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Industry  
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# AI-AUGMENTED INSURANCE

Concrete

Use

Cases

PREFACE

# Moving toward augmented insurance

The future of insurance is being built at the intersection of technology and human expertise.

In an industry where no two policies are alike, the role AI plays isn't to replace human judgment, but rather to sharpen it, support it, and take over where automation makes sense.

This report examines the practical ways this shift is already playing out on the ground.

# Executive Summary

B2B insurance holds a strategic place in the economy, protecting the assets, projects, and liabilities of businesses of all sizes, at a time when risk exposure is growing increasingly volatile, technical, and interconnected.

In this environment, insurers must navigate complex, highly customized products and data that is difficult to pool and standardize. Unlike the volume-driven logic of B2C, every policy, every line, every decision rests on a combination of human expertise, contextual analysis, and tailored risk management.

This is where artificial intelligence becomes truly relevant. It doesn't replace the human element, but rather strengthens the efficiency, rigor, and responsiveness of processes, and makes it possible to harness ever-growing volumes of information to sharpen decision-making.

This report offers a structured look at the AI transformation underway in B2B insurance, with a particular focus on underwriting, the critical core of risk management.

It covers:

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**Our understanding of the sector, its product lines, and its specific constraints.**

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**A simplified value chain, mapping where AI has the greatest impact.**

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**A selection of operational use cases, grounded in real-world challenges, with concrete and actionable approaches.**

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**Finally, the elyadata approach, combining technological expertise, command of regulated environments, and a product culture built around impact.**

## SECTION 1

# Sector Overview: Commercial Insurance and Its Lines of Business

## A Knowledge-Intensive Business

Commercial insurance stands out for the diversity of its product lines, the degree of customization it demands, and the weight of expert judgment in risk analysis. Unlike personal lines insurance, where large data volumes enable statistical pricing, commercial insurance relies predominantly on qualitative approaches grounded in industry experience, field audits, client interactions, and the manual review of technical and contractual documents.

This model demands rigorous information gathering and processing, along with significant time investment for each file. The heterogeneity of sources (PDFs, Excel spreadsheets, emails, technical reports, external databases, and more) remains a structural barrier to automation.

## A Specialty-Line Product Structure

Each line of business carries its own risk logic, terminology, and underwriting processes.

The main lines covered in this report are:



### Property & fire

Coverage of buildings, equipment, warehouses, and goods. Risk assessment depends heavily on location, fire safety standards, and the frequency of extreme weather events, among other factors.



### Motor fleet

For underwriting of motor fleets, insurers must process large volumes of heterogeneous data, vehicle models, loss history, usage patterns, geolocation, and more, often sourced from clients or brokers.



### Liability

Professional or general liability insurance. This line carries a strong legal dimension: contract clause analysis, sectoral exposure, incident history, and regulatory context all weigh heavily on underwriting decisions.



### Engineering

Construction projects, machinery breakdown, and contractors' insurance. Risk assessment here relies on complex technical documents: blueprints, equipment specifications, soil surveys, and more, which are difficult to process automatically without advanced AI.



### Marine

Highly specialized lines, covering cargo transport, port operations, and hull insurance. This line requires strong sector expertise and the ability to integrate external data. Here, weather, tracking, and port incidents are key differentiators

## The Core Challenge: Making Better Use of Existing Information

Across all these lines, three challenges consistently emerge: heavy reliance on documentation, fragmented data formats, and high cognitive load on teams.

These are precisely the friction points where artificial intelligence can step in to:

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**Structure and unlock the value of available information**

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**Streamline the underwriting process**

