



**NEXT STOP FOR
DYNAMIC PRICING:
P&C INSURANCE CARRIERS**

Next generation pricing, powered by artificial intelligence (AI) and digital technologies, enable property and casualty (P&C) insurers to leverage the massive quantities of customer data and cloud-scale analytics to offer personalized rates in real-time, while ensuring long-term profitability. Dynamic pricing enables carriers to continuously respond to emerging risks and changing market conditions by rapidly adjusting pricing structures to improve their competitive position without sacrificing profitability.

DYNAMIC PRICING WIDELY USED ACROSS INDUSTRIES

Many industries currently leverage AI and digital technology advancements to offer dynamic pricing and increase profitability. For example, Amazon changes prices 2.5 million times a day¹, using data such as customer shopping patterns, competitor pricing, and a long list of other factors. Similarly, Airbnb follows a dynamic pricing strategy that allows hosts to use a machine learning-based tool that recommends prices for accommodations based on factors such as season, day of the week, condition of the rental property, and hotel prices in the surrounding area. Hosts and property managers who have adopted dynamic pricing report profit growth of as much as 40 percent.

In addition to on-line businesses, other industries have also adopted dynamic pricing. For example, airlines, gyms, and hotels² are routinely tracking demand so they can adjust pricing dynamically, often in real-time.

The insurance industry has been slow to transform pricing capabilities for three key reasons:

- Insurers may not have enough information about demand for their products or policyholders' buying behavior.
- The impact of too many pricing changes on an insurer's long-term profitability may be uncertain.
- The lack of an end-to-end scalable pricing platform that enables dynamic pricing.

Incorporating risk factors that correlate to cost of coverage and product demand into pricing is now feasible. This is because we now have new omni-channel customer acquisition capabilities and an increasing ability to gather data pertinent to policy holder behaviors. Further, recent research studies suggest³ that dynamic pricing can lead to improved profitability even when there is uncertainty about potential losses. Consequently, an end-to-end scalable pricing platform that supports dynamic pricing is critical to insurance carriers.

Such platforms enable insurers to introduce a wide variety of factors into their pricing models, so prices reflect individual behaviors and dynamic nature of policy holder risks. For example, we see this with the use of real-time telematics data to reflect pricing as a function of driving habits for auto insurance, or the deterioration of boat hulls based on routes traversed and weather conditions for marine hull insurance.

In our opinion, the need for dynamic pricing will become more pronounced as carriers compete with each other to leverage new types of data and personalize coverages and terms at higher levels of granularity to win market share, while ensuring long-term underwriting profitability.

¹ <https://www.businessinsider.com/amazon-price-changes-2018-8>

² <https://www.artsjournal.com/worth/2014/06/dynamic-pricing-at-the-zoo/>

³ Source: Research paper "Dynamic Pricing with Application to Insurance" <http://alturl.com/oya98>

PRICING FOR DYNAMIC RISK AND MARKET OPPORTUNITIES



Dynamic pricing allows carriers to:

- **Modify pricing structures** to address market challenges, such as macroeconomic changes, competitor moves, and customer preferences and habits.
- **Build pricing models** using granular data to enable improved risk selection.
- **Modify rates** based on real time risk assessments, such as with auto telematics data or the average drop in heat exchange efficiency of industrial cooling towers, without necessarily changing the pricing structure.
- **Incorporate new variables**, such as change in carbon emissions or new data types from Internet of Things (IoT) devices, from external data and partner ecosystems.

⁴ https://www.naic.org/documents/committees_c_catf_related_price_optimization_white_paper.pdf

Insurers can incorporate data related to risky behaviors for which the insurance product is offered into the dynamic pricing models and monitor key performance indicators (KPIs) across geographies and lines of business.

Modern pricing platforms that support dynamic pricing empower insurers to tweak the underlying loss, expense, demand, and lifetime value models. They also enable insurers to adjust rate plans based on factors in the pricing structure and look at the growth and combined ratio effects of each such change. As a result, a carrier can best leverage its data to drive its long-term competitive position as well as profitability through continuous pricing adjustments.

