



## Transforming actuarial reserving

Many property and casualty (P&C) insurers are facing a period of volatility, heightened risk, and unprecedented claims patterns, stressing their ability to adequately set reserves to meet losses. Traditional approaches to actuarial reserving are becoming insufficient to forecast loss patterns and future trends amid a combination of external factors—catastrophic losses from natural disasters, social inflation and related legal system abuse, sudden disruptions such as the pandemic, and geopolitical instability. Transformation of the actuarial reserving function and its processes may be required and may benefit from a combination of technological investment, talent evolution, and strategic integration within the business.

Over time, organizations that take on the hard work of transformation will likely build a stronger competitive position and strategic foundation. As carriers increasingly shift to more nimble approaches to reserving, those who fall behind may find their actuarial reserving less accurate, which could lead to a competitive disadvantage.

Through this transformation, new data sources, advanced analytics, and artificial intelligence (AI)-powered tools can provide valuable insights and more responsive signals essential to effective reserving strategies. To allow in-house actuaries to focus on more strategic, high-impact initiatives, insurers can free up actuarial capacity by automating routine tasks and flexing their delivery model. As the reserving function develops more forward-looking insights, it can play a larger role in strategic conversations around risk, capital management, regulatory oversight, and enterprise direction.

### The challenge: New signals, but the same strategies

The past five years have revealed significant cracks in the historical approaches to reserving. Traditional methodologies have left many P&C insurers exposed to potential under-reserving. As an example, S&P Global Market Intelligence noted that the other liability (occurrence) line of business had \$9.98 billion of unfavorable reserve development in calendar year 2024, which greatly exceeds the median annual adverse development recorded from 2015 to 2023 of \$2.6 billion.<sup>1</sup> While the nature of the claims process—often many years in development after initial pricing assumptions were made—has always required that insurers take some risk in pricing, the external pressures leading to heightened, unpredictable shifts in risk have intensified.

The conditions of the past several years are well known: Major losses from natural disasters have increased significantly,<sup>2</sup> complicated by higher-than-expected replacement costs due to inflation in raw materials and labor. In addition, the legal environment has made the claims process more expensive—social inflation has led to far more jury mega-awards. According to Marathon Strategies, 135 lawsuits against corporate defendants resulted in verdicts exceeding \$10 million in 2024—a 52% increase over 2023 and the highest number recorded since 2009. The total value of these “nuclear verdicts” reached \$31.3 billion in 2024, up 116% from the prior year.<sup>3</sup>

Active recruitment of litigants has resulted in claims costs that dramatically outpace historical patterns—patterns that traditional reserving approaches understate. Actuaries relying only on historical data would have likely underestimated these rapidly escalating loss trends, producing inadequate reserves and greater portfolio risk.

Meanwhile, actuarial reserving lags other functions at most insurers when it comes to technology investment and adoption, leaving these teams to rely on legacy data systems that can't use AI-powered technologies as effectively as elsewhere in the enterprise. Past investment has understandably skewed toward customer-facing priorities. Now, many insurers have an opportunity to unlock meaningful value by streamlining “behind the scenes” reserving processes and capabilities—improving decision support, regulatory readiness, and overall enterprise performance.

After all, if reserving continues to use lagging and limited data to inform assumptions, future decisions about pricing may not reflect the new and emerging risk environment. As data becomes a primary instrument of strategic insight, it is important that the reserving function have a seat at the table, be able to access new data sources, and share insights with other key stakeholders, especially in pricing strategies.

### Lagging data and technology transformation

Technology can provide efficiencies in the reserving process and new insights from fresh data sources. Traditional actuarial reserving methods rely on historical patterns and assume relative stability, which is an increasingly difficult premise amid rapid data growth and the recent succession of crisis-level events or major trends—the pandemic, social inflation and litigation, climate volatility, and cyber risk. These have all created pricing and risk conditions at odds with historical data patterns.

At the same time other departments within some enterprises are using new approaches to collecting and analyzing data, which may create a mismatch in analytical assumptions within a single organization. For example, if an enterprise's claims department pursues a strategy, driven by social inflation, of closing claims faster to prevent litigation risk, that will impact the pattern of claims sizes and risk. Or, if underwriting is using AI to accept different risks or exposures than traditional approaches warranted, that may affect the ultimate reserves.

