

Using AI, Commercial P&C Underwriters Aim to Be First to Quote While Reducing Risk

A new document intake and decisioning platform for insurers uses AI technology from DataCubes and Intel to help underwriters make fast decisions based on comprehensive intelligence about customer risk

“As we expand our capabilities to target more insurance use cases, the need for both cost-efficient and high-performing infrastructure becomes critical. Intel technologies help us innovate faster by providing a stable platform to build on while we focus on our core strengths to provide value to our customers.”

—Ramesh Natarajan,
Director of Engineering, DataCubes



Executive Summary

In the complex world of commercial property and casualty (P&C) insurance, underwriters are awash in data, which largely consists of partially digitized submission documents. DataCubes' d3 Underwriting is an artificial intelligence (AI) solution that uses machine learning and computer vision to intelligently digitize those documents, analyze them along with a massive store of third-party data, and use them to streamline and strengthen the underwriting process.

In an environment where the first insurer to issue a quote often wins the business, DataCubes simplifies and accelerates a complex process while giving underwriters comprehensive intelligence about the applicant's business. Complementing underwriters' expertise, the solution allows insurers to make quick decisions based on an accurate profile of the prospective customer, including their risk and potential profitability. Underwriters deliver faster, well-informed decisions to enhance customer service while optimizing pricing strategies.

DataCubes uses Intel® Xeon® Scalable processors for the complete AI workflow, from training machine-learning models to think like expert underwriters, to inferencing tasks that handle intelligent analysis and decisioning (Figure 1). Those tasks draw on a data lake of more than four billion data points that DataCubes gathers and updates from government entities, public records, company websites, and other sources.

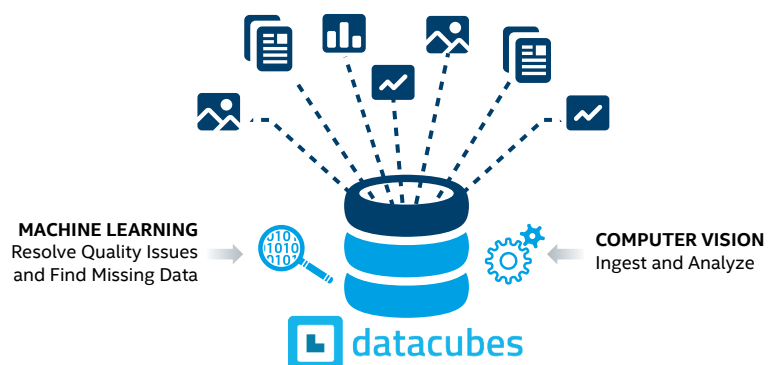


Figure 1. DataCubes' d3 Underwriting uses machine learning, computer vision, and Intel® hardware to digitize and analyze insurance submission documents.

Business Challenge: Inefficient Process, Incomplete Answers

Many commercial insurance underwriting companies are hampered by legacy, in-house technology solutions that produce cumbersome, time-consuming, and partially digitized processes. The resulting inefficiencies can drive up loss ratios and contribute to a poor customer experience—factors that are increasingly unsustainable in an industry many say is ripe for disruption.

The underwriting process begins with a request for an insurance quote. For commercial property and casualty (P&C) underwriters, this request typically arrives via email, accompanied by hundreds of pages of submission information. The documents can include a decade's worth of historical information and other materials in the form of PDFs, scans, and other types of unstructured data.

The underwriter's job is to evaluate the submission and determine whether to offer insurance and at what price. First, the documents must be manually entered into the underwriters' assessment system and checked for completeness and accuracy. Then, the underwriter assesses risks, a process that involves dozens of web searches and much back-and-forth between the underwriter, the submitting agent, and the prospective client. Only after the underwriter has built a comprehensive picture of the applicant company, its risks, and its potential profitability as a customer does the quote get issued.

This lengthy process detracts from the customer experience and can result in lost business. When the process produces an incomplete picture of the applicant's business, it can also raise the risks for the insurer, threatening profitability.

