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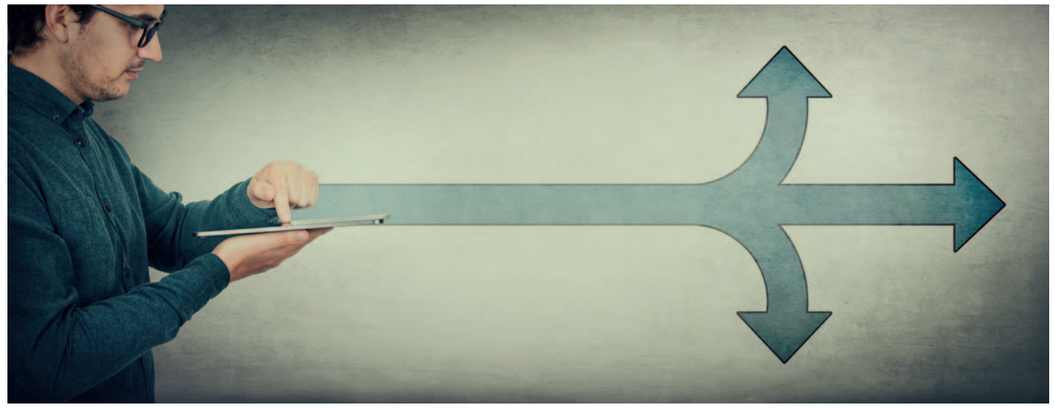
Insurers at a crossroads: turning technology trends into tangible value



Insurers face mounting pressures: regulatory complexity, rising costs, and clients with growing digital expectations. As insurers modernise reporting and modelling, the challenge is to identify technologies that deliver lasting value, rather than following short-lived trends.

In this article, we examine six technology trends – automation, cloud, open source, GPUs, artificial intelligence, and emerging innovations – and their practical implications for insurers.

Recent years have seen technology hypes rise and fall. For example, while blockchain was once touted as a game-changer for trust and transparency, the insurance industry continues to rely on traditional systems and processes. This disconnect underscores a key theme: insurers must critically evaluate which technologies genuinely enhance their business, rather than chasing the latest buzzword.

The focus should be on technologies that solve real problems – those that improve operational efficiency, enhance governance, and deliver better outcomes for clients. The goal is not to be first to adopt, but to be the one who extracts the most value.

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AUTOMATION

Automation is particularly impactful in financial reporting and has enabled insurers to reduce effort by up to 95% in key processes.

Many insurers are slow to expand automation, sometimes expecting AI to solve all their problems. However, it is not cost-effective to use AI when automation is sufficient. More importantly, they serve different purposes: automation is robust and excels at reproducibility, whereas AI is creative, less robust, and particularly valuable in situations involving uncertainty – such as when data is incomplete, ambiguous or unpredictable.

We distinguish between two types of automation: *task automation*, such as a Python script performing a data transformation previously done manually in a spreadsheet, and *process orchestration*, which removes manual intervention and guides data through the process. Process orchestration delivers a lot of benefits for a moderate investment.

Both types can be applied to many processes. Actuarial, Finance and Capital processes are often tackled first – including end-to-end reporting, data validation, assumption set production, model runs, results aggregation, solvency capital calculations and report generation – but wider processes, such as producing KPIs, calculating deferred tax, liquidity reporting, reserving and pricing, to name a few, are also well suited for automation and see similar efficiency gains.

Automation is not just about speed – it's about governance, auditability, reduction of manual errors, effective reviews and freeing up time for analysis. A misconception is that automation is only appropriate after reaching a target state in processes. In reality, automation of suboptimal processes often frees up capacity to re-engineer the process.

CLOUD

Moving to the cloud offers tangible benefits: lower hardware and maintenance costs, improved disaster recovery, faster data access, and scalability. Providers now offer SaaS (Software as a Service) versions of their tools, further reducing the burden on internal teams by outsourcing software maintenance and the environment. Successful adoption of SaaS requires end users to clearly define requirements and work closely with IT to appreciate the change in cost of ownership and operational implications. Hybrid solutions that bridge on-premise and cloud environments, such as WTW's Unify Gateway, can provide a practical first step, delivering immediate benefits while easing the transition.

