

CASE STUDY

Tokio Marine HCC modernizes catastrophe modeling with Moody's Risk Modeler™

Company: Tokio Marine HCC

Headquarters: Houston, Texas, United States

Industry: Insurance

Moody's products and services:

- Risk Modeler
- Moody's RMS™ HD models
- Moody's Intelligent Risk Platform™ Navigator



Tokio Marine HCC (TMHCC), a member of the global Tokio Marine Group, is a prominent specialty insurance provider. The company underwrites over 100 classes of insurance across more than 180 countries, with a widespread presence that includes offices in the United States, Mexico, the United Kingdom, and Continental Europe.

As a data-driven organization with a strong strategic focus on technology and innovation, TMHCC has long relied on catastrophe modeling to inform underwriting decisions. For more than 17 years, TMHCC has maintained a strategic partnership with RMS (now Moody's), using the RiskLink platform to support its modeling and underwriting functions.

While RiskLink proved dependable through many iterations and upgrades, its on-premises infrastructure fell short in meeting TMHCC's strategic goals for increased automation, scalability, and workflow efficiency.

Reliance on manual workflows, the lack of API functionality, and an inability to automate routine tasks meant catastrophe modelers frequently had to manually transfer data from spreadsheets and databases, reducing time spent on strategic analysis of modeled outputs.

Performance bottlenecks also hindered productivity, including extended time spent modeling large portfolios and technical issues occurring during peak underwriting periods; demanding ongoing IT maintenance, complex model upgrades, and time-consuming environment builds for new model deployments further compounded operational inefficiencies.

As TMHCC's underwriting volume grew and the organization pursued further expansion, RiskLink could no longer meet the business's needs.

The objective

TMHCC set a strategic goal to automate workflows, integrate with a broader data ecosystem, and improve scalability — all while maintaining a small, agile team. These objectives laid the groundwork for a shift to a modern, cloud-based catastrophe modeling solution.

To align with its modernization strategy, TMHCC planned to migrate from RiskLink to Moody's Risk Modeler. The broader Tokio Marine Group had already acquired Risk Modeler licenses, and TMHCC sought to take early advantage of this advanced solution.

The solution

Risk Modeler, a cloud-native application, offered real-time risk analytics, support for hundreds of model types, and access to Moody's high-definition (HD) models. Its software as a service (SaaS) delivery model eliminated the need for on-premises hardware, promoting flexibility to grow with business needs and reducing IT overhead.

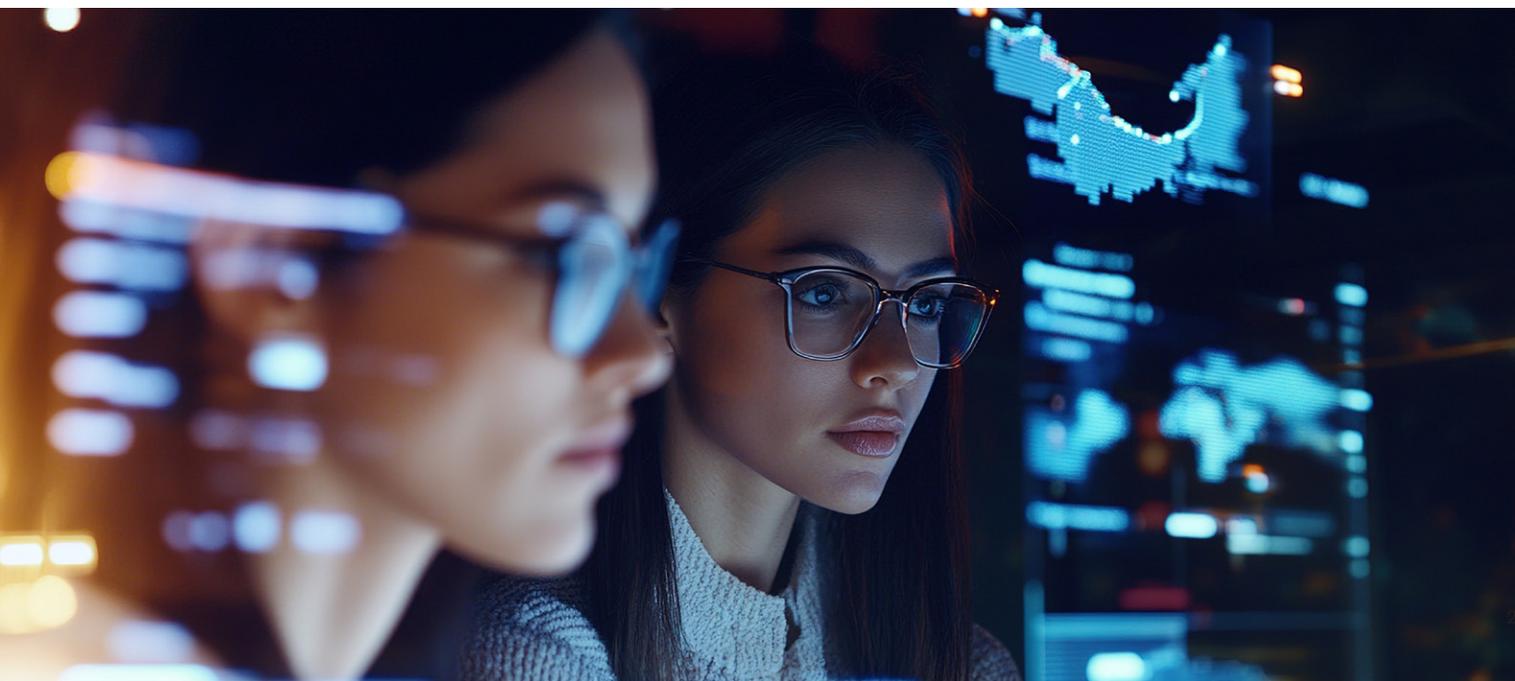
More importantly, the platform's advanced APIs allowed for extensive automation of catastrophe modeling processes, which was crucial for enhancing productivity and streamlining underwriting workflows.