**Bottom line:** The actuarial team determining reserving strategies and requirements can do their work far more effectively if they are able to tap into the technology and data now available to the rest of the enterprise.

Responding to this challenge will require that actuarial teams begin to deploy—or accelerate their use of—real-time and leading indicators as signals of developing trends that impact future exposures. For example, the use of unemployment rates,

### No brakes on claims: Trucking's growing exposure

Being able to see and understand an emerging trend in claims, even after reserving assumptions were made, is an essential capability now. Take, for example, the market for commercial auto insurance, in which trucking companies have become a frequent target of high-profile litigation fueled by aggressive plaintiff attorney advertising and third-party litigation funding resulting in more than \$790 million paid for eight trucking nuclear verdicts in 2024 alone.<sup>4</sup>

consumer sentiment indicators, and wealth disparity metrics may suggest future trends in mistrust in corporate institutions. Trends in attorney advertising should be accounted for in reserving expectations, especially when that advertising is focused on a certain insurance subsector category. Litigation and tort reform trackers can be used to forecast the likelihood certain states and localities will have more or less accommodating legal systems for aggressive legal strategies, with implications on future reserve needs. Other macroeconomic indicators, such as inflation rates and interest rates, may also provide advance insight into shifts in future reserving needs.

To deliver against this goal, actuarial reserving should consider undergoing a transformation in technological investment and implementation. Current reserving models depend on often outdated legacy infrastructure and limited data sources. Due to past underinvestment, the process for bringing these systems up to current standards will take both time and resources. Making the case for such a catch-up in investment will depend on demonstrating that improvements in reserves models will present a competitive advantage, not to mention a more effective and less risk-prone approach.

### Build 'human x machine' reserving

AI is evolving too quickly for a single, durable “playbook.” What is durable is an operating principle: Organizations create more value when they move from “humans plus machines” (tools bolted onto today's process) to “humans times machines,” where AI and actuaries collaborate in a way that multiplies outcomes. This dynamic is already showing up in the workforce: Deloitte's 2025 Global Human Capital Trends reports that **six in 10 workers perceive AI as a coworker**—a signal that organizations need to intentionally design human–AI collaboration.<sup>5</sup> In this model, humans remain the scalable edge—actuarial judgment, context, and accountability—while machines provide speed, pattern recognition, and reach across more data and scenarios than a team can process manually. Realizing value depends less on a specific

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tool and more on intentional work design: clear decision rights, defined review and override points, and fit-for-purpose governance so AI output is traceable. Teams should understand when and why AI flags a signal, its limitations, and how performance is monitored over time.

The initial rollout of AI-powered tools and techniques makes clear that essential enablers are already at hand: Automating routine reserving processes such as data alignment, reconciliation, and data cleansing can permit deeper and more efficient analysis of new or previously untapped data sources. Over the coming year or two, adopters should begin to see expanding integration of AI in actuarial tools. Ideally, this will allow data dashboards that are dynamic and can quickly highlight emerging trends in loss triangles and diagnostics. After one to three years, AI-augmented reserving may be available for more lines of business and deliver meaningful real-time analytics on emerging risks. Over time, we would expect that AI and other technologies will greatly support stress tests and provide regular “what if” dashboard-ready scenarios to alert leadership in case there are sudden shifts in claim frequency, severity, or ultimate loss ratios.

The transformation eventually may make it possible for small teams to pursue tasks that were once labor-intensive and impractical. Actuarial reserving teams may be able to use machine learning and alternative data sources to enhance their predictive modeling. Deploying AI to enhance scenario testing should give leaders a greater understanding of the range of risks so that they can better explain their ultimate reserving strategies to regulators and investors.

### Actuarial talent: Building AI-ready reserving teams

The next era of reserving will likely ask more of actuaries than technical excellence alone. As reserving becomes more dynamic and more augmented by AI-driven analytics, actuaries may increasingly be expected to play a more strategic, cross-functional, and interpersonal role than they might have in the past. These capabilities already exist on many actuarial teams—and can be refined and developed further.

First, insurers will need to consider developing actuaries who can communicate with impact. Actuaries need to converse both internally and externally to leaders, auditors, and regulators, who will expect clear explanations of drivers, uncertainty, and governance. If teams don’t have the bandwidth to build these “manage up” skills through on-the-job coaching, insurers can supplement with targeted external enablement (training, playbooks, and communications support) so actuarial leaders can focus on decision-ready narratives—not just technical outputs.

