Modernizing Risk Management with a Marine Insurance Underwriting AI/ML Solution

Case study

Client

Insurance and Reinsurance Company

Our client is a respected authority in the insurance and reinsurance industry, specializing in complex commercial risks. Renowned for their deep domain expertise and a history of reliable claims management, they have built a reputation on their commitment to client success and industry innovation. Furthermore, the company's focus on marine insurance has positioned it as a trusted partner for global clients navigating uncertain waters.

Challenge

Clean Data and AI/ML for their Underwriting Process

Untangling the complexity in their marine underwriting data pools revealed deep-rooted business challenges. For years, our client's underwriting process relied heavily on claim messages and documentation dating back to 2002.

The unstructured nature of these records buried critical information within free-form notes, making it difficult to extract valuable insights for risk assessment and quote generation. This resulted in extended turnaround time, as most time was spent looking for data and discovering information. Here, missing out on details because of human errors within case filings also posed a problem in case closures.

Recognizing these challenges, our client was eager to explore how AI and ML could improve data analytics and help automate key underwriting tasks for improved accuracy and consistency throughout the underwriting lifecycle.

Solution

AI/ML-powered Text Analytics Framework for Underwriting

We built a marine insurance underwriting AI/ML solution that unlocked value from 16 years of historical data using advanced text analytics. As a greenfield project, we began with consulting-led workshops with underwriting and risk teams from its marine division.

Our approach directly addressed the specific business challenges, data gaps, and process inefficiencies unique to their marine insurance offerings. Our aim was to create a solution that would have a transformative impact on underwriting operations.

The components were selected and prioritized to reduce losses, improve operational efficiency, and support data-first underwriting—areas where our client previously relied on manual, less effective processes.

Building a Loss Categorization Framework

Our solution systematically identified 68 primary causes of loss relevant to marine insurance. This provides a clear, structured view of the most significant risk factors affecting the client's portfolio.

Beyond the main causes, it uncovered and organized hundreds of previously untapped next-level categories. A granular classification gave a much deeper understanding of risk patterns and loss drivers, allowing for better model training within our AI/ML solution.

Developing Marine Taxonomies to Fine-Tune NLP Performance

We developed six taxonomies to standardize the classification of losses and risks. These taxonomies improve how natural language processing (NLP) models understand our client's marine insurance data.

With clear taxonomies, the models can better recognize and organize information, making automated analysis possible. This led to faster, clearer insights for everyone involved.

Bringing in Predictive Analytics and Decision Support

At the core of the solution was a predictive AI model powered by Natural Language Processing (NLP) and Machine Learning (ML). Our model analyzed the large volumes of claims documents and identified patterns associated with new vessels and emerging risks.

Key Features:

- Scans and interprets text from claims and policy documents.
- Provides actionable insights and risk scores for underwriters.
- Improve the accuracy and speed of underwriting assessments.

Unifying Data and Insights with a Dashboard

We created a single catalog of all loss categories and subcategories, making it easy for underwriters and analysts to enter, find, and analyze data. A dashboard then presents the most important trends and insights, helping teams act on them and make better decisions.

Benefits

Underwriting Efficiency and Reduced Losses

8% Improved Loss Ratio
Improved risk assessment with our solution led to an 8% reduction in losses for a specific marine hull class.

