

Agentic AI:
*Transforming
pricing analysis in
insurance*

How autonomous AI agents
are reducing weeks of manual
analysis to minutes

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Executive summary

Insurance carriers allocate substantial resources to analyzing pricing by their peer carriers—a critical exercise in understanding market positioning and pricing strategies. Traditional approaches demand that actuaries manually parse hundreds of pages of rate manuals, extract pricing algorithms, and synthesize findings into actionable intelligence. This labor-intensive process can consume weeks per human analysis. But today, agentic AI technologies can autonomously navigate complex regulatory filings, reverse-engineer pricing methodologies, and deliver competitive intelligence in a fraction of the time. This article explores how Deloitte's **10X Analyst platform** built on **AWS services** leverages agentic AI to transform competitive pricing analysis for insurance organizations.

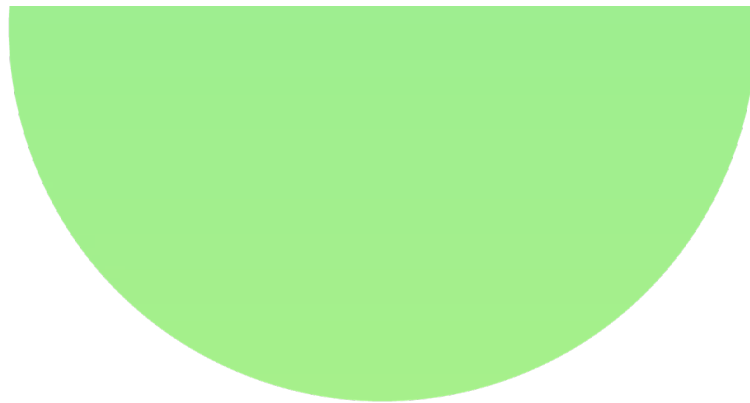
The challenge: *Complexity at scale*

Insurance pricing is among the most complex analytical domains in financial services. A single rate filing may encompass hundreds of pages of documentation of base rate tables, adjustment factors, underwriting guidelines and benefit calculations—each interdependent and each requiring specialized interpretation. When carriers seek to understand peer pricing strategies they confront a formidable challenge: extracting, interpreting and synthesizing this information demands deep domain expertise and substantial time investment.

Consider long-term disability (LTD) insurance, designed to protect income when illness or injury prevents work. The insurance rate manual—a regulatory-approved document governing premium determination—exemplifies this complexity. A comprehensive LTD rate manual includes incidence rate tables segmented by age, gender, occupation class (1–5); plan design adjustment multipliers

for waiting periods, benefit duration and disability definitions; termination rate tables segmented by cause and duration; benefit offset calculations for Social Security, workers' compensation and pension income; adjustment factors for industry, geography and plan design; and expense loadings for premium taxes, commissions and administrative costs. Understanding how these components interact to produce a final rate requires navigating a complex web of interdependencies.

Traditional pricing analysis falters against this complexity. Manual review is time intensive and prone to error. Spreadsheet-based models require extensive setup and ongoing maintenance. Even experienced actuaries may invest **two to four weeks analyzing a single competitor's pricing approach**—multiplied across dozens of market participants spanning multiple product lines, the resource burden can become prohibitive.



Enter agentic AI on 10X Analyst built on AWS: *Autonomous intelligence for complex analysis*

Agentic AI represents a fundamental shift in how artificial intelligence systems operate. Unlike traditional AI that responds to discrete prompts, agentic systems autonomously plan, execute and iterate on complex multistep tasks. They can read documents, extract structured data, perform calculations and synthesize findings—all while adapting their approach based on discoveries made during analysis.

Deloitte's new 10X Analyst platform applies these evolved capabilities specifically to insurance pricing analysis.

The platform's agentic AI system can ingest a complete rate filing, identify relevant tables and formulas, trace the logical flow from inputs to outputs, and produce a comprehensive explanation of the pricing methodology—autonomously and at scale.

The platform combines large language models (LLMs) with specialized insurance domain knowledge, enabling it to understand actuarial concepts, interpret regulatory filing formats, and produce outputs that meet insurance industry professional standards.

In addition to its robust LLM operations capabilities, the platform is thoughtfully engineered to deliver enterprise level security, meaning that multiple agents can operate with customer data in a highly secure environment. It leverages Amazon Bedrock, Amazon Bedrock AgentCore and the latest AWS services to address these demanding requirements.



Capabilities: *What this agentic AI platform can deliver*

Reverse engineering pricing algorithms

The 10X Analyst platform can analyze a rate manual filed by an insurer and produce a **step-by-step reconstruction of the pricing algorithm**. For each step in the calculation, the system identifies the data dependencies required, the mathematical equations used, and special considerations or edge cases that affect the calculation.