Second, insurers should broaden actuarial skill sets to include AI fluency and risks. As teams adopt machine learning, alternative data, and more frequent scenario testing, actuaries will need practical knowledge—not just awareness—in topics like data quality, validation, and controls. Innovative reserving approaches

can improve responsiveness and accuracy, but they also introduce new risks (e.g., data quality concerns, transparency expectations, and regulatory scrutiny), making governance capabilities inseparable from analytic capability.

Lastly, insurers will need enough capacity to sustain the shift. That means hiring and developing qualified actuaries, while also rebalancing work so credentialed talent spends more time on high-impact analysis and decision support and less time on manual, repetitive tasks. Organizations that focus on effectively developing soft skills in actuarial professionals and preparing their workforce for ongoing change and career development will likely be the ones that thrive.

### External support

One critical dimension of transformation will likely be made possible by skill-shifting actuarial teams. As we have previously written in [“Actuarial automation: A strategic transformation guide,”](#) a focus on automating routine tasks will allow actuaries to focus on more strategic, high-impact activities. Such opportunities may increase as insurers adopt AI and advanced analytics to better estimate future reserve needs. Given the inherent complexity in reserving, actuarial groups may reflexively choose to undertake transformation efforts on their own, resulting in outcomes that fall short of expectations.

It is critical to challenge the assumption that this effort should be driven solely by internal resources. External support of actuarial transformations can greatly enhance success rates and accelerate timelines because of hands-on transformation experience, diverse industry perspectives, and agent-of-change expectations. Additionally, external consulting firms can also bring expertise in building out controls-monitoring frameworks that ensure governance goals are met and give insight into industry best practices around data integrity and developing compliant processes. This expertise can lead to accelerated, comprehensive, and impactful transformations.

### Integration within the enterprise

Even with these upgraded tools and stronger skills, actuaries shaping the reserving strategy may still need a complete understanding of initiatives throughout the organization to understand their impact. It’s not enough to commit to transformation within the function; actuaries working on reserving will likely need to tap into the resources of other departments.

This may be most urgent in spotting emerging trends in underwriting and claims. Ideally, these functions should already have clear lines of communication established with reserving since underwriting is writing business and claims departments are seeing transactions patterns. As reserving becomes more forward-looking, insurers should formalize how these functions share signals and close the loop from observed outcomes back into reserving assumptions.

Finally, once actuarial talent is developed to operate in this more strategic mode, insurers should ensure actuaries are consistently embedded in enterprise forums where reserve insights shape decisions. Actuaries will need to convey the logic and methods that enable their insight and foresight to executives leading the entire enterprise. Reserving can't be a black box process, but rather should tap into emerging trends brought to the surface by underwriting and claims. With advanced analytical tools, such as machine learning and AI-driven forecasting and probabilistic assessments, actuaries are in a position to describe the future-tense risk environment with far greater detail and sense of urgency. Done well, in clear and concise language and aided by effective visual tools, actuaries can describe how reserving strategies will have a direct impact on strategic outcomes for the entire enterprise, especially future capital needs, risk profile, profitability, and other critical results.

## Conclusion

While transformation will require significant new resources and attention, the challenge should be more than equaled by the impact and improved results.

Organizations that have struggled with reserving may require more tools to achieve that critical goal. Those that have fought to forecast in an environment of ever-amplifying risk events may be able to build wider confidence bands. Ultimately, actuarial reserving should become far more integrated into the most strategic decisions across the enterprise and provide valuable ballast to the kinds of difficult decisions that inform pricing, underwriting, claims processing, and regulatory relationships.

The transformation, in short, will demand much but deliver much more—and the actuarial profession will not only rise to meet the challenge, but will benefit from the considerable work ahead.

# Endnotes

1. Jason Woleben, Husain Rupawala, and Terry Leone, "[US liability lines report significant adverse reserve development in 2024](#)," S&P Global Market Intelligence, July 8, 2025.
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3. Marathon Strategies, [Corporate verdicts go thermonuclear: 2025 edition](#), accessed April 2026.
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5. Sue Cantrell, Jason Flynn, and Nic Scoble-Williams, "AI is revolutionizing work. You need a human value proposition for the age of AI," Deloitte's 2025 Global Human Capital Trends, 2025.

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