# CLOUDERA

# Insurance Underwriting

Assessing Risk with Data and AI

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## Introduction

"The customers' world is changing, becoming more digital and interconnected via global supply chains. And with rapid digitization, the availability of alternative and predictive data is increasing, which makes risk selection increasingly competitive and facilitates more rapid adjustments to underwriting strategies."

Deloitte

# Opportunities to Optimize Underwriting

Carriers are under pressure to improve underwriting and risk selection while at the same time provide an optimized customer experience. Innovations in the use of data, analytics and AI are driving advancements in key use cases.

Analyze the possible paths to improvement in each of these areas to identify and focus improvements in underwriting using Data, Analytics and AI:

- Risk Modeling
- Customer/Claim Segmentation
- Optimization of Physical Survey/Inspections
- Risk Similarity/Risk Profile
- Related Entity Analysis
- Multi-line "profitable" class code analysis
- Risk engineering automation

## Digitized Underwriting leveraging data and analytics:

Improves loss ratios

# 3 TO 5PTS

Increases new business premiums
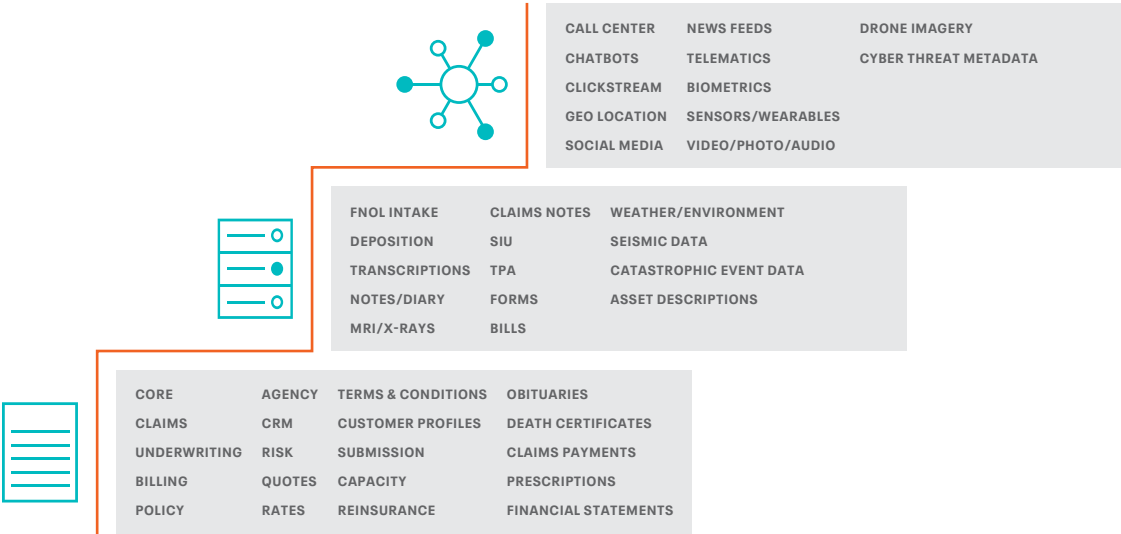
# 10% TO 15%

Increases retention

# 5% TO 10%

P&C EMEA and NA Carriers, McKinsey

# Underwriting Using Data -
# Make it More Science Than Art

To realize improvements, underwriters must assess risks within appetite at the right rates, terms and conditions. This means gathering the best possible data for an informed decision to be possible, including traditional batch sources and real-time data, in various formats - structured or unstructured.

| CALL CENTER | NEWS FEEDS | DRONE IMAGERY |
| --- | --- | --- |
| CHATBOTS | TELEMATICS | CYBER THREAT METADATA |
| CLICKSTREAM | BIOMETRICS | |
| GEO LOCATION | SENSORS/WEARABLES | |
| SOCIAL MEDIA | VIDEO/PHOTO/AUDIO | |

| FNOL INTAKE | CLAIMS NOTES | WEATHER/ENVIRONMENT |
| --- | --- | --- |
| DEPOSITION | SIU | SEISMIC DATA |
| TRANSCRIPTIONS | TPA | CATASTROPHIC EVENT DATA |
| NOTES/DIARY | FORMS | ASSET DESCRIPTIONS |
| MRI/X-RAYS | BILLS | |

| CORE | AGENCY | TERMS & CONDITIONS | OBITUARIES |
| --- | --- | --- | --- |
| CLAIMS | CRM | CUSTOMER PROFILES | DEATH CERTIFICATES |
| UNDERWRITING | RISK | SUBMISSION | CLAIMS PAYMENTS |
| BILLING | QUOTES | CAPACITY | PRESCRIPTIONS |
| POLICY | RATES | REINSURANCE | FINANCIAL STATEMENTS |

"When underwriters have better access to quality data, more advanced analytics and high-value risk insights will follow. Further, with intake processes digitized, underwriters can spend more time analyzing data, rather than gathering and manipulating it."