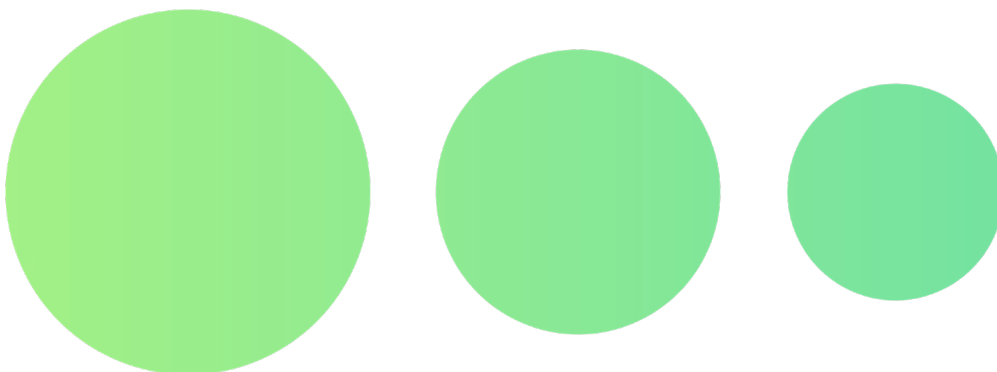
This reverse-engineering capability transforms opaque rate filings into transparent, actionable intelligence. Product managers can understand how competitors structure their pricing. Actuaries can identify where their own assumptions differ from market practice. Underwriters can see how specific risk factors affect competitor rates.

Illustrative output: *LTD pricing algorithm analysis*

The following excerpt demonstrates how the 10X Analyst platform presents reverse-engineered pricing logic. This analysis was generated from a rate manual filing for a major life insurance carrier:

Step A	Incidence rate calculation
Purpose	Calculate the probability of disability claims occurring
Data dependencies	Base incidence rates by cause (maternity, mental/nervous, all other) from table A; age and gender of insured; occupation class; coverage type; credibility manual experience (CME) factor
Equation	Incidence rate = $\{\text{Base rate} \times \text{non-occ Adj} \times \text{occ adj} \times \text{CME adj}\} \div 1,000 \div 12$
Step D	Dollar adjustment (present value)
Purpose	Calculate present value of benefit stream
Data dependencies	Net benefit stream from step C; termination rates from step B; interest rate for discounting (typically 5%–6%); claim duration
Equation	Claim cost = $\sum [\text{benefit}(t) \times \text{survival}(t) \times \text{discount}(t)]$

The complete analysis identifies nine interconnected calculation steps, 41 adjustment factors, and the full data flow from demographic inputs to final rate per \$100 of covered payroll. This level of detail, produced in minutes rather than weeks, enables actuarial teams to rapidly understand competitor approaches and identify strategic implications.



STEP I: Calculate Final Rate

Purpose

Express premium as rate per \$100 of covered payroll

Data Dependencies

- Total Premium (Step H)
- Total Covered Monthly Earnings (sum across all insured employees)

Equation

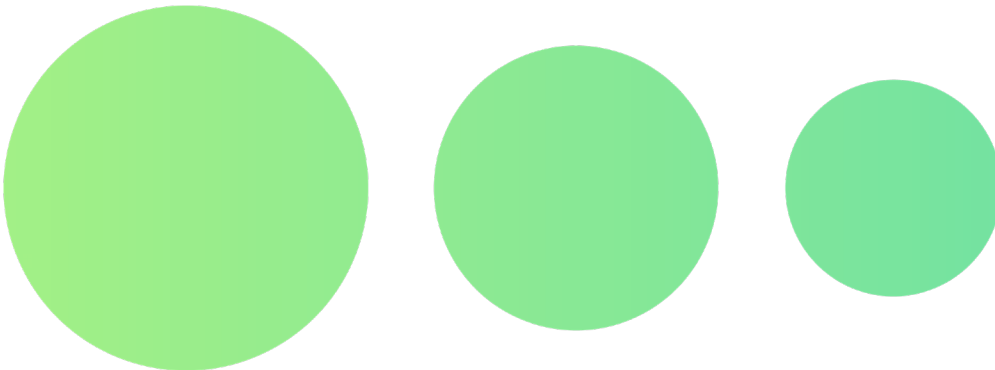
$$\text{Rate per } \$100 = \frac{\text{Total Premium}}{\frac{\text{Total Covered Monthly Earnings}}{100}}$$

Or equivalently:

$$\text{Rate per } \$100 = \frac{100 \times \text{Total Premium}}{\text{Total Covered Monthly Earnings}}$$

Special Considerations

- Standard industry format for quoting
- Allows easy comparison across proposals
- Rate applied to actual monthly covered payroll



Pricing comparisons

Beyond analyzing rate manuals or individual filings, the 10X Analyst platform can generate comprehensive side-by-side comparisons across insurers. These comparisons illuminate the structural differences in how carriers approach the same pricing challenge, revealing strategic insights that would take weeks to compile manually.