DYNAMIC PRICING PRACTICES DIFFER ACROSS THE GLOBE

Implementing dynamic pricing platforms is different across geographies. A large European insurer, for example, developed a statistical model to predict and reduce customer churn. By analyzing variables such as the price paid for a policy, the percentage price increase year over year, and how long the policy has been held, it could identify customers most likely to attrite. It then leveraged competitor price data to refine its own prices accordingly. In the U.K., motor insurers have implemented this type of dynamic pricing to retain existing policyholders as well as attract new customers.

In the U.S., insurers have started to explore the advantages of dynamic pricing. They are zeroing in on the need to implement dynamic pricing within the context of applicable regulatory requirements. Each state has its own perspective, and therefore regulations, regarding the use of price optimization as part of dynamic pricing that carriers need to consider.

The National Association of Insurance Commissioners (NAIC) Casualty Actuarial and Statistical Task Force published a price optimization white paper⁴ that provides research on the topic, identifying potential benefits and drawbacks, and presents options for state regulatory responses regarding the use of price optimization in pricing. Insurance regulators typically describe price optimization as an insurer's use of sophisticated data mining tools and modeling techniques during the ratemaking process to vary rates based on factors other than a person's risk of loss.

Connecticut Department of Insurance summarized the use of price optimization in insurance pricing. According to this summary report ⁵, 12 states and the District of Columbia have issued notices indicating the use of price optimization in the pricing process is not allowed. While the price optimization aspect of dynamic pricing is under regulatory discussion, dynamic pricing related to an insured's risky behavior pertinent to the coverage provided is accepted by state regulators.

THE MOVE TO CLOUD ENABLES DYNAMIC PRICING

Cloud migration is fundamentally shifting insurance pricing strategies toward the adoption of dynamic pricing by enabling integration of large volumes of third-party and internal data. AI and machine learning capabilities enable carriers to build improved predictive models and support streamlined model deployment solutions with minimum hand-offs. Carriers who invest in dynamic pricing platforms will gain competitive advantage through improved customer segmentation and faster go-to-market strategies.

Pricing models developed and deployed on dynamic pricing platforms use AI and machine learning technologies to enable more granular customer segmentation. The carrier is then able to leverage individual data to better assess risk and create pricing at a personalized level based on behavior linked to the insurance product offered. AI and machine learning also help carriers study causality of various factors that may influence frequency and severity of losses and how different factors may help in controlling them. These causality studies are often supported by pricing platforms and can provide further inputs to building dynamic pricing models that help carriers tailor coverages, deductibles, and other terms for specific insured risk and policy holders.

In the last decade, access to dynamic pricing platforms for insurance carriers has improved significantly. That said, there are still challenges related to integrating a dynamic pricing platform into the legacy insurance data estates and realizing the

benefits. First, insurers need to know their customers better so they can offer customized products when customers need them. Blockchain, 5G, and IoT, combined with AI and machine learning capabilities, can provide insurers with a wealth of information about their customers and the risks they face.

Harnessing all of this data in a scalable platform and making it available is critical to ensuring the success of a dynamic pricing platform. Dynamic pricing platform implementation programs will vary from carrier to carrier, so an in-depth understanding of each carrier's current state technology capabilities and architecture is essential for a successful implementation.



⁵ <https://www.cga.ct.gov/2015/rpt/2015-R-0251.htm>

INNOVATIVE PRICING PLATFORMS BRING KEY STAKEHOLDERS TOGETHER FOR EFFECTIVE COLLABORATION

We believe there are six core inter-locked teams that should work together to implement dynamic pricing when pricing insurance products. Currently these teams collaborate through multiple hand-offs that can inject quality issues. Any updates required by one team leads to delays as certain hand-offs need to be repeated after updating. Dynamic pricing platforms enable all these teams to work on a single platform, eliminating the need for “offline” hand-offs and shortening the time to market.