EY
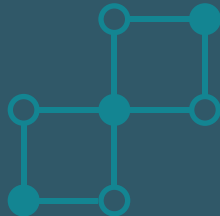
# Embrace and Expand
# Machine Learning and AI

Applying Artificial Intelligence and Machine Learning to automate tasks and analyze greater quantities of data assists in better risk decisioning. Deploying AI and ML starts with enabling quality *reporting* - better understanding insureds and prospects. The next step leads to the ability to perform exploratory, *descriptive* analytics, "why is this happening", etc. Finally, the end goal is to enable proactive, predictive analytics — "what if" — using applied ML and AI to better predict what will happen and recommend action to prevent/manage activities as necessary.
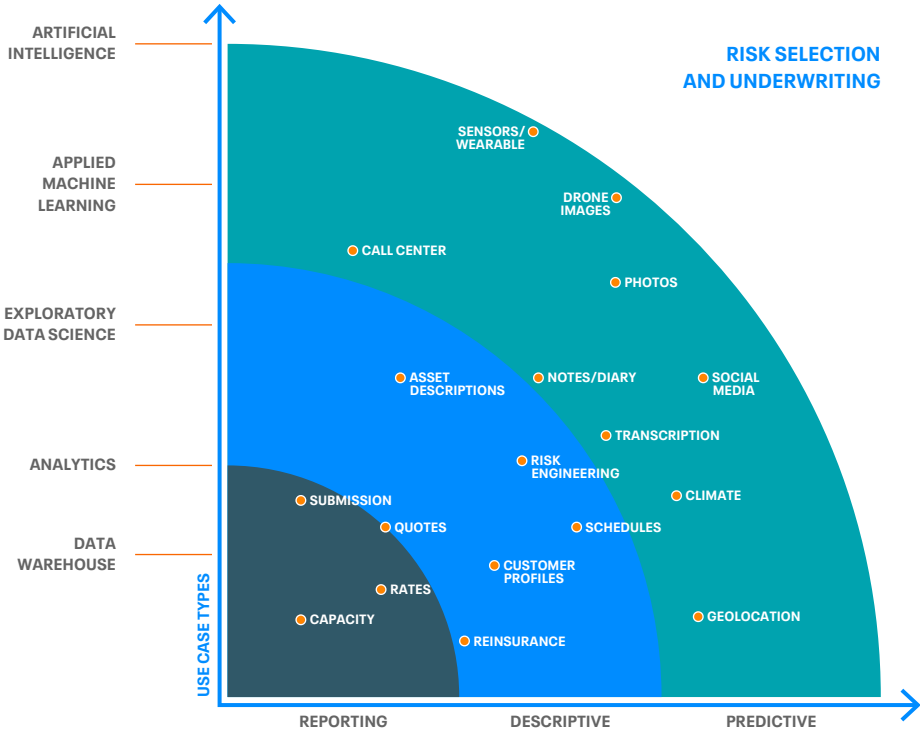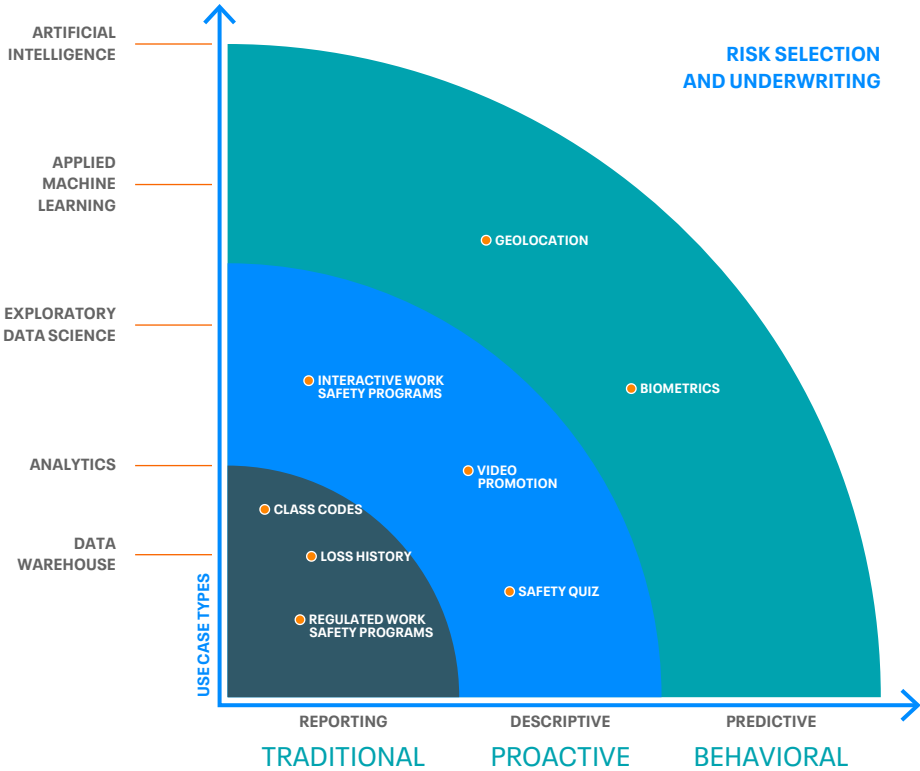


