



HEXAWARE

Agentic AI for Post-Funding Mortgage Loan Reviews

90% reduction in manual review time

Case study

Client

| Client

- Challenge
- Solution
- Benefits
- Summary

US Mortgage Company

Our client is a leading government-sponsored enterprise in the US housing market, recognized for its unwavering commitment to integrity and ethical business practices. Guided by transparency and accountability, our client ensures public trust and supports sustainable homeownership.



Challenge

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Resource Utilization for Loan Audits

Post-funding mortgage loan reviews are essential to verify loan quality, documentation completeness, and regulatory compliance.

For our client, a leader in driving modernization for their services, they saw this as an opportunity to eliminate time-consuming, resource-heavy workflows.

The post-funding loan mortgage process was:

- Time-consuming because of manual checks for loan files.
- Dependent on underwriters to review 600–1000-page loan packages.
- Covering monthly audits of only 5–10% of funded loans ready for audit.

The process spanned multiple workflows and dependencies:

- **Loan Application Submission** – Borrower submits application with documents.
- **Lender Accepts Application** – Underwriting and due diligence are performed.
- **Loan Approval & Funding** – Loan is disbursed upon approval.
- **Selection for Post-Funding Review** – 5–10% of loans are flagged for audit.
- **Loan Assignment** – Selected files are passed to institutions or investors.
- **Underwriter Review** – Manual document checks (~90 minutes/file).
- **Exception Management** – Issues take 5–8 business days to resolve.
- **Discrepancy Resolution** – Final corrections are made before reporting.

To modernize this process, the company looked for new ways to innovate with enterprise Artificial Intelligence (AI).



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Agentic AI for Automating the Loan Audit Workflow

To address an operational burden, our mortgage loan review AI solution was built using agentic AI to transform mortgage reviews into self-directed, intelligent audit pipelines.

Autonomous agents drive efficiency by parsing documents, validating rules, resolving exceptions, and escalating edge cases — all with minimal human intervention.

Capabilities: Agentic AI in Action

Our solution brought in agentic AI capabilities for autonomous decision-making and dynamic task orchestration:

- **Self-Directed Loan Audit AI Agents:** Operate across classification, extraction, and validation layers.
- **Proactive Exception Handlers:** Identify and resolve compliance gaps autonomously.
- **Multi-Agent Collaboration:** Specialized agents handle tasks like rule validation or borrower inference in parallel.
- **Memory & Contextual Recall:** Audit memory allows agents to reuse past decisions for accuracy.

Agentic AI Governance Protocol

- Human-in-the-Loop Governance: Human reviewers only intervene when agents hit low-confidence thresholds.

How AI Agents Were Embedded Using Layers

Our agentic AI-powered mortgage solution transforms the labour-intensive process through a four-layer intelligent pipeline. Each layer is governed by autonomous AI agents that operate independently, learn continuously, and collaborate dynamically.

1. Document Classification Layer

- Ingests unstructured PDFs and normalizes content.
- Uses Claude via AWS Bedrock for prompting and enrichment.
- Applies domain-specific rules using custom plugins.
- Converts content into structured JSON format for downstream use.

2. Document Embedding Layer

- Performs semantic search and retrieval-augmented generation (RAG).
- Uses Amazon Titan Embeddings for vectorization and chunking.
- Merges structured documents to enable contextual understanding.

3. Borrower Entity Extraction Layer

- Extracts borrower-level insights from JSON content.
- Uses LLM agents with guardrails for safe and accurate inference.
- Generates final borrower summaries stored in AWS S3.

4. Business Rules & Validation Layer

- Applies investor and compliance rules dynamically.
- Leverages context-aware retrieval for decision-making.
- Executes validations through Claude with guardrails.
- Stores audit results in AWS Aurora for traceability.

Together, these layers create a scalable, agentic AI ecosystem for mortgage loan reviews, reduce manual effort, and ensure accuracy, compliance, and transparency at every step.

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Faster Large-Scale Loan Audit Automation

- 100,000+ loan files processed monthly: Document automation AI manages over 100,000 individual loan files every month, a high-volume workflow.
- 600–1000 pages per loan file: Each loan file typically contains between 600 and 1,000 pages of documentation, highlighting the complexity of each review.
- 90% reduction in manual review time: Automation with agentic AI reduced the time required to audit each loan from 90 minutes to approximately 9 minutes, increasing efficiency.
- Exception monitoring from 5–8 days to under 1 day: The time taken to resolve issues found during audits was cut to less than one day from nearly a week.
- Real-Time Transparency: A Power BI dashboard delivers instant visibility into audit status, exceptions, and bottlenecks for quicker lending decisions.
- Responsible AI Guardrails in Lending: Improved accuracy and consistency with LLM guardrails that help standardize data interpretations across audits.
- Scalable Audit Operations: The system efficiently manages tens of thousands of reviews per month with minimal human oversight, demonstrating reliability.



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Bringing AI Autonomy to Mortgage Audit Lifecycles

Our agentic AI solution for mortgage loan reviews brings in faster, self-improving automation to mortgage loan review processes. Rather than just automating individual steps, it empowers intelligent agents to handle the end-to-end audit lifecycle with minimal guidance, enhancing audit quality, responsiveness, and regulatory alignment.

Our solution is a strong fit for underwriters, banks, and financial institutions seeking to modernize post-funding loan reviews with AI in the mortgage industry, exploring agentic, autonomous, and accountable artificial intelligence solutions.



Ready to transform your mortgage audit process?

Contact us at marketing@hexaware.com to learn how agentic AI can drive speed, scale, and compliance for your enterprise.

About Hexaware

Hexaware is a global technology and business process services company. Every day, Hexawarians wake up with a singular purpose: to create smiles through great people and technology. With this purpose gaining momentum, we are well on our way to realizing our vision of being the most loved digital transformation partner in the world. We also seek to protect the planet and build a better tomorrow for our customers, employees, partners, investors, and the communities in which we operate.

With offices across the world, we empower enterprises to realize digital transformation at scale and speed by partnering with them to build, transform, run, and optimize their technology and business processes.

Learn more about Hexaware at www.hexaware.com.

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