



# Supercharging Claims Management:

How AI & ML  
are Empowering  
Insurance Professionals

# Introduction

Technology is enabling better, faster and more efficient processes throughout the commercial insurance industry. For claims management in particular, artificial intelligence and machine learning (AI/ML) are making it possible to manage large caseloads far more efficiently and effectively than ever before. With AI/ML, insurers can spot anomalies with greater consistency, bringing attention to details that might otherwise have slipped through the cracks. They can improve outcomes by proactively segmenting claims and prioritizing them according to risk, and they can more accurately weigh the risks and rewards of taking specific actions toward resolving claims.

Our capacity to analyze and learn from data has grown, just as the volume and velocity of available data has grown. Much of the information provided to claims managers comes in the form of unstructured data, including accident reports, physician's notes, and legal correspondence. Sifting through all that information requires a keen eye for detail and an experienced perspective as to which information is important.

With AI/ML, much of that information can be preprocessed and prioritized, giving claims managers a head start in discerning the most relevant facts, understanding the risk, and flagging data points that call for additional investigation. As such, AI/ML is the foundation upon which the most innovative insurers are building competitive advantage. They are increasing productivity, identifying anomalies such as fraud, reducing legal exposure, and driving satisfactory outcomes.

Adoption of AI/ML is accelerating. In a 2017 report published by Deloitte,<sup>1</sup> only 1.33% of insurance companies were investing in AI. Less than three years later, 21% of insurance organizations reported that they are preparing their workforce for collaborative, interactive, and explainable AI-based systems, according to a 2020 report published by Accenture.<sup>2</sup>

In this respect, investment in AI/ML has emerged as a competitive imperative. There will always be a human element to the claims management process, but organizations that leverage technology to enhance and extend their teams' professional expertise will inevitably produce better results than those who do not.

# Continuous Improvement in Claims Management

Efficient and effective claims management processes begin with a knowledgeable and experienced staff. The unfortunate reality, though, is that claims professionals are increasingly being called upon to do more with less. Given high caseloads and tight deadlines, how can claims managers digest the mountains of information available to them, quickly discern the most relevant details, and assess their options?

## **1. Get to the important details fast.**

AI/ML identifies the most relevant information attached to each case, including information buried in medical records, notes and correspondence. Natural language processing enables AI algorithms to discern meaning from notes and correspondence by interpreting the nuances expressed in human language. AI/ML learns which data points are most meaningful and can bring those to the attention of claims managers, enabling them to quickly zero in on the most important facts of each case.

## **2. Focus your people on the right cases.**

AI/ML discovers correlations by mining information about actual outcomes from

past claims. By applying predictive analytics to assess the likelihood of different outcomes, AI/ML can score each claim based on risk and complexity. This empowers managers to assign complex and high-risk claims to the most experienced claims experts while leaving more routine cases to newer personnel. While AI/ML does not replace the human element in claims management, it gives those organizations a leg up in applying their efforts where they can produce the most positive effect.

**3. Steer cases toward the best possible resolution.** In addition to prioritizing cases and highlighting the most important details, AI/ML algorithms can assist claims management teams by recommending those actions which are most likely to lead to positive outcomes. That may include directing a claimant to a physician who has been successful with similar cases in the past, for example. For claims that have a high potential to result in litigation, AI/ML can rank the likelihood of specific outcomes based on past history and can provide recommendations to help guide claims managers to determine the most appropriate next steps.

## A Case Study in Effective Use of AI/ML

Several years ago, the Australia Pacific division of leading insurer QBE was seeking ways to better utilize the expertise of their team of claims adjusters. They were struggling with heavy caseloads and had implemented a rudimentary triage system built around a single criterion — that is, whether or not the employee named in the claim was missing any work. Needless to say, that was a simplistic approach to a very complex problem, but given the company's limited resources, it was the best the team could manage at the time.

QBE's leadership team began seeking ways to improve the triage process by making it more intelligent. This would enable better decisions at the outset, allowing claims adjusters to focus their attention and experience where it could have the greatest positive impact. Adding more criteria to the triage process naturally added some complexity, so the leaders at QBE began to explore the possibility of using advanced data analytics to help.

The company's initial research yielded a handful of analytics consultancies that failed to articulate a clear vision that could fit well with QBE's objectives. The goal was to provide a scalable process that could holistically address the full range of criteria needed to enable better triage decisions and to back that with a best-in-class toolset that could adapt and improve over time as the volume and complexity of data increased and as new variables entered into the equation.

The team eventually settled on a pur-

pose-built AI/ML solution to help drive the triage process toward greater efficiency. While some members of the team initially expressed skepticism, they have come to understand just how much of an advantage it can be to have an intelligent assistant at hand, making recommendations based on highly refined analysis of cases. Claims adjusters at QBE have even compared the triage system to Siri or Alexa — familiar technology tools that make life substantially easier and vastly improve productivity.