"As companies critically examine their underwriting, many have observed that the 80/20 principle holds true: much less information is required to place applicants into the current rating categories, especially when new data and analytical techniques are employed. Yet the industry continues to adhere to the status quo, using a sledgehammer to crack a nut."

McKinsey

# Commercial Lines Underwriting - An Illustration

Commercial insurance is an early adopter of advanced techniques to improve risk assessment and monitoring. Providers are maturing in the use of new data and analytical techniques. These advanced techniques lead to increased underwriting precision and competitive pricing including incentives and premium discounts.

**RISK SELECTION AND UNDERWRITING**

USE CASE TYPES

ARTIFICIAL INTELLIGENCE

APPLIED MACHINE LEARNING

EXPLORATORY DATA SCIENCE

ANALYTICS

DATA WAREHOUSE

- GEOLOCATION
- INTERACTIVE WORK SAFETY PROGRAMS
- BIOMETRICS
- VIDEO PROMOTION
- CLASS CODES
- LOSS HISTORY
- SAFETY QUIZ
- REGULATED WORK SAFETY PROGRAMS

REPORTING — DESCRIPTIVE — PREDICTIVE

TRADITIONAL — PROACTIVE — BEHAVIORAL

**Traditional** approaches use standard categories and historical data

**Proactive** approaches layer on the addition of interactive, preemptive programs.

**Behavioral** coverage includes interactive streaming data and activity monitoring enabling coverage based upon specific workstyle and behaviors.

## Commercial Underwriting is Undergoing Major Change

**80%**

of executives expect BIG change in 5 years

**94%**

in 10 years

SMA Research, The Current State of P&C Underwriting Preparedness for Digital Transformation

# Cloudera Data Platform

## Enhance Underwriting with an end to end Data Lifecycle

Cloudera Data Platform (CDP) is a hybrid data platform that delivers faster and easier data management and data analytics for data anywhere, with optimal performance, scalability, and security. CDP enables modern data architectures with a unified data fabric, open data lakehouse and scalable data mesh.
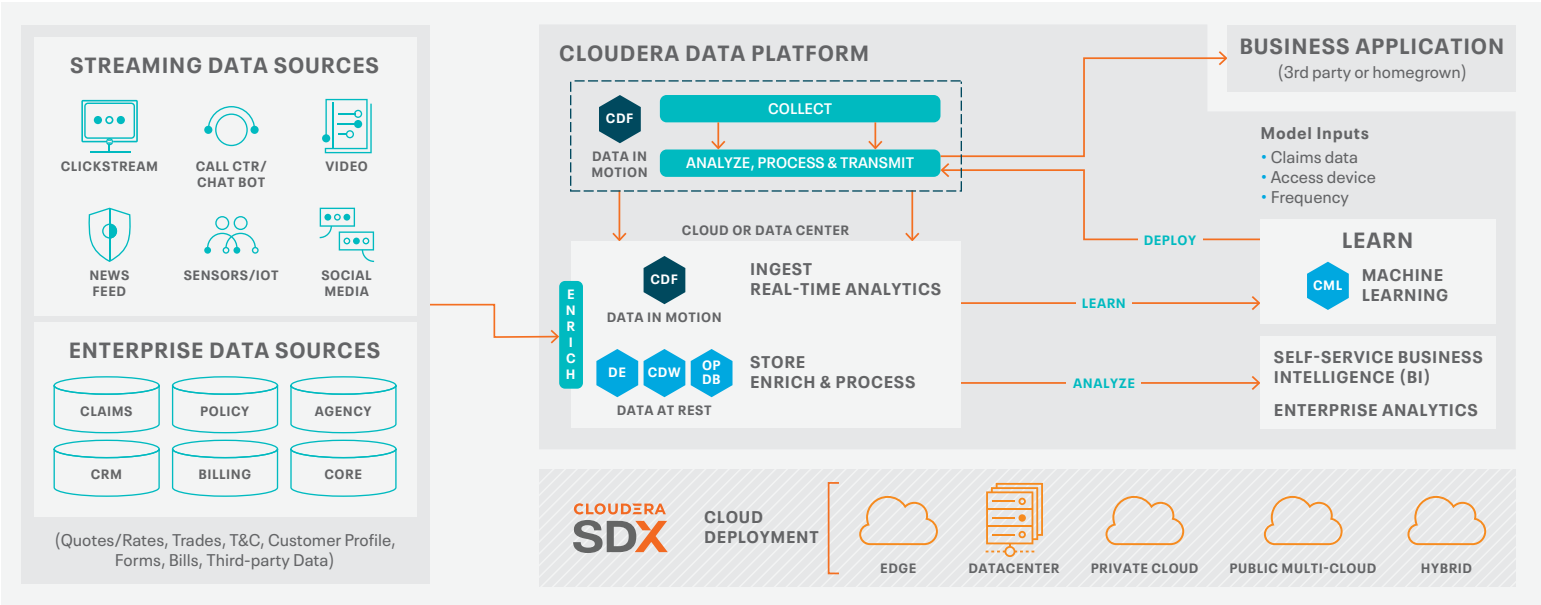


