# Revolutionizing Legacy Systems: GENOME by DDC

DDC DINÉ DEVELOPMENT CORPORATION | DINÉ SOURCE A DDC COMPANY

DDC is transforming mainframe migrations with generative AI, using large language models (LLMs) to convert and refactor millions of lines of legacy code and data structures. This process optimizes and modernizes the code, producing clean, maintainable, and cloud-ready solutions in modern languages like Java. By eliminating reliance on costly, proprietary conversion tools, we free customers from vendor lock-in and offer a more agile, cost-effective path to modernization.

Our approach features an AI-driven Test-Driven Development (TDD) framework, where LLMs generate test cases as well as perform code translation. This ensures accuracy, precision, and adherence to modern coding standards. By stripping away unnecessary complexity and poor coding practices, we deliver optimized, future-ready systems that preserve mission-critical functionality while enhancing flexibility, maintainability, and long-term value.

Modernizing legacy systems is essential for organizations navigating today's dynamic digital landscape. The GENOME (GENerative Optimization and Modernization Engine) framework is a groundbreaking AI solution by DDC that transforms outdated systems with unmatched efficiency and accuracy. GENOME leverages a robust Generative AI development pipeline to eliminate traditional bottlenecks in code conversion and refactoring.

## Corporate Snapshot

- Navajo Nation Tribally owned family of companies
- SBA certified 8(a) and Small Disadvantaged Businesses
- 700+ employees
- 130+ CONUS and OCONUS operating locations
- Federal, state, and tribal government markets
- 20-year history of proven performance

## Certifications & Awards

CMMI-DEV ML 3
ISO 8000-110:2009
ISO 9001:2015
ISO/IEC 20000-1:2011
ISO/IEC 20000-1:2018
ISO/IEC 27001:2013

DAYTON BUSINESS JOURNAL BPIW 2022 BEST PLACES TO WORK

BUSINESS OF THE YEAR

Legacy/Current Code → AI Refactoring/Conversion → HITL Validation → TDD Modern Infrastructure

**Legacy systems power critical operations but often lack scalability, security, and adaptability. GENOME addresses these challenges with a holistic modernization approach tailored to your unique needs.**

*Modernization Redefined*

## The GENOME Advantage

**Flexibility for Modernization or Refactoring:** Supports not only code translation (e.g., COBOL to Python) but also refactoring and optimization within the same language (e.g., Python to refactored Python).

**Test-Driven Development for Reliability:** Ensures robust system functionality through:

- Regression Testing: Validates that changes or updates in modules do not disrupt existing functionality.
- Unit Testing: Ensures each individual module operates correctly within defined parameters.
- Integration Testing: Confirms seamless interaction between modernized components and external systems.
- Performance Testing: Verifies the system's scalability and operational efficiency under real-world conditions.

**Human-In-The-Loop for Accuracy:** Ensures mission alignment by embedding experts during:

- Initial Analysis: Decoding complex legacy business logic and requirements.
- Test Case Development: Designing comprehensive validation tests for critical functionality.
- Validation and Optimization: Refining AI outputs for operational readiness and coding best practices.

**Accelerated Timelines:** AI-powered workflows drastically reduce project durations.

**Cost Efficiency**: Eliminates reliance on proprietary tools, lowering overall modernization costs.

**Enhanced Maintainability:** Produces clean, optimized, and future-ready code.

## GENOME

**Genrative Optimization Modernization Engine**

### Four Pillars

- AI-Powered Transformation
- HITL Integration
- Rigorous Testing
- Scalable Integration

## Key Features of GENOME:

**Modular Code Conversion** – Breaks monolithic systems into manageable modules for iterative modernization.

**AI-Driven Automation** – Leverages LLMs to transform legacy code by both converting it to modern languages (e.g., COBOL to Java) and refactoring it for enhanced performance and maintainability. Alternatively, GENOME can refactor code within the same language (e.g., Python to optimize Python), ensuring it meets modern standards while preserving functionality.

**Test-Driven Development (TDD)** – Embeds comprehensive testing methodologies, including regression, unit, integration, and performance testing, to ensure functionality and reliabilityat every stage.

**Human-In-The-Loop (HITL) Integration** – Embeds expert oversight at key phases, including code interpretation, test case development, and final validation, ensuring alignment with mission-critical requirements.

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