy Platform Modernization **through Agentic AI**

Client Overview

A U.S. federal regulatory agency completed a 6-month pilot to modernize a mission-critical system - covering legacy code discovery, cloud architecture, and fully-functional development of 2 online forms.



Modernization Overview

Engagement:

Federal agency modernization pilot

Approach:

Agentic AI-driven development lifecycle (AI-DLC)

Scope:

Legacy code analysis, AWS infrastructure, cloud-native architecture, and functional form development

Problem Statement

A homegrown legacy system with complex code and tightly coupled components made modernization risky and cost prohibitive. The agency needed to understand the existing system comprehensively, uncover business rules and dependencies, identify redevelopment needs, and validate the feasibility of an agentic AI-DLC approach before investing in full-scale modernization strategy.

Engagement Objectives

- Map legacy functionality, rules, dependencies, and technical debt.
- Design a cloud-native, elastic, sustainable, and cost-efficient architecture.
- Install AI-DLC platform to use and validate capabilities through all development phases.
- Establish automated CI/CD deployment infrastructure in an AWS environment.
- Demonstrate full functionality of 2 forms with complete requirements traceability.
- Identify system components and dependencies that require modernization.
- Define the agency's multi-year implementation roadmap.

Proposed Solution

An agile team established AWS pilot infrastructure, a cloud-native design, and 2 fully functional forms during the 6-month pilot. They also combined AI-augmented delivery with a human-in-the-loop validation strategy to complete critical development activities:

Discovery: Analyze code, requirements, business rules, and user interface needs.

Construction: Generate user stories and code and build traceable features and functionality.

Validation: Develop test cases traceable to user stories, conduct comprehensive functional and backend testing, and; resolve defects.

Future plans include full-scale system development, including core component redevelopment, implementation of REST APIs to manage submissions, and integration of hundreds of forms.

Migration and Modernization Outcomes

Pilot results informed the next-phase system modernization and form migration roadmap.

Pilot measure	Result
Legacy code analyzed	2+ million lines
Stored procedures, linked rules, and processes	Nearly 100,000
End-to-end requirements discovery and analysis	Less than 4 weeks with human-in-the-loop validation
User stories generated per form	150+ in less than 1 week
AI-accelerated form development	Less than 6 weeks on average to develop, test and remediate per form
Testing traceability to requirements	100%

Business Impact

Faster discovery, traceable requirements, and accelerated form development gave the agency a stronger foundation for planning and evaluating its full-scale modernization roadmap.

Target benefits of its multi-year modernization strategy include faster implementation of new business requirements, reduced technical risk, and enhanced resilience and usability.