

How Core Specialty leveraged unstructured data to improve underwriting

Core Specialty, a global specialty insurer providing a diversified range of property, casualty and specialty insurance to customers worldwide decided to evaluate how it could improve some aspects of its business.

This included submission decision making processes, understanding the risks being written and the ability to develop accurate risk profiles to validate agent submissions using non-traditional data.

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The Problem/Scope

Core Specialty saw the value in leveraging unstructured data to introduce a set of unconventional underwriting criteria.

Analyzing web content presented Core Specialty with a challenge. As a result the carrier partnered with Intellect's Search and Big Data teams to achieve quick, accurate, and meaningful results.

Duration of Project

The initial implementation started in July 2016 and the solution was delivered within two months

Today, Core Specialty is actively using Risk Analyst, powered by Intellect's data platform Fabric Data Services (FDS).



RISK EVALUATION

The objective of the project was to deliver faster decisions, reduce the loss ratio and enrich the data sets to evaluate the risk being written.



IMPROVED RESULTS

Analyzing web content was a challenge for Core Specialty, but with Intellect's Search and Big Data teams' support, improved results were achieved quickly.



ALERTS

The user experience team designed a configurable dashboard that let underwriters subscribe to alerts they wanted to see and not be overwhelmed by the amount of data.

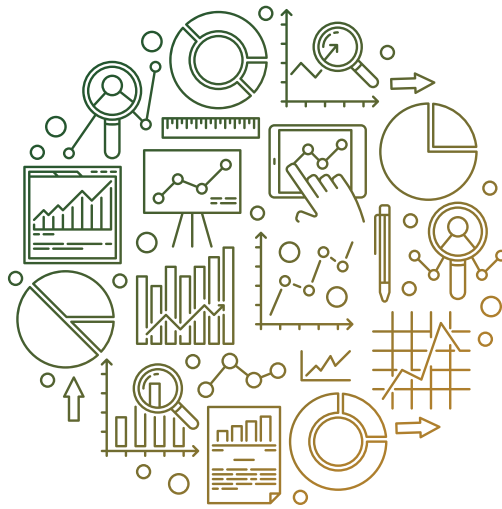
The outcome

Core Specialty experienced several benefits including underwriting decision-making time reduced by 70% and a 40% reduction in the cost of reports from premium data sources.

Additionally, Risk Analyst was able to identify two out of 30 accounts to be declined which would have otherwise resulted in claims upwards of \$6.5 million.

These dramatic results were recognized by Celent as they awarded Core Specialty the Celent Model Insurer Award in 2017.

Finding and extracting publicly available information



Intellect leveraged the capabilities of FDS.
(Risk Analyst is the customer-facing product built onto FDS)

Fabric Data Service (FDS) Platform

FDS is Intellect's proprietary Big Data platform that offers access to one of the largest consolidated sources of structured, semi-structured and unstructured data in commercial insurance across internal and external systems.

Intellect leveraged the proven ingestion components of FDS to search for detailed company specific and operational information from multiple sources

Searches were done on company website, blogs, social media and other structured and unstructured data feeds from third parties. These are sources where the machine learning models can predict the most relevant insights for specific business cases.



Search, Match and Dedupe algorithms and an OCR pipeline extract the relevant entity within structured and unstructured sources

Multiple layers of algorithms ensure highest data relevance and accuracy and eliminate false positives.



Pipeline components from FDS such as, **Extraction, Sentiment, Contextual Sentiment, Custom OCR, triangulation algorithms and Data Reverse Engineering algorithms** were leveraged to determine the "element of truth" and eliminate false positives for entities.



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Assuring the quality of information in data output

1. Conducted analysis to determine a list of sources where quality data was available

Model development and training began with data annotation using tools like Doccano for specific data points defined by Core Specialty to create the training set.

2. Prepared the data

Ground Truth (GT) data preparation was done for 1000+ companies with a sample set validated and revised with SMEs. GT data was split into exclusive sets for training, validation and testing.

3. Trained the data model

The model was trained on data from the training set and validated in an automated and human-expert validation approach to continuously improve the results and accuracy.

4. Tested data points

A high quality engineering team, led by subject matter experts, tested the data point outputs from the model.

The key to achieving quality was the accuracy of annotation and validation with business team.

Scaling data collection with additional information

When the engagement with Core Specialty began in 2015, the FDS platform was connected to 20-30 structured data sources such as the biggest financial data provider in North America. Within the first two years that was scaled to include 1800+ structured and unstructured data sources. There are currently 3000+ sources and new sources are added every month.

Intellect's organizational structure is built to scale solutions



People

AI Practice team is 50+ strong with top notch expertise across the skill spectrum including EDA, ML, Deep Learning, NLP, Computer Vision and ML Ops.

AI Practice supported by a 50+ strong Data Engineering team and a 50+ Platform Engineering (Cloud and ML Ops) team.

There is rich experience in building advanced AI Products & Solutions including ID Card OCR, Face match, ESG Dashboard, Intelligent Advice validation and data discovery and triangulation.



Process

The AI Practice team uses a mature, iterative process to build machine learning solutions.

Human-in-the-loop interventions are used as needed to improve the model.

Strong Agile delivery team with rich experience in SAFe, Scrum, Kanban and other software delivery methodologies to help effectively and efficiently deliver high-value solutions and products at speed and at scale.

Proprietary product delivery framework and proven quality assurance framework further strengthens the scaled delivery model.



Technology

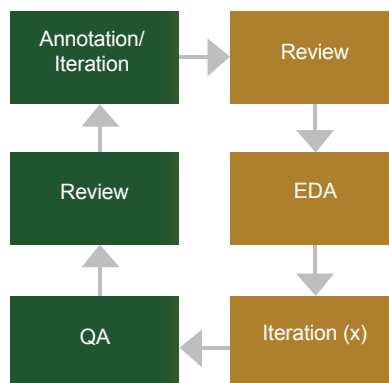
The AI Practice and FDS platform are built on a strong knowledge base, technical experience and modular frameworks.

Provides expertise for building complex NLP solutions through EDA, Model Exploration, Custom Model Build, Advanced NLP.

The FDS platform accelerates key functional (batch processing, pre-processing pipeline, ML ops) and non-functional (scaling for multiple jobs, large volume of data, low latency and optimised cost)

Horizontal frameworks and assets are part of the FDS Platform and AI Practice including document parsing, extraction, sentiment, triangulation and contextual tagging.

A data solution that bundles various data points to packages subscribed by multiple financial organizations in a tenant based model through UI or API.



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