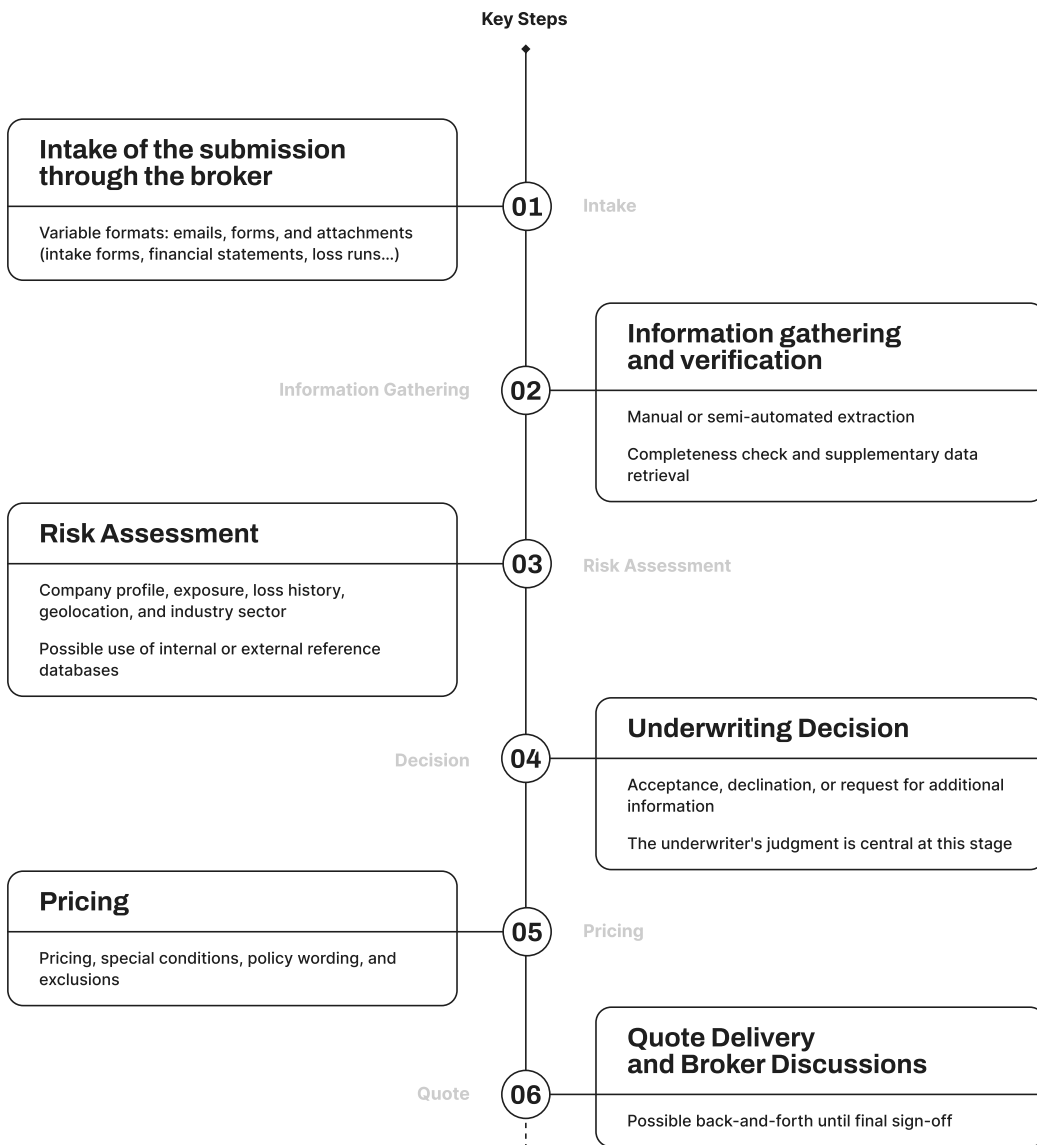
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**Strengthen decision-making while maintaining a high level of customization**

SECTION 2

# The Underwriting Process: A Complex, Manual-Intensive Operation

To identify concrete opportunities for automation and optimization, it is essential to map out the underwriting process in commercial insurance. While it varies across lines of business, the process follows a common logic...



This process, with its many manual steps and expert-driven decisions, represents fertile ground for AI and data integration.

Every step can be reimagined to drive greater efficiency, consistency, and added value.

SECTION 3

# Friction Points: Where AI Creates Value

Across the steps outlined above, insurance functions are often held back by manual tasks, fragmented tools, and underutilized data.

The use cases we have identified all point to the same goal: raising the bar on analysis, efficiency, and consistency throughout the underwriting cycle.

01

## Intake

Current State

Manually entered data, frequently duplicated, leading to significant time loss

Areas for improvement

Automated data entry and integration

02

## Information Gathering

Current State

Key information scattered across FileNet

Untapped external data (BelMap, GIS, etc.)

Areas for improvement

Unified data access at intake

Direct connection to relevant sources through a single interface

Data Structuring

03

## Risk Assessment

Current State

Visibility limited to a single line of business

Hard-to-track accumulation

Clause library and underwriting tools operating in silos

Areas for improvement

A broader view for deeper analysis

Enhancing risk appetite management

Automated links between clauses and the underwriting system

04

## Pricing

Current State

Premium calculation restricted to key perils

Pricing tools cannot be used across all products

Premiums are not adjusted or refreshed over the course of the policy

Areas for improvement

A single pricing tool covering all products and LoBs

Premiums are calculated for each coverage, endorsement, and specific clause.