OPEN SOURCE

With scripting now part of university curricula and professional exams, and with help from AI chatbots, more actuaries can write code in languages like Python and R.

Building core actuarial systems on open platforms requires a conscious, well-resourced strategy. Open-source scripting languages can be very useful, particularly for prototyping and data transformation. However, for larger projects such as cashflow projections, companies should not underestimate the effort required to build, maintain and support complex software systems, along with associated staffing costs.

Governance and compliance requirements must also be addressed, and budgets should include ongoing development and maintenance to keep the software secure and up to date.

While open source can offer flexibility and the ability to tailor solutions to specific needs, insurers must weigh these benefits against the risks before committing to open source for critical actuarial systems.

GPUS

The use of GPU chips – originally designed for gaming – to accelerate financial modelling is gaining attention, driven by their widespread role in AI inference (running trained models to generate predictions). GPUs can deliver up to 500x speed improvements for specific models but show little benefit for others. Since a GPU-equipped virtual machine may cost 50 times more than a CPU core, it is critical to assess the run cost rather than elapsed time, and to focus on real models with full output – not synthetic benchmarks.

Because GPUs and CPUs have very different architectures, cost efficiency varies by model, making general predictions unreliable. Systems that allow users to toggle between CPU and GPU processing may offer the best of both worlds.

ARTIFICIAL INTELLIGENCE

AI, especially generative AI, is increasingly shaping how insurers interact with data and models. Key applications we currently see include:

- Coding assistance: AI tools act as intelligent coding companions, helping users write, optimise and interpret code. For example, WTW's RiskAgility FM financial modelling solution includes an AI assistant, making modellers more efficient.
- Content generation: Generative AI streamlines communication, from drafting reports to producing marketing materials. Tools such as WTW's ModelDocumenter can automatically generate actuarial model documentation, delivering substantial efficiency gains – while human review remains essential.
- Information retrieval: Retrieval-Augmented Generation (RAG) indexes complex information – such as model documentation, company policies, regulations and knowledge bases – and enables AI chatbots to provide accurate, source-grounded answers to complex queries, eliminating the need to manually sift through hundreds of pages.
- Unstructured data processing: AI excels at converting messy, unstructured inputs – such as handwritten notes, photos and free-text feedback – into structured, actionable data. This enables automation in claims handling, sentiment analysis, and operational reporting.

Building on generative AI, *agentic AI* refers to systems that can make decisions and take actions independently, moving beyond passive assistance. For instance, agentic workflows in WTW's Radar pricing engine have the capability to autonomously identify and address underperforming portfolio segments marking a shift towards active decision-making in actuarial work.

While agentic AI is still in its early stages, its potential to transform actuarial processes is significant. Of course, all use of AI requires careful consideration of its risks, such as bias and lack of explainability.

LOOKING AHEAD

Neuro-symbolic AI, which combines rule-based logic with statistical models, promises to reduce hallucinations and improve explainability – key for regulated industries like insurance.

Quantum computing, while still in the research phase, promises exponential speed gains by evaluating all possible states simultaneously. While the first practical applications are emerging, widespread use remains distant, with fundamental engineering and algorithmic challenges yet to be resolved.

CONCLUSION

Technological change is accelerating, and insurers who ignore these trends risk falling behind. To stay ahead, insurers should:

1. Leverage proven technologies – especially automation – to deliver measurable benefits today;
2. Critically assess new technologies, investing only in those that align with business goals and deliver real value; and
3. Foster a culture of experimentation, encouraging teams to pilot new tools and share findings, but always with robust governance.

The most successful insurers balance innovation with a clear focus on their core business, ensuring technology serves as an enabler, not a distraction. Embracing modern technologies and cultivating an innovative culture also make insurers more attractive to the next generation of experts – helping secure the talent needed for future success. ■