



Reinventing Insurance Quoting with Agentic AI Workflows

Transforming multi-carrier insurance quote generation using autonomous AI agents that parse documents, navigate carrier portals in parallel, and generate comparative offers.

Overview

QBurst built an agentic AI automation platform for a US insurance aggregator to orchestrate end-to-end quote generation across its carrier ecosystem.

- **Autonomous Carrier Navigation:** Combines vision-capable document AI with an adaptive agentic workflow engine to extract unstructured policy data, navigate carrier portals in parallel, and generate comparative offer documents.
- **Measurable Operational Impact:** Compressed quote turnaround times by 50%, reduced manual broker data entry by 30%, and increased RFQ processing throughput by 30%.



Client Profile

Headquartered in the United States, the client is a prominent digital insurance aggregator partnering with multiple carriers. The platform serves brokers and consumers across North America, handling high volumes of comparative policy requests across personal, commercial, and specialty coverage lines.

Multi-Portal Friction and Scripted Automation Limits

- **Fragmented Carrier Ecosystem:** Operations teams manually navigated multiple carrier portals—each with unique logins, form structures, and document requirements—for every quote request.
- **Unstructured Input Formats:** Customer documents arrived as scanned PDFs, photos, and emailed declaration pages, requiring tedious manual extraction and re-keying.

- **Brittle Legacy RPA:** Traditional scripted automation broke frequently due to minor carrier portal UI changes, causing workflow halts and maintenance overhead.
- **Linear Headcount Scaling:** Expanding carrier networks or adding new product lines required proportional increases in operational headcount to handle manual submission workloads.

Solution: Parallel Agentic Insurance Operations Engine

We engineered an end-to-end agentic AI platform that navigates carrier portals, extracts policy data, and synthesizes comparative offer documents automatically.

- **Vision-Capable Document Intelligence:** Reads scanned forms, prior policies, and declaration pages to extract structured coverage limits and endorsements without rigid template matching.
- **Adaptive Agentic Carrier Engine:** Interacts with carrier websites in parallel using dynamic DOM logic and computer vision, adjusting automatically to portal UI updates with built-in retry paths.
- **Automated Comparative Offer Generation:** Aggregates, normalizes, and validates returned quotes into client-ready comparative proposal documents within a single pipeline.
- **Human-in-the-Loop (HITL) Exception Handling:** Routes edge cases and low-confidence submissions to human operators while auto-submitting standard requests.
- **Auditable Architecture & Governance:** Built on a Python-Django backend orchestrating vision and language models with PII masking, strict validation rules, and full interaction logging.

Technical Highlights

Dynamic DOM & Computer Vision Navigation: Replaced brittle, selector-based RPA scripts with adaptive AI agents that interpret webpage structure visually and recover automatically from portal layout changes.

- **Multi-Model Orchestration Framework:** Implemented task-specific AI model selection—combining vision models for unstructured document extraction with frontier/open-source LLMs—to optimize accuracy, latency, and cost.
- **Parallel Multi-Carrier Submission Engine:** Transitioned from sequential, manual portal-by-portal processing to asynchronous, parallel agent execution across carrier endpoints.
- **End-to-End Pipeline Automation:** Integrated document ingestion, data extraction, portal form-filling, quote aggregation, and client offer generation into a single automated workflow.
- **Regulated Enterprise Security & PII Masking:** Embedded automated customer PII masking, data verification rules, and auditable logging across all external model interactions.

Impact

- **50% Faster Quote Generation:** Reduced quote turnaround times from hours to minutes through parallel carrier portal execution.
- **30% Less Manual Broker Effort:** Eliminated routine data entry, allowing brokers to focus on advisory services and closing sales.
- **30% Higher RFQ Capacity:** Increased submission throughput per team without adding operational headcount.
- **Zero Re-Keying Errors:** Improved quote accuracy by replacing manual portal data entry with validated automated extractions.
- **Elastic Carrier Onboarding:** Allowed the client to onboard new carriers and product lines through simple configurations rather than linear hiring.