



# Predictive Claims Processing

Transforming the Insurance Claims Life Cycle Using Analytics

WHITE PAPER

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## Introduction

For years, insurance companies have concentrated on improving their operational systems – such as policy, claims and billing. But too often they have neglected the vast amounts of information held within these applications.

Insurance is a data-rich industry, and the claims process is no exception. Huge amounts of information are collected on each claim. Analytics can help insurance companies mine this data to improve their combined ratios and gain competitive advantage.

Claims are by far the biggest expense within a property and casualty (P&C) insurance company. Claims payouts and loss-adjustment expenses can account for up to 80 percent of an insurance company's revenue. So the way an insurance company manages the claims process is fundamental to its profits and long-term sustainability. Equally important is the role claims processing plays in customer satisfaction, renewal and retention.

Unfortunately, the claims process is typically time-consuming and labor-intensive, involving multiple systems, outdated technology and distributed business units. The resulting inconsistent processes delay turnaround times and sap resources, leading to negative customer experiences.

Predictive insurance claims processing, or claims analytics, is a process for analyzing structured and unstructured data at all stages in the claims cycle to make the right decision, at the right time, for the right party. Rather than analyzing one case at a time – based just on the current information available – analytics gives you added perspective. Analytics lets you view an individual claim in context – by comparing it with previous claims settlements in your database.

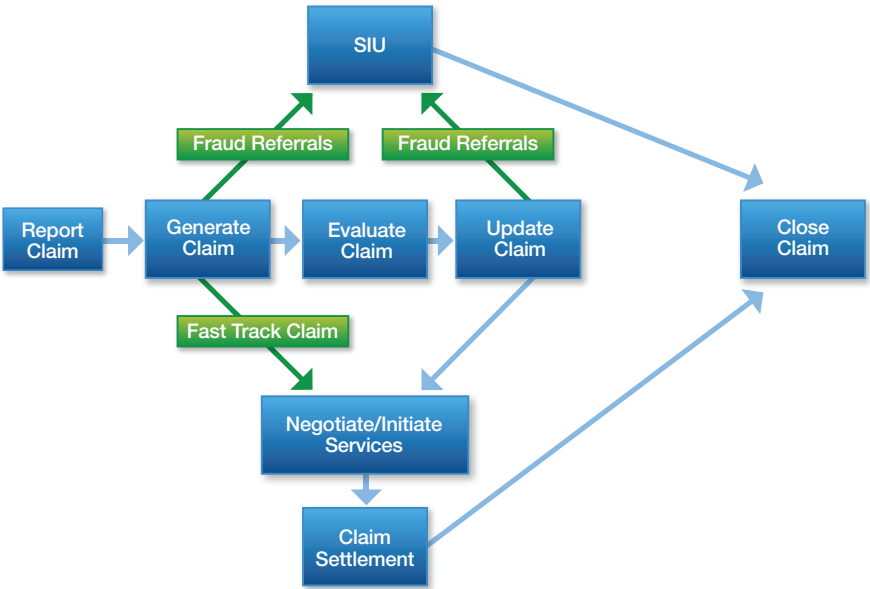


Figure 1: A simplified claims life cycle – from first notice of loss through payout and closure.

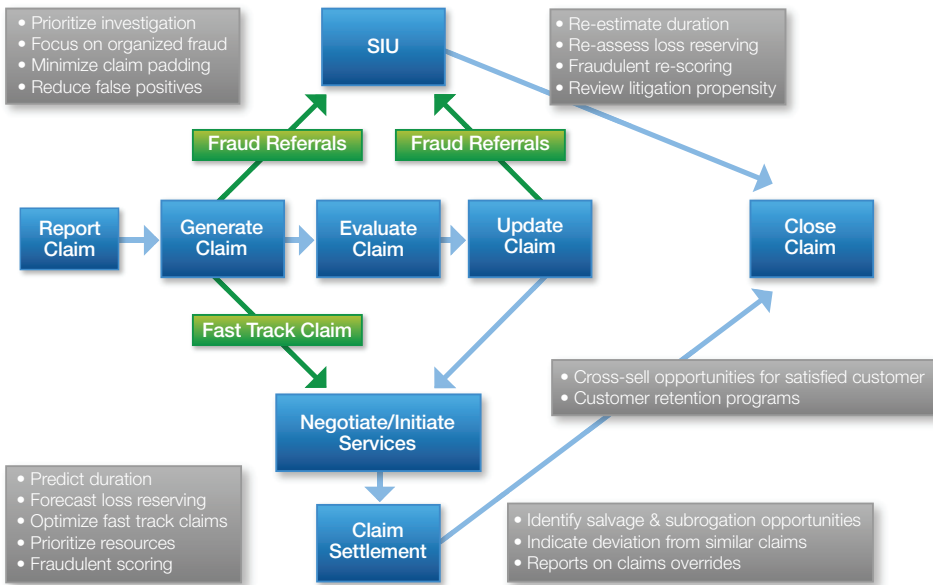


Figure 2: Many areas of the claims life cycle benefit by using SAS Analytics to enhance the process.

