AGENTIC AI-POWERED DIGITAL UNDERWRITING: ENABLING A LEADING INSURER WITH INTELLIGENT UNDERWRITING

DATAMATICS

The client is a global private healthcare insurer sought to revolutionize its medical underwriting process by replacing manual workflows with AI and Agentic AI.

The Challenge: Manual, Slow, and Inconsistent Underwriting

The client's underwriting process was highly manual, leading to:

- **Slow processing times** due to dependency on underwriters for data collection and risk evaluation
- **Subjective decision-making,** with outcomes varying based on individual expertise rather than data-driven insights
- **Scalability bottlenecks,** as rising application volumes strained existing workflows
- **Limited fraud detection,** with no AI-powered analysis of historical claims or underwriting patterns

The client's goal was to accelerate decision-making, improve accuracy, and handle increasing application volumes without compromising risk assessment quality.

The Solution: Agentic AI-Powered Digital Underwriting Platform

Datamatics built a next-generation underwriting platform combining **generative AI, agentic AI architecture (CrewAI), predictive analytics,** and **rule-based automation** to deliver end-to-end intelligent underwriting.

Key Innovations:

- **CrewAI-Orchestrated Virtual Underwriter:** The platform uses Agentic AI to drive a multi-agent system where specialized AI agents — Risk Assessor, Preliminary Outcome Evaluator, Underwriter Decision Maker, and Final Evaluator — collaborate to replicate the expertise of experienced human underwriters. Each agent brings human-like intelligence by specializing in critical underwriting tasks. A Conversational AI Assistant, powered by NLP and GenAI, engages applicants with dynamic, real-time medical triage, showing dynamic adaptivity as questions evolve based on user responses and risk factors. The modular CrewAI architecture ensures scalability, allowing easy addition of new medical conditions, underwriting rules, or even new agents.

- **AI Risk Scoring & Decision Tree Assessment:** The Risk Assessment Agent calculates a health risk score (0–100) using applicant medical data, structured reasoning, and historical insights. The Preliminary Outcome Agent applies domain-specific decision trees to make early underwriting recommendations. Data inputs include chatbot-collected medical histories, application form details, historical claims data for fraud detection, and embedded business rules. Thanks to Agentic AI, decisions dynamically adapt based on risk patterns, with outcomes ranging from auto-approvals for low-risk applicants to escalations for manual review

- **Explainable and Transparent Decisions:** Every AI agent generates structured, auditable JSON outputs, ensuring explainability and complete traceability. Risk summaries clearly cite specific medical logic, such as "High risk due to uncontrolled hypertension and diabetes history." Final underwriting decisions are validated by a senior AI agent for robustness, consistency, and compliance, while detailed audit trails support regulatory readiness and transparent operations.

Impact: Faster, Smarter, and Future-Ready Underwriting

80%+ Reduction in Manual Work

Automation and AI minimize underwriter workload

Higher Scalability, & Accuracy

Data-driven decisions & Handles growing application volumes

Enhanced Fraud Detection

AI analyses historical data to flag suspicious patterns

Transparent & Compliant

Clear audit trails build trust with regulators and customers

ABOUT **DATAMATICS**

Datamatics enables enterprises to go Deep in Digital to boost their productivity, customer experience, and competitive advantage. Datamatics' portfolio spans across three pillars of Digital Technologies, Digital Operations, and Digital Experiences. It has established products in Intelligent Document Processing, Robotic Process Automation, AI/ML models, Smart Workflows, Business Intelligence, and Automatic Fare Collection.

Datamatics caters to a diverse global clientele across Banking, Financial Services, Insurance, Healthcare, Manufacturing, International Organizations, and Media & Publishing. The Company has a presence across four continents with significant delivery centers in the USA, India, and the Philippines. To learn more about Datamatics, visit www.datamatics.com

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