With Risk Modeler, TMHCC could also run multiple versions of models simultaneously, increasing flexibility for validation and decision-making. The team anticipated significant performance gains, seamless system integration, and a fully automated environment that could adapt to increasing business demands.



James Orriss,
Head of Catastrophe Exposure
Management, Tokio Marine HCC

Rather than being data processors, Risk Modeler enables our catastrophe modelers to focus their time on fully analyzing the results and delivering that insight back to the underwriters.”



The process

TMHCC took the lead in implementing Risk Modeler by setting up an independent test environment that was separate from the broader Tokio Marine Group. This initiative allowed TMHCC to accelerate development, test APIs, and prepare for integration without waiting on group-wide timelines.

A rigorous testing and validation process followed. TMHCC's developers first built and tested APIs within the Risk Modeler sandbox environment, conducting parallel runs to compare results with RiskLink to make sure outputs were consistent.

Risk Modeler's open API architecture allowed TMHCC to seamlessly integrate the new platform into its existing systems. Developers built end-to-end automation pipelines that imported and validated exposure data, performed automated geocoding, executed models, and pushed the resulting loss estimates into downstream pricing and portfolio management tools.

Moody's supported the transition by offering comprehensive user training, including workshops on advanced API usage. TMHCC's teams were able to take advantage of these services while remaining largely self-sufficient and requiring minimal onboarding. A combination of strong internal technical capabilities and intuitive platform features — including Moody's Intelligent Risk Platform Navigator, an AI-powered in-platform assistant — and context-based help guides helped accelerate adoption. Moody's comprehensive library of API documentation also allowed TMHCC's developers to work autonomously.

The rollout of Risk Modeler followed a phased approach. TMHCC began with direct lines of business, moved to delegated authority, and concluded with treaty portfolios, which presented the most complexity due to the volume of data and distinct workflows involved.

Once testing was complete, the test environment was seamlessly promoted to production. TMHCC reported no operational disruptions during the cutover. In fact, the migration's success prompted the team to decommission RiskLink earlier than originally planned.



The outcomes

Implementing Risk Modeler delivered measurable gains across performance, productivity, flexibility, and operational efficiency. TMHCC's transformation from legacy manual processes to a fully automated, cloud-based catastrophe modeling environment has brought several key benefits.

TMHCC's transition to Risk Modeler has transformed its catastrophe modeling capability into a strategic business asset. With automated workflows, faster modeling, and seamless system integration, the company is now able to deliver underwriting decisions and portfolio insights with far greater speed and precision.

→ Enhanced productivity in all stages:

- Large portfolio model runs that previously took 36-48 hours can now be completed in just two-three hours.
- Underwriters receive model results in near real-time, improving the overall responsiveness of quote generation and portfolio assessments.
- Faster turnaround means TMHCC can respond more quickly in competitive market situations, enhancing agility and speed to market.
- Catastrophe modeling talent is refocused on higher-value activities, generating strategic risk insights from model outputs rather than manual data entry or model execution.



- Automated end-to-end data workflows
 - APIs automatically pass data between systems (from Pega through Risk Modeler to pricing and portfolio tools).
 - Manual copying and pasting and repetitive tasks are entirely eliminated.
 - Automation allows underwriters to receive timely catastrophe model results without delays or manual handoffs.
 - Cloud computing supports faster quote turnaround and quicker decision-making during peak underwriting seasons.
- Sustainable growth and future-proofed model management
 - Business volume has increased without the need for more headcount or infrastructure.
 - Risk Modeler's cloud infrastructure handles higher loads with no performance degradation.

- New models can be activated instantly with no need for separate environments or long parallel run periods.
- Old and new model versions can be run simultaneously, promoting better validation and continuity.

Catastrophe modelers are contributing analytical insights rather than simply running models, enhancing their strategic role within the organization. TMHCC has become more agile, better equipped to respond to dynamic market conditions, and poised for sustainable growth without the need for additional resources.

Looking ahead, TMHCC is focused on validating Moody's expanding suite of HD models. Using Risk Modeler's live environment, TMHCC can perform full-scale validation, including multiple reruns that weren't possible under the RiskLink infrastructure.

With a strong foundation in place, TMHCC is well-positioned to continue innovating in catastrophe modeling, expanding into new lines of business, and supporting its global growth strategy with a flexible, modern risk analytics platform.



Operating in over 100 classes of specialty insurance through 4,400 employees in 180 countries, Tokio Marine HCC (TMHCC) is one of the world's leading specialty insurers. Headquartered in Houston since 1974, Tokio Marine HCC specializes in some of the most complex areas of insurance focusing on tailored underwriting and providing the highest quality risk management. Japan-based Tokio Marine Group is one of the world's leading insurance companies with a market cap of \$81 billion*.

*As of 6/30/25

Moody's insurance solutions have shaped the world's view of risk for over 30 years, leading the catastrophe risk industry that we helped to pioneer. Our unmatched science, technology, innovation, and 300+ catastrophe risk models help risk and insurance leaders evaluate and manage the risks of natural and man-made disasters.

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