Forward-looking commercial P&C insurers are eager to find innovative technology solutions that can streamline underwriting and provide an accurate and complete picture of the risks and rewards of insuring a specific customer.

Using AI to Streamline and Strengthen Underwriting

DataCubes applies the power of artificial intelligence (AI) and an in-depth knowledge of the commercial insurance industry to answer the challenges of commercial P&C underwriting. Running on Intel® technologies, the d3 Underwriting software suite allows commercial carriers of all sizes to augment human expertise and productivity throughout the underwriting process. Using DataCubes' intake and decisioning platform, insurers overcome the limitations of manual submission documents and make rapid underwriting decisions based on rich data and accurate intelligence (Figure 2).

DataCubes' d3 Underwriting is a comprehensive decisioning platform for commercial P&C underwriting. Based on DataCubes' principles of d3: Data. Discovery. Decision, d3 Underwriting is a suite of products that can be used separately or together. The suite uses computer vision and machine-learning models that are trained to emulate the best practices of human underwriters. The major products are:

- **d3 Intake.** Automates the intake of submission documents and intelligently processes industry-standard ACORD applications as well as loss runs and other forms of structured and unstructured data. Going well beyond form fill-in, d3 Intake uses pre-trained machine-learning models to analyze inputs in near real-time, find missing information, and resolve quality issues.
- **d3 Risk 360.** Brings comprehensive third-party data sources into the decision making process, increasing underwriting productivity and providing fresh insights into the applicant's business. d3 Risk 360 analyzes and interprets over four billion data points to provide a robust view of the applicant's business and its potential risks.

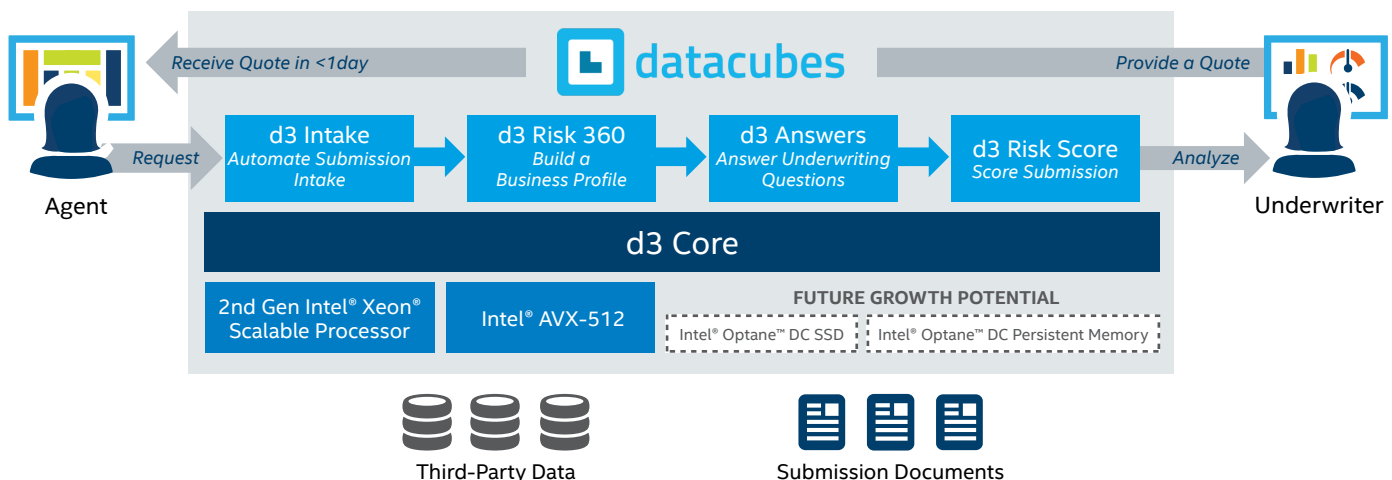


Figure 2. DataCubes' d3 Underwriting infuses a cumbersome, manual process with new AI-based value, providing immediate benefits and a platform for ongoing innovation.

