

Brownfield migration and modernization with Agentic AI

Modernize confidently with Agentic AI that automates migration, elevates application quality, and prepares your business for AI.

Highlights

Embeds Agentic AI across entire application migration and modernization processes for brownfield applications.

Includes strong *human-in-the-loop* governance mechanisms for ensuring enterprise trust.

Easy scalability for modernization across hundreds or even thousands of applications.

Provides higher accuracy in estimating and managing cost, complexity and risk.

Modernizing brownfield legacy applications is essential and getting it right the first time matters more than ever. Traditional approaches rely heavily on manual effort, incomplete documentation, and brittle processes that struggle to untangle years of technical debt. These challenges slow down cloud adoption, increase risk and make modernization costly, inconsistent, and hard to scale.

AI is transforming this landscape by automating analysis, code transformation and testing - making brownfield systems easier to understand and evolve. Agentic AI takes the next step in using collaborative AI agents to plan, execute and optimize modernization tasks.

Key advantages of Agentic AI:

- **Accelerates complex modernization tasks** by using coordinated AI agents to automate code analysis, refactoring, testing and dependency mapping.
- **Improves quality and consistency** through AI-driven validation, error detection and intelligent recommendations that reduce rework and strengthen application reliability.
- **Enhances decision-making** with data-driven insights that help teams choose the right modernization paths, target technical debt and optimize cloud architectures.
- **Makes legacy systems AI-ready** by transforming applications into cloud-native, scalable, intelligent platforms that can embed and operationalize advanced AI workflows.

IBM brings decades of proven Application Migration and Modernization (AMM) methods and automation for brownfield systems, now elevated by the Agentic Method for Application Migration and Modernization. With agentic AI, modernization shifts from static, linear playbooks to adaptive, intelligence-led execution - where systems can analyze, decide, and act autonomously. This enables IBM to simplify complex legacy estates, accelerate delivery, and build future-ready, AI-enabled applications. The result is a smarter, faster, and more scalable modernization experience that delivers sustained value in today's rapidly evolving, data-driven world.

A global financial services firm leveraged Agentic AI to:

- Modernize 500+ brownfield apps in just 6 months (vs 12+ months with traditional processes)
- Reduce incident resolution time by 70% through autonomous remediation
- Save \$3M annually in operational costs

IBM Agentic Method for migration and modernization

IBM's application migration and modernization services bring together the power of agentic AI and the rigor of the Agentic Methodology to transform how enterprises modernize their brownfield application estates. By combining intelligent automation, AI-driven reasoning and adaptive workflows, these services simplify complex legacy environments and accelerate the move to cloud. Agentic AI enables systems to analyze, decide and act autonomously across the modernization lifecycle, improving quality, reducing risk and ensuring applications are not only modernized with AI but also modernized to confidently enable AI.

- **Intelligent discovery and assessment** - Agents autonomously analyze the entire brownfield environment – from application code to infrastructure configurations, service dependencies, and usage behavior to build a clear, end-to-end understanding of the environment. They surface explainable insights on complexity, technical debt, integration points, and modernization blockers - providing a precise, data driven foundation for transformation decisions.
- **AI-based identification of modernization pathways** - Agentic AI uses its core capabilities (Automate, Assist, Augment, Adapt and Autonomy) to assess applications and recommend from the 6R modernization options such as rehost, refactor, replatform, or retire; aligning them to business capabilities, cloud strategy and risk posture.
- **Execution-aware roadmaps** - Agents apply continuous reasoning to build roadmaps that reflect real delivery constraints, aligning modernization plans with available skills, sequencing tasks, inter system dependencies, environment readiness and cost envelopes. This ensures every milestone is both strategically sound and operationally achievable.
- **Continuous learning & adaptation** - Agents continuously refine their recommendations as new telemetry, constraints, or business priorities emerge. They learn from execution feedback, shifting workloads, dependency changes, and user interactions—allowing modernization plans to stay current, context aware, and aligned with evolving enterprise realities.

The IBM Advantage

IBM gives enterprises a decisive advantage by combining Agentic AI with deep AMM execution expertise, proprietary modernization assets and a powerful partner ecosystem. With IBM, clients gain a smarter, more scalable modernization engine that delivers measurable outcomes and positions applications to fully leverage AI and cloud capabilities.

- **Aligned with business outcomes:** Enterprise applications are mapped to business priorities and value streams, ensuring that modernization investments directly support growth, efficiency, resilience and regulatory requirements.
- **Asset-driven transformation frameworks:** Proven, scalable methodologies and tools that identify, structure and prioritize business capabilities to guide large-scale modernization with clarity and confidence.
 - **IBM Consulting Advantage** for AI-assisted business and technology alignment
 - **Txture** for advanced application landscape intelligence and dependency analysis
 - IBM application discovery & **Migration Factory** assets
 - **watsonx™** for AI-ready platforms and enterprise-grade governance

With Agentic AI–powered application migration and modernization services, enterprises move from static assessments to living modernization programs - faster, safer, and continuously optimized for business change.

- Agent-first approach to delivery
- Higher accuracy in cost, complexity, and risk estimation
- Scalable modernization across hundreds or thousands of applications
- Improved developer and architect productivity

- **Future-ready architecture design:** Target architectures optimized for hybrid cloud, containers and AI workloads; ensuring modernization choices stay durable and adaptable as technology and business needs evolve. Powered by:
 - **Red Hat OpenShift** for hybrid, multi-cloud portability
 - **IBM Cloud** and hyperscaler architectures with AWS, Azure or GCP
- **Human + AI governance:** Agentic AI delivers speed and scale while IBM experts provide design authority, architectural oversight, and risk governance - keeping AI-driven decisions transparent, auditable, and enterprise-safe. Supported by:
 - **IBM Garage™** methods for co-creation and decision governance
 - Security, compliance, and resiliency frameworks embedded into delivery
 - **watsonx™** governance capabilities for AI oversight and explainability
- **Execution-first roadmaps:** Modernization plans are continuously refined based on real delivery signals - skills availability, sequencing, dependencies, cost, and risk; execution stays aligned with business priorities. Delivered through:
 - IBM Migration & Modernization Factory
 - Wave-based execution models tied to measurable outcomes
 - Continuous feedback loops between agents and delivery teams

For more information

To learn more about IBM brownfield application migration and modernization services with Agentic AI, contact your IBM representative or visit ibm.biz/agentic-amm.

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