The six teams involved are:

- **Pricing Actuarial** – Use the loss models and expense models to build a multiplicative pricing structure that takes risk factors as input to generate a technical price.
- **Product Management** – Review book KPIs and decide on where/how to spend resources to drive the performance of their book. Often use what-if scenarios to select the best one to drive optimal business outcomes.
- **Underwriting** – Derive technical price and, in some instances, make accept or reject over-rides along with adjustments based on their judgment.
- **Research** – Build the various models that drive pricing – loss models, expense models, demand models, and lifetime value models.

- **Compliance** – Helps create and modify the automated filing exhibits to submit to Departments of Insurance (DOI).
- **Data engineering and technology** – Organization and provision of data for models and what-if scenario analysis for the roles above.

DYNAMIC PRICING OFFERS COMPETITIVE ADVANTAGES

Market-leading dynamic pricing platforms can offer several key advantages for insurers:

- **Enables carriers** to import structured rating portfolio, pricing models, and pricing structures without IT involvement. The platform comes with modeling capabilities and also allows seamless import of models from popular platforms.
- **Allows testing** for pricing strategies using a what-if scenario tool which allows Product Managers to alter models, factors, levels, etc., and view the impact on growth and combined ratios.
- **Drives rapid product development** by altering pricing structures, enabling Product Managers to manage their book of business more effectively by proactively finding and addressing opportunities and problems before they appear in financials.
- **Reduces compliance errors** and manual effort through automatic rate filings with DOIs.

These platforms seamlessly transform an insurer's pricing development and deployment value chain by:

- **Building pricing formulas** that leverage all relevant internal and external data along with an array of AI and machine learning capabilities.
- **Providing a what-if scenarios** platform for business staff to inspect and adjust the formula to drive the best possible balance between profit and growth and align with the carrier's objective. In jurisdictions and lines of business where allowed, minor changes should be automatic.
- **Providing an automated method** to put this new formula into production, adding approval by an approving authority as appropriate.

HOW CAPGEMINI CAN HELP

Our approach positions your organization to modernize your pricing strategy quickly and effectively by following a three-phase implementation program. It begins with a six-week assessment where we evaluate your current pricing structure and its complexity and establish a timeline for execution.