Automatic recalculations throughout the policy's lifecycle.

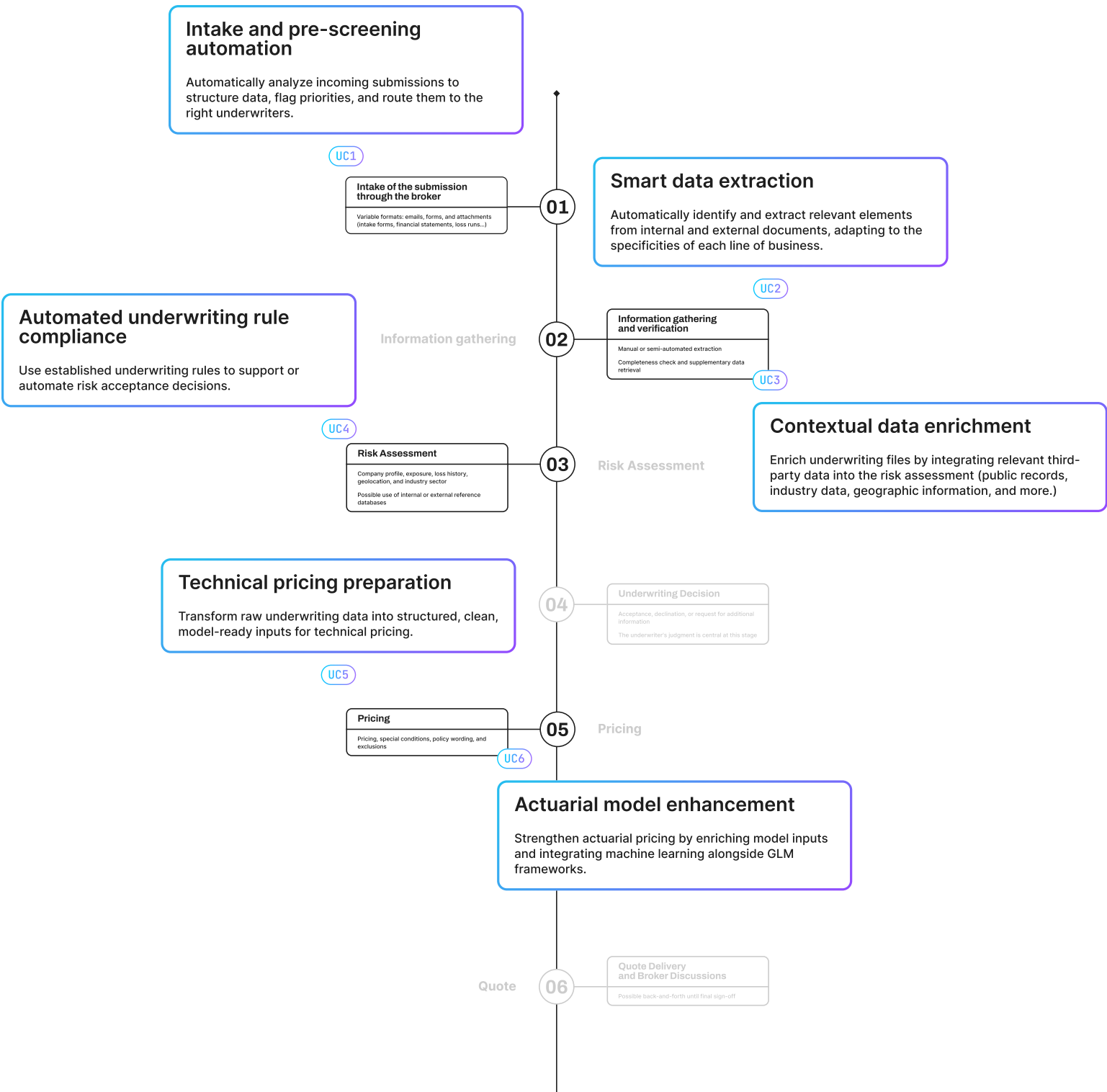
The identified optimizations are not theoretical, they are implemented in real use cases that we have already deployed in similar contexts.