- **d3 Answers.** Provides decision-automation capabilities that automatically answer underwriting questions and provide an initial underwriting analysis, highlighting exceptions in the submission documents as well as areas that may warrant additional review. d3 Answers reduces the number of underwriting questions that need to be asked manually by using AI and the digital footprint of a business to determine the best responses.
- **d3 Risk Score.** Selects, prioritizes, and ranks submissions based on the insurer's risk profile, helping to identify and prioritize applicants that best match the insurer's risk appetite and are most likely to accept the insurer's offer.

"Intel technologies provide a great platform for DataCubes to innovate and an outstanding roadmap to further performance as our business grows and evolves. They're enabling our customers to realize tremendous value from the information that comes at them every day."

—**Phil Alampi**
VP of Customer Engagement,
DataCubes

Serving the Customer Better

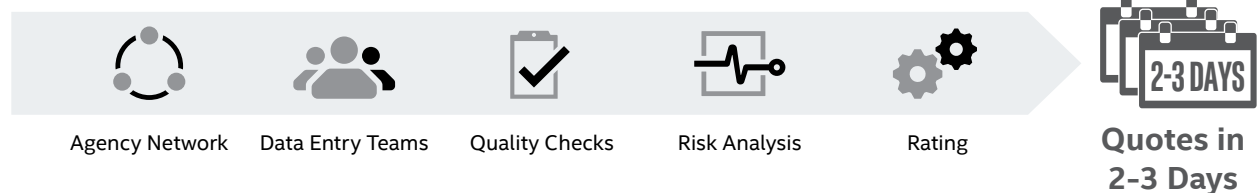
A managing general underwriter and program manager deployed d3 Intake to streamline its document submission process and better serve its customer base of insurance carriers, brokers, and agents.

Before implementing d3 Intake, the firm needed two to three days to enter and process submission materials before an underwriter could start examining the materials, researching the customer, and developing a quote. Using d3 Intake to automate its document-intake process, the firm improved key aspects of its underwriting process:

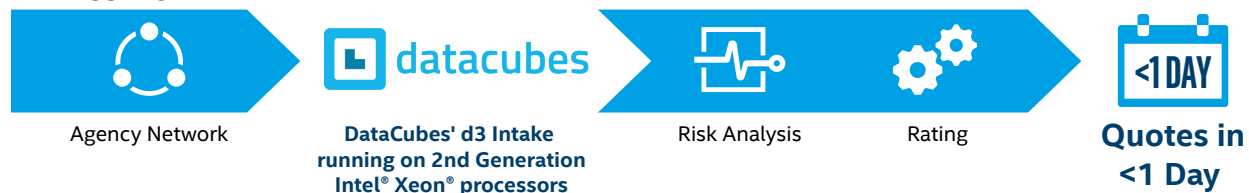
- **Speed.** The firm increased underwriting efficiency by more than 130 percent, enabling underwriters to have access to digitized submissions in near real-time.¹
- **Accuracy.** The firm gained a more robust basis for making underwriting decisions, achieving 97 percent accuracy on machine-read data, up from around 80 percent for the customer's previous manual processes.¹
- **Customer service.** With faster quoting, the firm shows itself to be a responsive and committed business partner.

Faster Quotes Based on Accurate Information Help Enable Better Customer Service

WITHOUT DATACUBES



WITH DATACUBES



Solution Value: Smart Answers Quickly

DataCubes' d3 Underwriting speeds time-to-quote while enhancing decision making. Combining AI with in-depth industry knowledge, it complements underwriters' expertise, enhances their productivity, and frees them to focus on exceptions and relationships.

With fast, accurate capture and analysis of submission documents, underwriters reduce human errors and gain efficiencies that may help increase margins and improve expense ratios. The improved throughput contributes to a better customer experience by reducing the number of follow-up questions that may be needed and enabling rapid responses to quote requests.