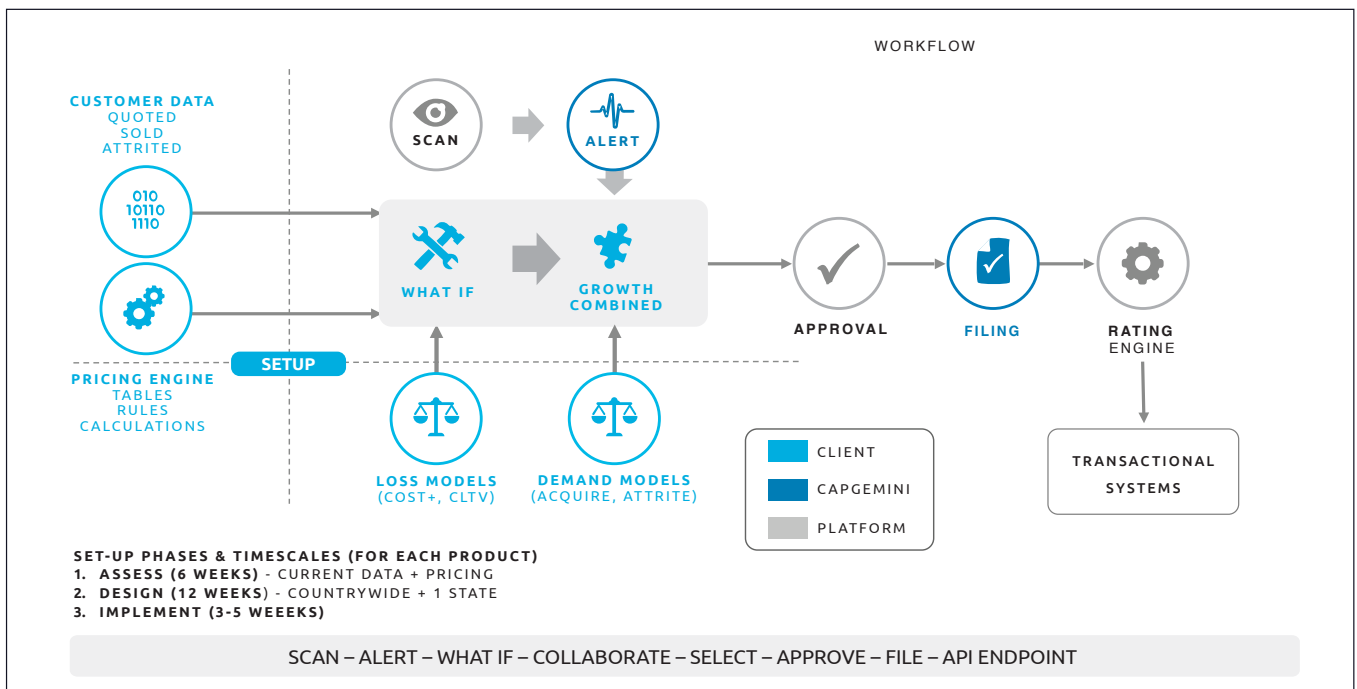
In the second phase, we design the pricing platform data inflow and calculation engines customized to your unique needs. This phase covers the countrywide pricing rules and state-specific rules for the first state and takes approximately three months. The timeframe for implementing pricing rules for subsequent states is significantly shorter, enabling efficient pricing deployment cycles. Our world-class dynamic pricing platform includes an in-depth validation component that identifies and remediates all issues due to errors in legacy data and pricing structures. This ensures pricing models operate seamlessly once deployed into production, resulting in significantly less downtime for quoting services.

In the third phase, we fully enable one of the most important capabilities of the platform, the what-if scenario tool. In this phase, historical customer data, pricing structures, and all relevant analytical models such as loss, expense, demand, and lifetime value models are imported into the new platform and tested to ensure seamless functionality.

The execution phase typically takes about three to five weeks for the first state. For the remaining states, the execution typically takes around three to six months. The what-if scenario tool enables product managers to evaluate the impacts of different assumptions and respond to changes or market threats significantly faster.

Once the system is operational, it scans the market and sends alerts when it identifies potential market threats that might benefit from analysis. The platform prioritizes these alerts based on threat levels and highlights where action is needed. These alerts drive a what-if analysis that helps product managers evaluate and select the rate structure that best aligns to the organization's business goals. The desired structure is then pushed through the approval process, regulatory filings, and rating updates.

DYNAMIC PRICING PLATFORM



The diagram above illustrates how dynamic pricing can be implemented even in highly restrictive regulatory regimes.

EXPECTED OUTCOMES



The benefits of implementing the Capgemini dynamic pricing platform are substantial.

In our experience, carriers typically realize several key improvements:

- **Reduce the pricing model** development and deployment process from 38 weeks to 2-3 weeks if no DOI approval is needed and ~12 weeks where changes must be submitted to the DOI.
- **Eliminate the rate validation process** required if there is a separate rating engine – a significant savings for most carriers.
- **Improve speed to market by 70-90%.**
- **Achieve 1.5-3% improvements** in combined ratios for LOBs driven by technical pricing (e.g., personal lines and small commercial lines). Larger improvements in combined ratios may be achieved for LOBs heavily driven by underwriting.
- **Increase direct premiums** written by 10-15% annually.

Competing in today's cloud-driven world requires insurers to adapt quickly and continuously meet customer demands. Dynamic pricing is becoming a critical component to acquiring and retaining customers.

CONTACT US TO LEARN MORE ABOUT HOW DYNAMIC PRICING CAN BOOST YOUR BUSINESS



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