



# TRANSFORM HEALTHCARE INSURANCE WITH CAUSAL AI

Take Control of Risk and  
Cost Management

**Transformative**

- Proactive Risk & Cost Management
- Retain & Scale Institutional Knowledge
- Improve Predictive Accuracy & Decision-Making
- Smarter Fraud Detection & Risk Control
- Optimized Underwriting & Compliance

## Healthcare Insurance Case Study

A Tier 1 Asian health insurer partnered with Vulcain Causal AI to uncover fraud and financial leakage within their historical claims database. Leveraging AI-driven data harmonization, modeling, and hypothesis testing, Vulcain quickly identified fraudulent patterns and provided actionable insights for the insurer's investigation team.

In today's data-driven world, the real challenge isn't just storing information—it's extracting value from it. Vulcain's Causal AI platform turned raw claims data into precise, fraud-detection intelligence, enabling faster, smarter, and more strategic decision-making.

## Claim Suspiciousness Index

Assesses the likelihood of fraudulent or questionable insurance claims by analyzing inconsistencies, unusual patterns, and discrepancies in documentation. Using the Vulcain Causal AI platform, baseline values for diagnostic codes were established, integrating data across agents, hospitals, and doctors into a unified dataset. By incorporating domain expertise, additional leakage vectors were identified, providing deeper insights into how different entities contribute to potential fraud and optimizing claim validation processes.

### Application of Findings

- Enhance Analyst Efficiency
- Identify Process Improvement Areas
- Real-Time Pattern Monitoring

## Agent Suspiciousness Index

This index is designed to identify agents who may be involved in unethical, fraudulent, or suspicious practices that could negatively impact the insurance company, its policyholders, or the broader industry.

### Application of Findings

- Identify High-Risk Agents
- Real-Time Monitoring

## Ancillary Cost Index

Ancillary services support primary medical care and include diagnostic testing, laboratory services, imaging, rehabilitation therapy, medical equipment, and supplies. This index offers insights into the financial impact of these services on overall healthcare costs, identifies trends in utilization and spending, and helps inform strategies for cost containment and resource optimization.

- Expense Benchmarking
- Claims Forecasting by Expense Type
- Insurance Product Pricing

## Provider Treatment (Claim) Path Analysis Effectiveness Index

This index provides valuable insights into how effectively healthcare providers manage the entire treatment process, from diagnosis and intervention to monitoring and follow-up care. Its goal is to improve patient outcomes, enhance the quality of care, and optimize healthcare delivery.

### Application of Findings

- Optimizing Treatment Paths
- Eliminating Unnecessary Procedures
- Cost-Effective Treatment Strategies

## Treatment Plan Effectiveness Index

A metric used to evaluate the success and efficiency of treatment plans implemented by healthcare providers for individual patients. This index offers valuable insights into the effectiveness of treatment interventions, patient outcomes, adherence to clinical guidelines, and the overall quality of care provided.

- Identify Optimal Treatment Plans
- Assess Healthcare Providers' Contributions
- Pinpoint Areas for Improvement

## Causal AI: Next Generation AI Technology

- Moves beyond statistical correlations (e.g., linear regression) to identify the root causes behind events.
- Provides rational, explainable insights, improving AI transparency and trustworthiness.
- Reduces bias by leveraging inference-based learning instead of purely pattern-driven predictions.
- Enables counterfactual analysis, allowing for "what-if" scenario testing similar to human reasoning.

## The Role of Human Expertise in Causal AI

- Integrates subject matter expertise to create harmonized, high-quality datasets.
- Enhances decision-making with more precise predictions grounded in causal relationships.
- Maintains human oversight, ensuring AI-generated insights are prioritized, optimized, and actionable before implementation.



## | ABOUT US

### About Vulcain

- AI 3.0 Leadership – Vulcain drives the next wave of AI with high-value revenue optimization and creation solutions.
- Causal AI Platform – Harmonizes, tests, and validates data to extract and commercialize knowledge.
- AI-Ready High-Value Features – Leverages hundreds of millions of AI-driven data points enriched with human expertise.
- Scalable & Customizable – Delivers standardized, adaptable AI solutions across industries with human intervention capabilities.
- Future-Driven Growth – Committed to AI excellence, sustainability, and customer-centric innovation in the global AI market.

## CONTACT US

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