SECTION 4

# 6 concrete use cases of AI in underwriting

The commercial insurance underwriting value chain relies on complex, often heterogeneous information flows. At every stage, from receiving applications to pricing, AI can help teams maintain accuracy, react quickly, and adapt effectively.

Here is a set of use cases highlighting AI's role in improving the everyday work of underwriting teams.



# Intake and pre-screening automation

USE CASE

# 01

## Mission

Automatically process incoming submissions to organize data, identify priorities, and assign them to the right underwriters.



## Observation

(The pain point)

The intake process for incoming submissions is still heavily manual, with data arriving in scattered formats (emails, forms, bordereaux, attachments) and no consistent structure or prioritization in place.

This creates bottlenecks at triage, puts unnecessary pressure on underwriting resources, and delays decision-making.

## Recommended solution

Deploying an AI solution is deployed to automatically analyze incoming submissions. The system extracts key data points (contract type, industry sector, risk exposure, location, and claims history) structures them by line of business (Property, Liability, etc.), and evaluates risk appetite against a set of predefined rules. Submissions are then routed to the most suitable underwriters based on their areas of expertise, available capacity, and identified business priorities.

This approach highlights the automation of submission triage and smart routing, while keeping the focus on business rules, data structuring, and resource optimization.

## Faster triage and assignment

Automated submission processing

## Improved SLA compliance (Service Level Agreement)

Reduced response times on submissions

## Optimized underwriting workload

Smarter workload distribution across teams

## Better risk appetite management

Sharper triage from the very first level of review

# Smart data extraction

USE CASE

# 02

## Mission

Automatically identify and extract relevant data from both internal documents (such as expert reports and underwriting histories) and external sources (including client forms, supporting documents, and technical contracts) adapting to the specificities of each line of business (risk address, insured value, equipment type, and more).



## Observation

(The pain point)

Underwriters currently have to juggle a dozen different tools and portals just to pull together the information needed to review a file. With relevant data spread across FileNet, emails, extranets, PDF bordereaux, and spreadsheets that are rarely in structured form, screening becomes a slow, repetitive, and error-prone exercise.

Dispersed data hampers risk understanding, drags out the instruction process, and draws underwriting teams away from their core expertise.

## Recommended solution

A centralized document hub paired with automated data structuring extracts and standardizes key underwriting data: risk address, insured value, clauses, equipment... and brings it all together in a single workspace, tailored to each line of business.

## Productivity gain

Cutting screening tools from 12 to 4 drives

## Faster turnaround

Key information is accessible faster, keeping risk assessment on track.

## Higher quality output

Structured, contextualized information leads to more accurate and dependable analysis.

# Contextual data enrichment

## Mission

Enrich underwriting files by integrating relevant third-party data into the risk analysis (public records, industry data, geographic information, and more).



## Observation

(The pain point)

Too often, submission files arrive incomplete or lacking the context required for a thorough risk assessment. The manual retrieval of third-party data (open data, sectoral benchmarks, mapping tools) creates bottlenecks and introduces inconsistency across underwriting teams.

## Recommended solution

Implementation of an automatic risk file enrichment engine, capable of aggregating relevant external data (geolocation, climate exposure, sectoral loss index, company rating, actual business activity, and more) from both internal reference databases and external sources such as open source intelligence and specialized APIs.

## Improved risk accuracy

Files enriched using relevant external data sources.

## Reduced processing times

Automated data enrichment.

## More informed decision-making

More accurate assessments, in line with risk engineering standards.

## Finer-grained risk segmentation

Smarter file prioritization based on risk level.

# Automated underwriting rule compliance

USE CASE

04

## Mission

Use a business rules engine to automatically suggest or decide on risk acceptance.



## Observation

(The pain point)

Risk acceptance and declination are largely driven by underwriter expertise. While business rules are broadly understood, they are rarely centralized or formally documented in a single repository. Their application therefore depends on individual experience, which can lead to inconsistent practices, delays on straightforward cases, and limited traceability of decisions made. This situation constrains both team responsiveness and the ability to build on existing knowledge.

## Recommended solution

The solution introduces a rules automation engine that brings structure and scale to underwriting decision-making. Built on a centralized, expert-maintained rules base, it automatically screens incoming files against predefined criteria and delivers acceptance or declination recommendations (or decisions) without manual intervention.

## Stronger business consistency

Business rules applied uniformly across the board, minimizing errors and interpretation gaps.

## Operational time savings

Simple cases handled faster, with meaningful gains in processing time.