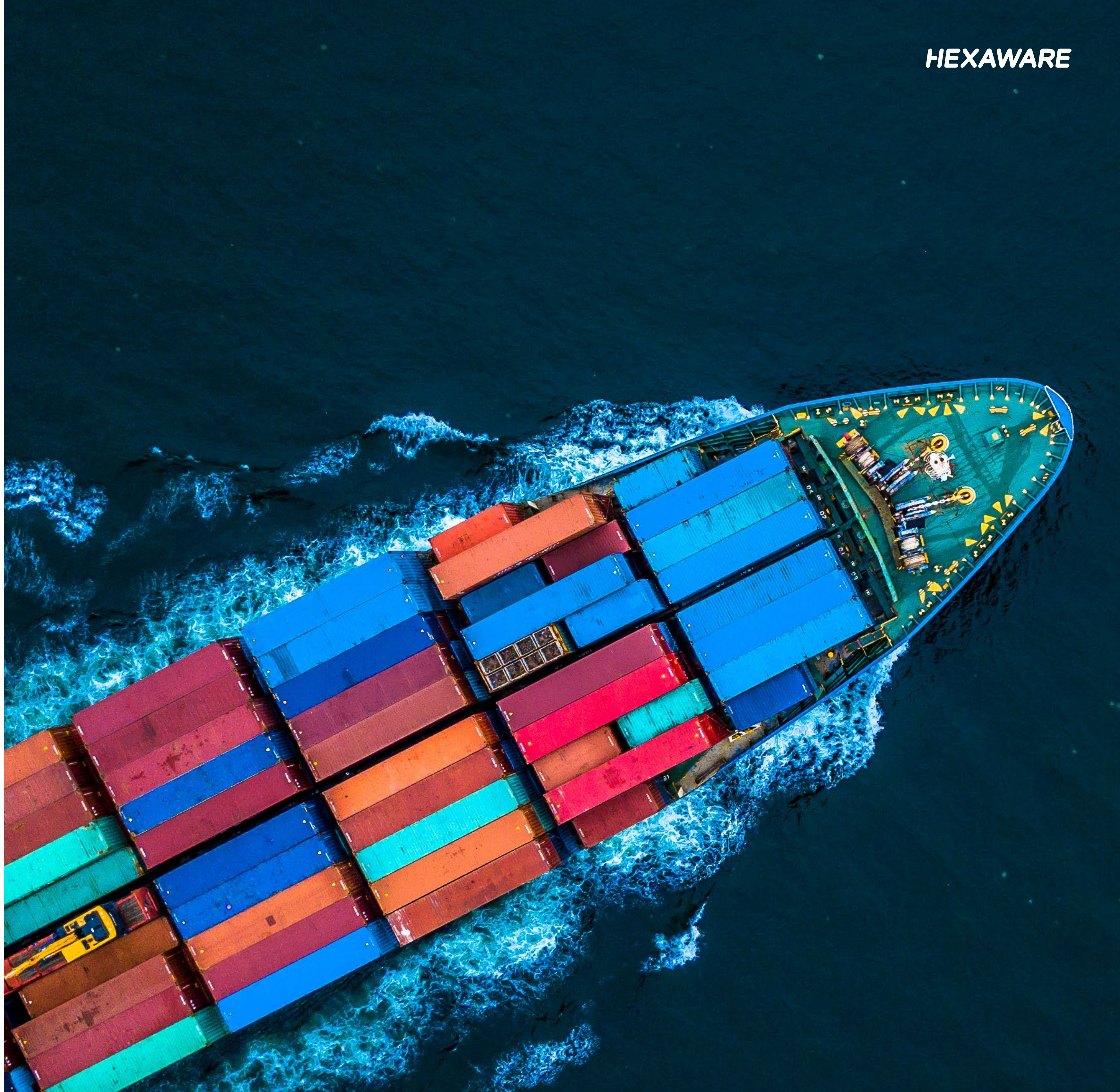
33% Less Manual Underwriting
Underwriting teams spend 33% less time on manual tasks, allowing them to focus on complex marine risks.

Faster Quote Turnaround
AI/ML-driven workflows sped up the quote process, helping marine insurers respond to clients more quickly.

Fewer Missed Details in Case Closures
Automated data analysis reduced the chances of missing important risk factors at multiple stages of the underwriting workflow.

People Workforce Reprioritizing
By automating routine work, underwriters could dedicate more attention to large or unusual marine insurance cases.

Stronger Risk Management
AI/ML-powered insights enabled more accurate pricing and better risk selection for marine policies.



Summary

Charting New Waters with AI/ML in Underwriting

Our client enters a new age of data precision in insurance. With a marine insurance underwriting AI/ML solution, their risk teams swiftly uncover valuable insights from extensive historical claims data, transforming the pace at which decisions are made.

This shift has led to faster, smarter insurance processes that deliver fairer, more personalized premiums and introduce new standards, positioning them as leaders in modern risk management.

HEXAWARE

Improve Risk Management for Underwriting and Claims

Let AI/ML bring accuracy to your data insights, efficiency to operations, and a new outlook for risk management. Reach out to marketing@hexaware.com to get started.

About Hexaware

Hexaware is a global technology and business process services company. Every day, Hexawarians wake up with a singular purpose: to create smiles through great people and technology. With this purpose gaining momentum, we are well on our way to realizing our vision of being the most loved digital transformation partner in the world. We also seek to protect the planet and build a better tomorrow for our customers, employees, partners, investors, and the communities in which we operate.

With offices across the world, we empower enterprises to realize digital transformation at scale and speed by partnering with them to build, transform, run, and optimize their technology and business processes.

Learn more about Hexaware at https://www.hexaware.com.

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