There are six main aspects of predictive insurance claims processing:

- Fraud management.
- Recovery optimization.
- Settlement optimization.
- Claims benchmarking.
- Activity optimization.
- Litigation management.

Let's review each of these areas in more detail to see how they are used in the claims process and how they can benefit insurance companies.

## Fraud Management

Estimates show that 10 percent of all insurance claims are fraudulent, and that annual losses due to fraud for the P&C insurance industry total \$30 billion in the US alone. And the problem is growing. According to the National Insurance Crime Bureau (NICB), the number of suspicious claims rose by 16 percent in 2012 compared to the previous year.<sup>1</sup>

<sup>1</sup> Hemenway, Chad. U.S. "Questionable Claims Referrals Up, Again." Property Casualty 360°. [propertycasualty360.com/2013/05/17/us-questionable-claims-referrals-up-again?eNL=51967db0160ba0375b00017c&utm\\_source=PC360DailyNews&utm\\_medium=eNL&utm\\_campaign=PC360\\_eNLs&t=investigative-forensics&\\_LID=72204314](http://propertycasualty360.com/2013/05/17/us-questionable-claims-referrals-up-again?eNL=51967db0160ba0375b00017c&utm_source=PC360DailyNews&utm_medium=eNL&utm_campaign=PC360_eNLs&t=investigative-forensics&_LID=72204314)

Most fraud solutions used today are reactive, based on manual and automatic business rules to detect fraud. Unfortunately, it's easy to learn and manipulate these rules – so a lot of fraud remains undetected.

Insurance companies should implement a real-time or near-real-time analytical engine that calculates the propensity for fraud at each stage of the claims cycle. The fraud analytical engine must use a combination of techniques, including business rules, predictive modeling, text mining, database searches and exception reporting. In addition, insurers should consider social network link analysis technology, which helps detect and prevent organized claims fraud by going beyond transaction and account views to analyze all related activities and relationships at a network dimension on the claim.

Property/Casualty Insurer Saves Big Using SAS® to Identify Fraud

One of the largest property/casualty insurers in the US knew it had an opportunity to do a better job, both in identifying likely fraud and in avoiding the wasted expense of investigating false positives. Using the SAS Fraud Framework for Insurance, the insurer recovered or prevented fraudulent claims totaling more than \$2 million.

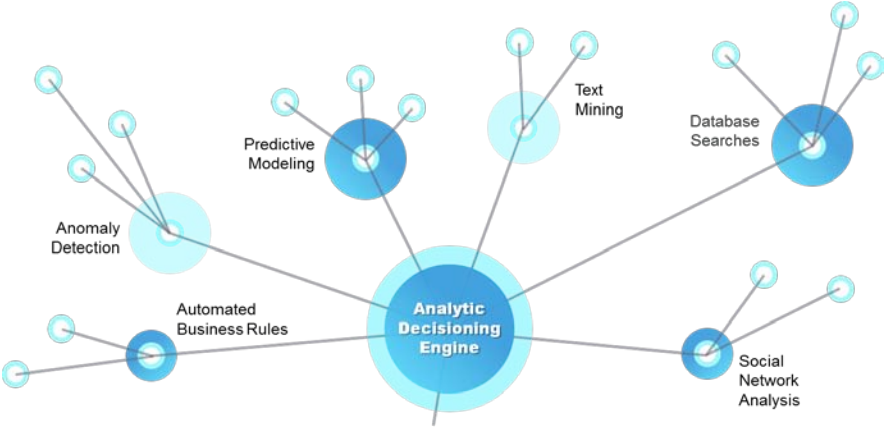


Figure 3: Insurers must implement a hybrid approach to combat both opportunistic and organized claims fraud.

### Recovery Optimization

Opportunities for recovery, whether from salvage, subrogation or third-party recovery, are often obscured by the sheer volume of claims data available. Many recovery opportunities are missed simply because the indicator for a possible recovery is hidden in the claims narrative. These missed opportunities have considerable implications for an insurer's profitability.

### Recovering Claims Losses with SAS®

A major European insurer felt it was missing valuable subrogation opportunities to recover claims losses. By analyzing its claims history data using a combination of SAS predictive modeling and text mining, the insurer saw a 4 percent improvement in subrogation recovery rate.