David Bacon, general manager people risk claims (CTP and WC) at QBE, has estimated that his organization will achieve a return on investment of at least 500% — and possibly more. The implementation has been so successful that QBE has since rolled out the same technology to improve its efficiency and effectiveness in handling auto liability claims.

While QBE's experience points to the value of AI/ML in managing large caseloads, the technology is equally applicable for other stages of the claims management value chain. In addition to routing high-risk claims to the most experienced adjusters, AI/ML can also guide claims managers to the medical providers most likely to produce optimal patient outcomes. Furthermore, AI/ML can help insurers to minimize litigation costs by intelligently scoring cases based on overall litigation risk, identifying which attorneys are likely to yield favorable vs. unfavorable results, and alerting claims managers when prompt settlement of a case is likely to produce the best outcome.

## Getting Started with AI/ML

If your organization is exploring AI/ML as a path to increased productivity and improved outcomes in claims management, here are some key considerations to keep in mind:

**Intelligent claims management goes far beyond analytics.** Many observers have a tendency to conflate AI/ML with big data analytics. To be sure, these technologies have common roots in data processing and analysis, and there is considerable overlap in the tools and methodologies required for each of these domains. Unlike analytics, though, AI/ML incorporates continuous improvement; an automated process identifies meaningful variables that might otherwise have been overlooked. In other words, AI/ML gets better over time because it can spot patterns and correlations that might never have been apparent to a human analyst.

**In the insurance industry, unstructured data is critical.** The term “unstructured data” refers to information that lacks a rigid, predetermined format; that is, it does not necessarily conform to a prescribed set of rules. Transactional systems typically record structured data.

Unstructured data, on the other hand, may consist of physician’s notes, written comments within an accident report, or correspondence from attorneys. While it can be significantly more difficult to extract meaning from unstructured data, the value of the information it contains can be critical to understanding the risk profile

of an insurance claim. In fact, some of the most essential information about a claim is often buried deep in the narrative details of unstructured data such as physician’s notes or accident reports. AI/ML systems that lack the capacity to understand unstructured data and factor it into decision processes will be missing a large part of the overall picture.

**Domain expertise matters.** Broadly speaking, AI/ML technologies provide a starting point for building applications to improve results across a variety of domains, including life sciences, industrial applications, environmental sciences and more. Applying AI/ML to improve results in the insurance industry requires specialized domain expertise. Understanding the many nuances of medical and legal terminology, insurance industry regulations, and compliance issues is essential.

**Attention to data quality is essential.** If data quality is substandard, AI/ML has the capacity to deliver faulty conclusions. We are all familiar with the old saying “garbage in, garbage out.” Because AI/ML draws conclusions from the analysis of large-scale datasets, it is critical that data quality measures be implemented to ensure that source data is complete, consistent and accurate. When data is collected from multiple sources — as is the case with insurance claims — it must typically be transformed to conform to a common model for analysis. In other words, systems must at some point be comparing apples to apples. The combination of these two steps,



data quality and normalization, ensure that AI/ML processes are working with clean, accurate, consistent data that will produce meaningful results.

**Include a plan to operationalize the use of AI/ML in your organization.** It is one thing to have AI/ML tools available and populated with sufficiently large datasets so

that they can produce meaningful recommendations for claims managers. Without a plan for implementing and operationalizing those systems, however, it can be challenging to produce the desired outcomes at scale. The effective use of AI/ML in the claims management process requires a well-considered operational framework and rollout plan.

## Build vs. Buy

Whenever a new technology initiative is under consideration, the “build vs. buy” question often arises early in the conversation. Large-scale custom software projects have become less common in recent years, mainly due to the availability of robust commercial software products and the increased integration capabilities of most off-the-shelf software products (including cloud-based SaaS software).

Nevertheless, the question often arises: “Should we build this ourselves?” After all, generic AI/ML capabilities are increasingly available as cloud platform services, embedded within data management and analytics tools and as plug-in software components that make it remarkably easy to incorporate the technology into custom software. It can be tempting, therefore, to pursue a fully customized solution tailored to your organization’s precise requirements.

There are substantial risks inherent in that approach, though; it can often lead to projects that exceed their budget, fall short of providing the promised benefits, and are delivered later than expected. Cus-

tom projects often reveal challenges and complexities that were not fully understood at the outset. In other words, things often turn out to be more difficult than people expected them to be.

Consider some of the challenges inherent in delivering robust AI/ML capabilities in the claims management process. Previously, we mentioned the importance of unstructured data such as physician’s notes and other medical records. The process of deciphering the natural language expressions in such data can be especially problematic. If the patient is experiencing shortness of breath, their physician might record that information in one of many various ways. The doctor’s notes might indicate “difficulty breathing,” “labored breathing,” “hard to get a full breath,” or use the abbreviation “s.o.b.” to indicate shortness of breath. Natural language processing aids in deciphering human language and assigning accurate meaning and context.