**Cloudera Data Flow (CDF) -** Collect any type of data (quotes, video, sensor or customer information) in batch or streaming modes.

**Data Engineering (DE) -** Normalize raw data into a common representation for downstream application use.

**Cloudera Data Warehouse (CDW) -** Store all transactional data, enterprise data and related elements to create a historical reference repository, or access using APIs.

**Operational Database (OPDB) -** Update your proprietary applications with a modern open source database.

**Cloudera Machine Learning (CML) -** Build and train models, create behavioral scoring model to identify anomalies based on customer data (claims data, policy information, etc.). Apply network and/or graph analysis to anticipate and predict unlikely behavior.

**SDX -** Enable a Shared Data Experience; consistent security and governance.

# ANALYTICS IN ACTION

Insurance providers around the globe use the Cloudera Data Platform as a foundation to improve underwriting and claims processing, create personalized products and more efficiently address regulatory requirements.

# Success Stories

**P&C/General
Personal Lines Carrier**

### Monetization of Connected Car Data

This US carrier launched a stand-alone division to provide telematics analytics capabilities to third parties as part of a new market opportunity related to Data as a Service (DaaS).

With Cloudera, they are using new data sources such as driving behavior, GPS data, route risk and road network safety to enhance analytical capabilities. For home and life, they monitor activities related to the home environment and fitness/health tracking.

"There's value in knowing what happens next. We're pushing the boundaries of predictive analytics, leveraging data and modeling expertise to help you evaluate driving risk and make smarter decisions in real time. It's how we're revolutionizing transportation—and that's just the start."

CEO & President

**European Multinational
Insurance Company**

### Central ML and AI Factory

Finding ways to be more efficient for both customers and insurance advisors to connect and collaborate is paramount. This carrier had a need for a central machine learning artificial intelligence factory across data science teams to collaborate and access use cases.

The company turned to the Cloudera Data Platform (CDP) running on Microsoft Azure. By implementing this new platform they created self-service data and compute environment. Teams now had the same user experience between on premises and cloud enabling consistent and secure experiences no matter when and where data scientists need to work. Now with this new modern data architecture with CDP, the company has been able to build a central AI factory across all teams.

Read the success story

# Cloudera Data Platform for Insurance

Effective, efficient underwriting requires a modern, flexible approach to manage customer profiles and risk appetite variables. Effective data management means the ability to collect, process, store, and analyze any type of data, including structured and unstructured, whether it lives at the edge, in the data center, public cloud, or a hybrid cloud. With the ability to analyze batch and streaming data, insurance organizations can use machine learning, advanced analytics, and AI technologies to identify patterns, detect anomalies and better assess risk.

Cloudera Data Platform empowers insurance providers to get clear and actionable insights from complex data anywhere. It provides the flexibility to run modern analytic workloads anywhere, regardless of where the data resides. It offers the ability to move those workloads to different cloud environments— public or private—to avoid cloud concentration and vendor lock-in. This is maintained with a common security and governance framework to enable data privacy and compliance.

**Any Cloud**

**EDGE 2AI**

**Multi-Function**

**CLOUDERA SDX**

**Secure & Governed**

**Open**

# Learn More

Underwriting is a discipline that will always maintain an element of uncertainty, yet results can be improved by applying greater accuracy of prediction. It is now more critical than ever to implement a flexible data and analytics strategy that can meet the demands of the next wave of insurance innovation.

Visit Cloudera.com/Insurance to learn more about how Cloudera supports Insurance.

## About Cloudera

At Cloudera, we believe that data can make what is impossible today, possible tomorrow. We empower people to transform complex data into clear and actionable insights. Cloudera delivers a hybrid data platform for any data, anywhere, from the Edge to AI. Powered by the relentless innovation of the open source community, Cloudera advances digital transformation for the world's largest enterprises.

Learn more at  cloudera.com | US: +1 888 789 1488 | Outside the US: +1 650 362 0488

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