Recovery optimization scores claims at each stage in the claims life cycle based on known subrogation characteristics, identifying unknown characteristics and optimizing associated activities. Analytics can help determine the cost-effectiveness of the recovery opportunity and optimize the recovery amount if the insurer cannot recover the whole amount. Finally, by using text analytics, insurers can analyze adjuster notes or other unstructured data to find phrases that typically indicate a subrogation case. By pinpointing likely subrogation opportunities earlier, insurers maximize loss recovery and ultimately reduce loss expenses.

## Settlement Optimization

Bringing consistency to the claims settlement process is an important objective – especially for claims managers who are pressured to settle faster, with transparent fairness, while using fewer resources and reducing loss-adjustment expenses. To lower costs and ensure fairness, insurers have implemented fast-track settlement processes that settle claims instantly. But settling a claim on the spot can be costly if the insurer overpays. Any insurance company that has seen a rash of home improvements in an area hit by a natural disaster knows how that works. By analyzing claims and claim histories, companies can optimize the limits for instant payouts.

In a report by J.D. Power and Associates that analyzed claims data,<sup>2</sup> the settlement factor was identified as having the highest influence on overall auto claims satisfaction, at 36 percent (see Figure 4). One of the variables that determines the settlement factor is “time to settle the claim.” Research has shown that the cost of a claim is nearly 40 percent greater if the claimant delays reporting the claim by as few as four days. The JD Power survey also found that settlement payments were taking longer, averaging 14.9 days compared to 13.9 days for the previous year’s survey.

By using analytics, insurers can shorten claims cycle times. Not only does this lead to higher customer satisfaction – it also reduces labor costs. That’s because it helps claims adjusters close claims more quickly and, in turn, process more claims each year. This also ensures significant expense savings on things such as rental cars for automobile repair claims.

<sup>2</sup> J.D. Power and Associates. *2012 Auto Claims Satisfaction Study. Management Discussion. October 2012.* [http://img.en25.com/Web/JDPower/2012\\_ACS\\_MD.pdf](http://img.en25.com/Web/JDPower/2012_ACS_MD.pdf)

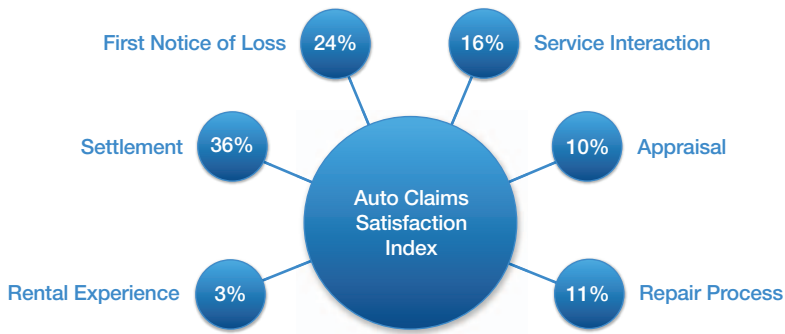


Figure 4: Auto claims satisfaction index (J.D. Power & Associates Auto Claims Satisfaction Study, 2012).

## Claims Benchmarking

The first ongoing problem with managing claims leakage comes down to one simple thing: Insurers have no effective way of predicting the size and duration of a claim when it is first reported. But accurate loss reserving and claims forecasting is essential, especially in long-tail claims like liability and workers' compensation.

Consistent claims management from the beginning of the claim life cycle reduces the need for incremental increases of loss reserve. Analytics can more accurately calculate the loss reserve by comparing a loss with similar claims. Then, whenever the claims data is updated, analytics can reassess the loss reserve. Improved loss reserving accuracy means insurers can move funds from bulk reserves into more flexible investments.

## Activity Optimization

The insurance industry has a shortage of qualified experts – to the point of crisis. Due to this declining number of claims adjusters, it's more important than ever to assign claims to the right resource right from the start.

Typically, claims are assigned to an adjuster at the first notice of loss using business rules based on limited data. This unscientific approach tends to result in high reassignment rates that affect loss adjustment expenses, claim duration, settlement amount and the customer claims experience.

Activity optimization ensures that priority claims receive priority treatment. By implanting data mining techniques to cluster and group loss characteristics (such as loss type, location and time of loss, etc.), claims can be scored, prioritized and assigned to the most appropriate adjuster based on experience and loss type. High severity and more complex cases are assigned to the most qualified adjusters, while low-exposure claims are channeled to less experienced adjusters. In some cases, they can even be automatically adjudicated and settled.

Analytics also helps claims managers to measure the effectiveness of the overall claims handling process, and adjuster efficiency in particular. Traditionally, adjuster productivity was based on an open/closed claims ratio. So the adjuster's objective was to close more claims than were opened each reporting period. Analytics enables insurers to produce key performance indicator (KPI) reports to measure adjuster performance based on customer satisfaction, overridden claims settlements and other related metrics.