Incorporating third-party data and machine-learning-based analytics into the quoting process, insurers can base their decisions on comprehensive, validated information. With a clear picture of the customer's risks, underwriters are equipped to optimize pricing strategies and reduce loss ratios. They may further improve time-to-quote and customer service by simplifying the application process, reducing the amount of information they request of applicants and deriving needed information from the DataCubes' store of publicly available third-party data.

The high-quality digital information that results from the automated underwriting process also provides a foundation for further innovation. With comprehensive digital data, insurers can increase their business agility and conduct further analysis to identify opportunities for new, customer-focused insurance products and services. By adopting technology-fueled innovation, they position themselves to thrive amidst industry-wide disruption.

Solution Architecture: AI-Enhanced Underwriting

DataCubes' d3 Underwriting uses the AI technologies of computer vision and machine learning to intelligently digitize submission documents, analyze the inputs in near real time, develop an accurate profile of the applicant, and provide recommendations that align with the insurer's business objectives and the applicant's risk profile.

High-performance Intel® Xeon® Scalable processors handle DataCubes' data-intensive computing requirements from training to inference. Intel Xeon Scalable processors train DataCubes' sophisticated machine-learning models and provide rapid inferencing and responsiveness for underwriting analysis. Training uses thousands of ACORD applications, loss runs, and other insurance documents to create models that emulate the best practices of experienced human underwriters. The inferencing component analyzes and interprets over four billion data points drawn from government entities, public records, company websites, and other third-party sources as it builds robust business profiles and surfaces risk characteristics in near real time. The DataCubes product suite can be accessed via API, portal, or email.

DataCubes runs and manages the solution as a secure private cloud at Amazon Web Services (AWS). The solution is powered by Intel® Xeon® Platinum 8175 processors with Intel® Advanced Vector Extensions 512 (Intel® AVX-512).

Using Intel® hardware on the AWS AI platform, insurers gain the performance to quickly make underwriting decisions while simplifying their technology environment. They can rapidly experience value from their AI investments while laying the groundwork for further innovation. DataCubes gains high performance for the present, with a growth path to higher performance and scale through using Intel Xeon Scalable processors, Intel® Optane™ DC persistent memory, and Intel® Optane™ DC SSDs.

- **Intel Xeon Scalable processors** incorporate a built-in hardware accelerator, Intel® Deep Learning Boost (Intel® DL Boost), to increase inferencing performance. The processors also feature Intel AVX-512, advanced instructions designed to boost performance for financial analytics and a range of other demanding workloads.
- **Intel Optane DC persistent memory** is a new class of non-volatile memory that supplements DRAM to increase capacity and data persistence for memory-intensive computing.
- **Intel Optane DC SSDs** combine high throughput, low latency, and high endurance to accelerate data-bound applications.

Conclusion

AI brings transformative opportunities to the commercial P&C insurance industry, as it does to many industries. By taking advantage of DataCubes' d3 Underwriting, commercial P&C insurers can begin to leverage these opportunities. They can capture near-term value by increasing efficiency, automation, and customer service in their underwriting processes while positioning themselves to lead in a new era of ongoing AI-enabled innovation.

Find the solution that is right for your organization. Visit intel.com/ai or contact your Intel representative.

Learn More

You may also find the following resources useful:

- **DataCubes Website:** datacubes.com
- **Intel Xeon Scalable processors:** intel.com/content/www/us/en/products/processors/xeon/scalable.html
- **Intel Advanced Vector Extensions 512:** intel.com/content/www/us/en/architecture-and-technology/avx-512-overview.html
- **AI on Intel:** intel.ai

Solution Provider: DataCubes

Headquartered in Schaumburg, Illinois, and founded in 2016 by Kuldeep Malik and Harish Neelamana, DataCubes is the first decision automation platform for commercial P&C underwriting. The company has revolutionized the commercial underwriting process with cutting-edge AI and data science. Commercial carriers of all sizes use DataCubes to make real-time underwriting decisions based on rich data and highly accurate intelligence gathered by external sources to improve productivity, profitability, efficiency, and accuracy.

To learn more, visit datacubes.com.

Solution Provided By:



¹ Performance results provided by DataCubes for a national insurance firm.

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