

Insurance: GenAI use case

Real-time risk decisions with agentic AI

cognizant

Microsoft

Problem statement

Life insurance underwriting remains a multi-step, rule-driven but heavily manual process that relies on human review across intake, document validation, external data checks (MIB, Rx, DMV, Credit), rating, and decisioning. This leads to:.

- Long cycle times—typically 5–15 days—driven by repetitive tasks and hand-offs
- Fragmented data handling across multiple sources, increasing error rates (8–12%) versus 3–5% when automated
- Subjective risk scoring with limited system support for context or explainability
- Escalation bottlenecks to medical directors and senior underwriters, slowing policy issuance and impacting CX
- High manual effort despite the industry processing billions of documents, ~85% unstructured and often handled by humans today

Solution overview

Cognizant Underwriter Assist augments underwriting teams with agentic AI to streamline end-to-end case processing while keeping humans in the loop for oversight and final judgment.

How it works (at a glance)

Intake Agent: Ingests applications and supporting artifacts;normalizes formats; performs NIGO/validation checks.

Enrichment Agent: Pulls and structures external data (MIB, Rx,DMV, Credit), extracts salient medical/financial signals, and fillsfeature gaps.

Recommendation Agent: Produces explainable risk scores,preliminary rating class, and contextual next best actions basedon rules + LLM reasoning.

Selection Agent: Routes cases to the optimal underwriter based on skills/availability when human review is warranted.

Evaluation Agent: Provides a human in the loop review surfaceto validate/override recommendations with full rationale tracking.

Orchestrator Agent: Coordinates agent flows, ensures policy/ sequence integrity, and applies guardrails.

Communication Agent: Automates structured communications (e.g., requirement requests, approvals/declines) with audit trails.

The approach delivers two operating modes:

- Auto-Approve for low-risk profiles with rules conformance.
- Underwriter-Assist for medium/high risk, prioritizing complex cases with ready-to-review summaries and evidence— reducing manual prep time while maintaining control

Technology used

GenAI & Reasoning

- Azure OpenAI (GPT 4 omni) for contextual reasoning, summarization, and recommendation rationale.
- Retrieval Augmented Generation (RAG) over a curated Knowledge Graph of underwriting rules, medical/ financial ontologies, and guidelines.

Search & Data Layer

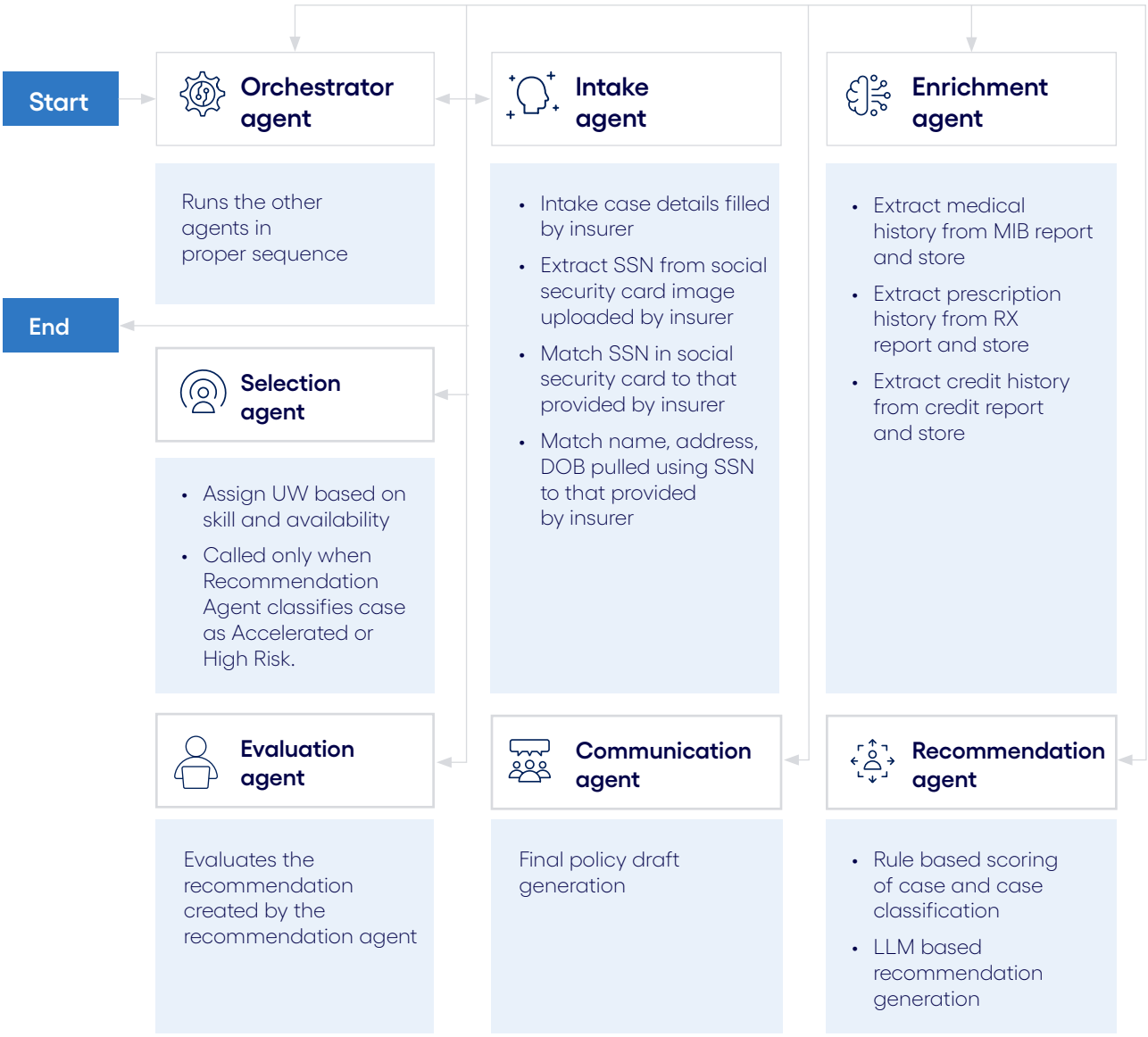
- Azure AI Search for semantic retrieval across documents and case histories.
- Secure connectors to MIB, Rx, DMV, Credit data sources; structured extraction & normalization pipelines.