## Litigation Management

A significant portion of a company's loss expense ratio goes to defending disputed claims. Every insurer can relate to the typical horror story claim where the passenger of an auto accident broke a finger and walked away with a \$250,000 settlement.

### Reducing Costs by Using Predictive Models

A major Canadian insurance company was concerned about the rising cost of bodily injury claims. Using SAS® Enterprise Miner™, the firm showed that the cost of litigation is a major contributing factor to rising costs in claims settlement. Now the company can analyze its transactional data and create predictive models that forecast which customers are more likely to engage lawyers – resulting in decreased loss adjustment expenses, lower claims settlements and reduced loss ratios.

With litigation optimization, insurers can use analytics to calculate a litigation propensity score. Claims that involve an attorney often double the settlement amount and significantly increase an insurer's expenses. Analytics can help determine which claims are likely to result in litigation. Those claims can be assigned to more senior adjusters who are more likely to be able to settle the claims sooner and for lower amounts.

## SAS® Business Analytics Framework

As insurers seek to improve the complex claims process, it's apparent that one size does not fit all. Insurance companies need to implement a framework that incorporates data integration, advanced analytics and reporting capabilities. The SAS Business Analytics Framework gives insurers the flexibility they need to address the most critical issues right away, while expanding to support future objectives and changing market dynamics.

### Data Integration

The success of any claims analytics project depends on the amount and quality of available data. SAS provides a comprehensive data integration environment that meets the full spectrum of data integration needs. It combines structured and unstructured claims data and provides the integrated, accurate information insurers require. It can:



- Access virtually all data sources.
- Extract, cleanse, transform, conform, aggregate, load and manage data.
- Support data warehousing, migration, synchronization, federation and provisioning initiatives.
- Support both batch-oriented and real-time master data management solutions.
- Create real-time, reusable data integration services to support service-oriented architectures and data governance.

## **Analytics**

Data is the lifeblood of insurance companies. But despite the rich source of data in an insurance company's claims – data that could help speed processes, optimize resources and detect fraud – it's a source that remains largely untapped. SAS Analytics helps to provide insight and to reveal patterns, anomalies, key variables and relationships that can provide competitive advantage. Our unmatched integrated suite of analytics capabilities includes:

- SAS® Enterprise Miner™. SAS Enterprise Miner streamlines the data mining process to create highly accurate predictive and descriptive models based on analyzing vast amounts of data from across the enterprise.
- SAS® Text Miner. Up to three-quarters of claims data is considered unstructured data. SAS Text Miner provides a rich suite of tools for discovering and extracting knowledge from text documents. It transforms text data – such as adjuster notes, police reports and medical records – into a usable, intelligible format that makes it easier to classify documents, find explicit relationships or associations between documents, and cluster documents into categories.

## **Reporting**

Senior claims managers need more and better information about KPIs (e.g., settlements, loss expenses), patterns and trends to benchmark performance against the industry. SAS Visual Analytics gives you this information when you need it, in the right format. By integrating data from across your enterprise and providing self-service reporting capabilities, SAS ensures that information is disseminated throughout the organization quickly and efficiently.

## **Business Solutions**

Organizational and industry-specific SAS solutions address issues that are common to all organizations. These packaged solutions incorporate the combined strengths of SAS software with our domain and industry expertise, professional services, training and ongoing support.

These business solutions include the SAS® Fraud Framework for Insurance, which is an end-to-end solution for detecting, preventing and managing claims fraud across multiple lines of business. The framework includes components for detection, alert management and case management, along with a category-specific workflow, content management and advanced analytics. These components are fully integrated with SAS Social Network Analysis, a solution that offers both top-down and bottom-up functionality for making hidden and risky networks visible to investigators. The SAS approach enhances fraud detection and improves operational efficiency while decreasing fraud spending from a total cost of ownership perspective.

## Conclusion

As insurance becomes a commodity, carriers need to consider how they can differentiate themselves from competitors. Adding analytics to the claims life cycle can deliver a measurable ROI with cost savings and increased profits; just a 1 percent improvement in the claims ratio for a \$1 billion insurer is worth more than \$7 million on the bottom line. Claims analytics also deliver intangible benefits, such as improved customer satisfaction. And that is a win-win arrangement for both the customer and the insurance carrier.

## For More Information

Learn more about SAS solutions for insurance: [sas.com/insurance](https://sas.com/insurance)

Visit the Analytic Insurer blog: [blogs.sas.com/content/insurance](https://blogs.sas.com/content/insurance)

## About SAS

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