The following example demonstrates a competitive comparison between two major LTD carriers, showing how the platform identifies differences in methodology, highlights key distinctions, and surfaces commonalities:

Comparative analysis: carrier A vs. carrier B—LTD pricing approaches

Pricing step	Carrier A approach	Carrier B approach	Key differences	Commonalities
Overall structure	Uses rate tables with factors based on age, sex, elimination period, and benefit duration	Uses a multistep calculation process (steps A through I) with explicit formulas	Carrier A uses tabular approach; carrier B uses sequential step process	Both use structured methodologies to calculate LTD premiums
Base rate determination	Uses "rate per \$100 monthly indemnity" tables with rates for elimination periods (30–360 days)	Step A: incidence rate calculation; step B: termination rate calculation	Carrier A shows explicit rates by elimination period in tables	Both consider incidence rates in their calculations
Benefit calculation	Separate rate tables for different benefit durations (age 62/SSNRA vs. 3 years RBD)	Step C: specific benefit calculation with offset scenarios and probability weighting	Carrier B has more granular offset modeling with scenario probabilities	Both adjust pricing based on benefit duration
Adjustments	Uses multiplicative factors for various plan features applied to base rates	Step D: dollar adjustment; Step E: 41 explicit adjustment factors	Carrier B has more detailed, documented step-by-step adjustment process	Both apply various adjustments to base rates
Premium calculation	Tables show rates multiplied by covered amount	Step F: adjusted claim cost; step G: expense calculation; step H: final premium	Carrier B clearly separates expense calculations from claim costs	Both calculate final premium based on adjusted rates

Pricing step	Carrier A approach	Carrier B approach	Key differences	Commonalities
Demographic factors	Includes sex-distinct pricing with separate male/female rate tables	Uses industry factors and scenario probability tables	Carrier B has more explicit industry-based adjustments; carrier A emphasizes gender distinction	Both consider demographic and risk factors
Experience rating	Has experience rating formula with credibility factors based on claim history	CME (credibility manual experience) factor applied in incidence calculation	Different positioning of experience adjustment in the calculation flow	Both incorporate past experience into pricing
Final rate output	Final step after all table lookups and factor applications	Step 1: calculate final rate as premium per \$100 of covered payroll	Similar final output format despite different calculation paths	Both produce rate per \$100 of covered payroll

Automated table extraction and interpretation

Rate filings contain extensive tabular data: incidence rates by age and gender, termination rates by duration, industry factors by SIC code, geographic adjustments by state. The 10X Analyst platform automatically extracts these tables, interprets their structure, and

integrates them into the pricing algorithm analysis. This capability is essential for understanding how specific parameters affect final rates and for performing sensitivity analysis on key assumptions.

Business impact: From weeks to minutes

The business case for agentic AI in competitive pricing analysis is compelling across multiple dimensions.

Metric	Traditional approach	10X Analyst
Time per competitor analysis	2–4 weeks	Minutes to hours
Competitors analyzed per quarter	2–3	10–20+
Analysis consistency	Variable by analyst	Standardized output
Actuarial resource focus	Data extraction	Strategic interpretation

The speed advantage is dramatic. Analysis that previously required weeks of dedicated effort can now be completed in hours or even minutes. This acceleration enables carriers to monitor their competitive landscapes continuously rather than periodically,

respond rapidly to competitor rate changes, and make pricing decisions based on comprehensive market intelligence rather than limited samples.

Equally important is the impact on talent utilization. Actuarial expertise is valuable and scarce. By automating the data extraction and algorithm reconstruction tasks, agentic AI frees actuaries to focus on strategic interpretation—identifying competitive implications, developing response strategies and advising business leaders. This represents a fundamental shift *from analysis as labor to analysis as leverage*.

Implementation considerations

Organizations considering agentic AI for competitive pricing analysis should address several key factors.

First, data access and governance frameworks must account for the sensitivity of competitive intelligence. While rate filings are public documents, the derived analysis may inform strategic pricing decisions that require appropriate controls.

Second, human-in-the-loop validation remains essential. Agentic AI can produce sophisticated analysis, but actuarial review is needed to ensure accuracy and contextual appropriateness before strategic decisions are made.

Third, integration with existing workflows maximizes value. The 10X Analyst platform is designed to complement, not replace, actuarial processes—providing inputs that accelerate human analysis rather than substituting for professional judgment.

A path forward

Agentic AI offers a generational shift in analytical capability. For insurance organizations, the ability to rapidly understand and respond to competitive pricing dynamics creates sustainable advantage. Those that embrace these technologies early can establish analytical capabilities that compound over time—building market intelligence assets, developing institutional knowledge, and creating feedback loops that continuously improve competitive positioning.

The technology is ready. The business case is clear. The question is not whether agentic AI can transform competitive pricing analysis, but which organizations will lead the transformation.

Learn more

To explore how Deloitte's 10X Analyst platform can help you accelerate your competitive intelligence capabilities, contact your Deloitte relationship lead or visit <https://deloi.tt/3QO3uj8>.

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