## Enhanced compliance and traceability

Every decision logged and traceable, keeping pace with audit and regulatory demands.

## Amplified human judgement

Experts freed up to focus on the complex, high-stakes files where their judgment matters most.

# Technical pricing preparation

## Mission

Clean and structure underwriting data to enable seamless integration into existing pricing models.



## Observation

(The pain point)

The pricing process in insurance relies on underwriting data that is often heterogeneous and unstructured. This leads to errors, inconsistencies, and delays in decision-making. Manually feeding information into actuarial models is also highly time-consuming.

## Recommended solution

An automated data pipeline is implemented to collect, clean, and structure underwriting data before it is fed into pricing models. The pipeline processes data from multiple sources (incoming submissions, loss histories, sectoral data, and more) ensuring data quality and compliance with actuarial assessment requirements. It also guarantees seamless integration into existing pricing systems, optimizing the overall efficiency of the process.

## Improved data quality

More relevant and consistent data for pricing purposes.

## Reduced risk of input errors

Automated data cleaning and integration, reducing the risk of errors.

## Reduced turnaround times

Faster data integration into existing pricing systems, enabling quicker decisions.

## Stronger operational efficiency

Teams freed up to focus on higher-value tasks, such as risk analysis and claims management.

# Actuarial model enhancement

## Mission

Strengthen pricing model performance by enriching input variables and combining GLM with machine learning approaches.

## Observation

(The pain point)

Traditional pricing models rely primarily on classical statistical techniques and often limited datasets. Their complexity and lack of transparency can make it difficult for actuarial teams to fully interpret results or adjust model parameters with confidence.



## Recommended solution

The solution introduces a modular library purpose-built for transparent, scalable actuarial modeling. It brings the full workflow under one roof, from data preparation to results visualization, in a unified, customizable environment where actuaries can enrich input variables at any stage.

Actuaries can test assumptions, benchmark results against each other, fine-tune parameters, and get a clear read on how each variable drives the calculated premium.

## Enhanced transparency

Actuarial teams have full visibility into every modeling step, each one readable, adjustable, and traceable.

## Built-in flexibility

Flexible enough to blend several modeling approaches depending on the situation.

## Sharper pricing outcomes

Enrich models with additional variables while exploring previously untapped links between data and loss experience.

## SECTION 5

# The elyadata Approach: From Vision to Value

True AI transformation isn't a decree, it's a construction. One that demands a deep connection between business complexity and technological capability, anchored at every step by a single ambition: delivering value that is tangible, durable, and measurable.

Our approach is grounded in a simple belief:

**The goal was never AI,  
but what it makes possible.**

For it to work in environments as critical and specialized as commercial insurance, it must be rigorously framed, intelligently integrated, and above all, designed with and for its users.

With this in mind, we built our approach around three pivotal stages :

### Explore

Before anything else, we take the time to truly understand your business, its workflows, regulatory realities, and constraints, as well as the ambitions driving it. This is the phase where the right transformation scope takes shape.

### Define

A collaborative phase where use cases are scoped, architectures designed, interfaces built for real-world use, and governance frameworks tailored to your organization.

### Transform

Deploy high-performing, sustainable solutions, continuously monitored and built to deliver tangible results.

It is an approach shaped by what defines us:

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**Deep technological expertise**

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**A user-centered product culture**

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**Proven experience in sensitive, regulated environments**

## CONCLUSION

# AI in Commercial Insurance: Sharpening the edge of human expertise

Artificial intelligence does not transform the nature of commercial insurance, it unlocks what it can become.

Addressing the friction in document handling, the fragmentation of information, and the weight of manual tasks, AI frees underwriters to concentrate on what actually drives value in their work:

**Sharp risk analysis, meaningful client relationships, and confident decision-making.**

There are no shortcuts here. This transition is built gradually, grounded in the realities of the field and the processes that shape it.

It demands a deep familiarity with lines of business, regulatory realities, and how things actually work on the ground.

AI, in this light, is one lever among many, **one in service of a clear operational strategy, driven by a culture of impact and meaningful transformation.**

At elyadata, we believe in **AI that is pragmatic**, explainable, and built for complex environments. Our approach is rooted in the reality of the teams we work with, through concrete use cases, tailored solutions, and a systemic view of value chains.

**Human expertise will always be at the heart of insurance.** But with the right tools behind it, that expertise can reach further, move faster, and deliver sharper outcomes.