AI/ML must also distinguish the many nuances around natural language expression, including negatives. AI/ML algorithms

must understand that when a physician writes “patient did not indicate any s.o.b.,” he or she is indicating the lack of an important symptom. Deciphering medical abbreviations and the layout of information on handwritten forms, likewise, can present significant challenges, requiring the use of optical character recognition (OCR) technology to transform scanned content into machine readable text.

There is a long list of thorny problems associated with correctly interpreting unstructured data and making it available for AI/ML processing. By working with a commercial software vendor that specializes in insurance claims management, those kinds of capabilities are delivered as part of a turnkey solution. Moreover, those capabilities can be expected to improve over the course of time.

In-house projects, in contrast, tend to be built around specific, narrowly defined requirements. As such, they are usually less flexible and adaptable than off-the-shelf

systems. They lack the kind of upgrade path that comes with commercially available software, in which new capabilities are added and technology is updated over time.

Custom projects also impose a long-term commitment for the maintenance and support of a system that no other company in the world is using. If key development personnel depart the organization, critically important knowledge may walk out the door with them when they leave.

Commercial software delivers faster, more predictable results, with considerably lower risk and lower total cost of ownership. In the quest to improve the claims management process, there are distinct benefits to working with an experienced organization that understands the application of AI/ML to the insurance business. Domain expertise, mature algorithms, and a roadmap for continuous improvement provide meaningful advantages.

## The CLARA Analytics Approach

CLARA Analytics improves claims outcomes by combining AI/ML technology with deep domain expertise in the insurance industry and a rich pool of data curated from sources in workers compensation, auto, liability and Medicare cases. We understand how to apply AI/ML to the specific challenges of claims triage, medical case management, and litigation risk mitigation. The result is a powerful tool that is transformative for claims manage-

ment professionals and improves outcomes for insurance carriers, customers and claimants.

Our product suite applies image recognition, deep neural networks, natural language processing, and other AI-based techniques to unlock insights from medical notes, bills and other documents surrounding a claim. AI/ML captures details from unstructured data that can

easily go unnoticed by time-constrained claims management personnel. By capturing such data programmatically, alerts can be raised at the appropriate time, notifying the claims manager of situations that required immediate attention.

CLARA Analytics provides our customers with a four-phase framework for operationalizing these insights at scale. CLARA's customers include companies from the top 25 global insurance carriers to large third-party administrators and self-insured organizations. Our track record proves that CLARA delivers reliable outcomes with rapid return on investment.

CLARA's strong network of partners, such as Capgemini and AON, our strong

financial footing, and our 25-year history of industry-leading innovation distinguishes us as the best-in-class provider of AI/ML solutions for claims management.

The application of AI/ML is driving significant competitive advantage for early adopters in the insurance industry, giving claims management professionals a game-changing tool for greater productivity and effectiveness.

If your organization is exploring AI/ML to improve claims management outcomes, we'd love to help. Contact us to discuss your project and learn more about CLARA Analytics solutions for the insurance industry.

## About CLARA

CLARA Analytics improves claims outcomes in commercial insurance with easy-to-use AI-based products. CLARA's product suite applies image recognition, natural language processing, and other AI-based techniques to unlock insights from medical notes, bills and other documents surrounding a claim. CLARA's predictive insight gives adjusters "AI superpowers" that help them reduce claim costs and optimize outcomes for the carrier,

customer and claimant. CLARA's customers include companies from the top 25 global insurance carriers to large third-party administrators and self-insured organizations.

Founded in 2016, CLARA Analytics is headquartered in California's Silicon Valley.

For more information, visit:  
[www.claraanalytics.com](http://www.claraanalytics.com)



## About the Author



### **Karin Golde, Ph.D.**

Karin Golde, vice president of data science, brings 20 years of practical experience to CLARA Analytics, during which time she honed her capabilities in sentiment analysis, information retrieval, ontology development, and document classification. Previously, Golde built and led large teams with the technical and collaborative skills needed to drive innovation in areas relating to natural language processing, data science, and computer vision.

## Footnotes

1. "From mystery to mastery: Unlocking the business value of artificial intelligence in the insurance industry," Deloitte, 2017. <https://www2.deloitte.com/content/dam/Deloitte/xs/Documents/financial-services/Artificial-Intelligence-in-Insurance.pdf>
2. "Technology Vision for Insurance 2020," Accenture, 2020. [https://www.accenture.com/\\_acnmedia/PDF-120/Accenture-Technology-Vision-for-Insurance-2020-Summary.pdf](https://www.accenture.com/_acnmedia/PDF-120/Accenture-Technology-Vision-for-Insurance-2020-Summary.pdf)