Agent Framework & Integration

- AI Agents Framework with an Orchestrator coordinating Intake, Enrichment, Recommendation, Evaluation, Selection, and Communication agents.
- REST/WebSocket APIs and UI layer (e.g., React) integrated into the existing underwriting platform/workbench.

Governance, Security & Observability

- PHI handling aligned to HIPAA and enterprise privacy policies; policy guardrails and content filtering.
- Human in the loop checkpoints, override protocols, and full auditability (agent commentary, inputs/outputs, evidence links).
- Monitoring dashboards for drift, bias, performance, and SLA adherence.



Business benefits

Cycle-time compression: ~30% reduction in underwriting cycle time; AI-driven flows can shrink decisions from weeks to hours in suitable cohorts

Productivity uplift: ~25% improvement in underwriter throughput by offloading repetitive intake, validation, and summarization work

Faster issuance: ~20% improvement in policy issuance speeds, improving placement ratios and revenue realization

Quality and consistency: Lower error bands (toward 3–5%) via structured data assimilation and repeatable rules + LLM reasoning

Experience and scalability: Enhanced CX through quicker, more consistent decisions; scale underwriter capacity for peaks without linear headcount growth

Compliance readiness: Built-in governance, explainability, and audit trails to support regulatory reviews and internal risk controls

Example scenario

Aurora Life Insurance (a mid-sized North American life insurer) processes thousands of applications monthly. Emma Collins, a senior underwriter, must maintain accuracy and compliance while handling high volumes and diverse state regulations. Today she spends hours per case consolidating documents, reconciling discrepancies, and interpreting MIB/Rx/DMV/credit data. Escalations to medical directors create bottlenecks, extending issuance timelines.

With underwriter assist

Document intake and prep

The Intake Agent ingests application PDFs, scanned forms, and emails; extracts and validates key fields; and produces an instant summary with discrepancy flags. Emma receives a clean, ready-to-review case file rather than raw documents.

Data assimilation and rules-based rating

The Requirements support agent pulls MIB, Rx, DMV, and credit data, updates the case as results arrive, and applies carrier rules. The Rules-Based rating agent assigns a preliminary rating class and suggests additional requirements (if any).

Risk assessment and decision support

The decision support agent synthesizes all signals into an explainable risk view and generates contextual recommendations. An integrated dashboard surfaces material factors and rationale; Emma can accept, adjust, or override.

Human-in-the-loop oversight

If clinical nuance is needed, Emma consults a medical director with a succinct AI-generated brief. Turnaround improves because the discussion focuses on exceptions, not data wrangling.

Case closure and communications

For approvals, the Case Closure Agent triggers binder generation and agent/applicant notifications; for declines, it generates compliant letters with documented reasons. Policy issuance proceeds faster with fewer back-and-forths.

Outcome

Aurora Life observes materially shorter cycle times (commonly ~30%, with cases achieving up to 70% reduction), higher throughput per underwriter (~25%), and faster issuance (~20%), while maintaining control and auditability through transparent, explainable AI.



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