

# Predictive Analytics for Insurance

*How to grow your customer base, prevent fraud  
and improve profitability*



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## Highlights

Predictive analytics helps insurers gain insights from their business data so they can improve customer retention and growth, fraud detection and prevention, risk-based pricing, agent management and the overall customer experience.

In this white paper, you will learn the basics of predictive analytics and how insurance companies are using this technology to drive success across their most critical functional areas.

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These are challenging times for the insurance industry. In the wake of the global financial crisis, many insurers are facing change and uncertainty as they seek out the most cost-effective ways to conduct business. Customer expectations are rapidly changing as consumers become more savvy, price sensitive and far less loyal. At the same time, insurers are attempting to reduce expenses through cost transformation, while fiercely battling competitors to win new clients and retain existing ones.

In this volatile market, customer churn and insurance claims losses can quickly overwhelm insurance providers. That's why insurers are adopting a new way of harnessing their volumes of customer and business information to move ahead. Instead of using this data merely as a historical record of what has happened, they are now analyzing it to reliably predict what will happen next. Instead of looking in the rear view mirror, they are turning their focus forward to gain an accurate view of the road ahead.

The science that has made this shift possible is called predictive analytics. Predictive analytics employs advanced analytical algorithms to process historical data and create models that can make predictions about future outcomes. More simply put, it helps insurance providers answer their most critical questions: How are we doing? Why? What should we be doing?

In this white paper, you learn how predictive analytics is being applied across the functional areas that drive success, the benefits it delivers and the IBM technologies that make it possible.



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## Predictive analytics in action

Corona Direct, Belgium's second largest direct insurance company, used predictive analytics to significantly improve the efficiency and effectiveness of its marketing campaigns.

The technology helped Corona Direct reduce its campaigns costs by 30 percent, increase long-term customer profitability by 20 percent and achieve payback on its investment in predictive analytics in only six months.

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## Transforming data into predictive insights

Insurance providers have access to massive volumes of information about their customers and the organization. However, much of this information and the insight into business outcomes it contains, is unused or not leveraged to its full advantage. Predictive analytics harnesses this organizational data to solve problems, improve performance and drive better business outcomes. According to a study from analyst firm IDC<sup>1</sup>, the median ROI for analytics projects that incorporated predictive technologies is 145 percent compared with a median ROI of 89 percent for projects that did not.

Predictive analytics helps insurers unlock valuable insights about both customers and the overall business that can be deployed and leveraged across their entire network of employees. For example:

- An **insurance executive** could be alerted by Key Performance Predictors (KPPs) to potential issues before they became a problem.
- A **marketing or sales manager** could identify at-risk customers before they leave and predict the right offer to get them to stay.
- A **claims manager** could proactively triage claims and ensure the right resources are applied at the right time or identify potential fraud or subrogation opportunities earlier.

In traditional analysis, insurers work with a snapshot of both current and historical data. Valuable insights and metrics – such as KPIs – can be obtained, but it's fundamentally a “rearview mirror” approach. Also, if insurers see something of interest and want to explore what's behind it, it's up to them to take the initiative to find potential causes or solutions.

Predictive analytics works with the same historical data, but uses algorithms to explore the data in the context of a business issue and ‘discover’ the relevant patterns and causal relationships. For instance, predictive analytics can determine which customers are most likely to leave, which claims pose minimal risk and are safe to accelerate to resolution, or which customers would be receptive to a cross-sell marketing campaign.

These predictive models are then applied to current or new cases, such as a new policy application, a new claim being filed, or a customer policy that is coming up for renewal. They use new data and historical information to make predictions that guide best actions for each case and thereby generate better outcomes within key business processes. With each iteration, the predictive model grows stronger and more effective. New data enters the loop, insights about probable outcomes are honed, actual outcomes are recorded and predictive models become more accurate and reliable.

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## Predictive analytics in action

Infinity Property & Casualty Corporation used predictive analytics to reduce payments on fraudulent claims and improve its ability to collect payments from other insurance companies.

Infinity achieved a payback on its predictive analytics investment in only three months, gained an annual ROI of 403 percent for direct and indirect benefits, and directly reduced claims leakage, thereby reducing the cost of claims payments.

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*“There are thousands of data points that are captured in our claims systems on a daily basis. To have the capability with predictive analytics to systematically evaluate each and every piece of data, versus rely on human intervention to accomplish, is a game changer.”*

— Tony Smarrelli, vice president, national operations, Infinity Property & Casualty Corporation

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Now let’s take a closer look at how predictive analytics provides value to insurers in five key areas for success: customer retention and growth, claims management, risk-based pricing, agent management and superior customer experience.

## Customer retention and growth

Because the cost of attracting and underwriting new customers is many times more than the cost of keeping current customers, customer retention is a high priority for most insurance companies. With high customer churn levels across many insurance products and geographies, it is critical for insurers to identify at-risk customers as early as possible, while there is still time to take the necessary actions to retain them. By integrating predictive analytics into customer retention strategies, insurers can provide the early warning that agents, call center representatives and other employees need to keep their best customers longer and improve customer lifetime value. Predictive analytics provides the ability to:

- Discover policy termination patterns and profiles of customer who leave for a deeper understanding of why they left
- Predict future customer value to determine if you want to retain an at-risk customer, and at what cost
- Predict what offer or service would prevent a customer from switching insurers, and what price will cover your risk of insuring that customer for another term

Likewise, integrating predictive analytics into customer profitability strategies uncovers complex purchasing behaviors, identifies events that predict policyholder needs, and increases marketing effectiveness by isolating the best targets and best offers for customer microsegments. These analytic insights also help insurers capitalize on opportunities at each customer interaction point whether it’s through agents, call centers, by email or online. Predictive analytics gives insurers the tools to:

- Alert agents and other customer facing employees to opportunities as they occur – by integrating predictive insights into customer interaction systems and processes
- Monitor customer behavior for events that indicate potential needs – and provide the right cross-sell or up-sell offer in real time
- Automatically choose the best delivery channel for each offer and customer to increase acceptance

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## Predictive analytics in action

Swedish insurer Länsförsäkringar turned to predictive analytics as a way to take the subjectivity out of its marketing campaigns, and instead use fact-based customer behavior to drive tactics and strategy.

Länsförsäkringar more than doubled its response rate for one auto insurance campaign, jumping from 6 percent to 15 percent. It also improved the efficiency of its analyst team, accelerating the completion of analytic projects from one week to a day and a half. Thanks to predictive analytics, the insurer can now identify 700,000 business opportunities every day.

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## Claims management

Predictive analytics is a particularly powerful resource for determining how to treat an individual claim at every stage of the claims lifecycle. It can be used to ‘right track’ claims, instantly identifying simple claims for quick approval and flagging suspicious claims for follow up. Fast tracking of simple claims improves customer satisfaction and can help improve loyalty. Plus, with quicker identification of claims that require additional investigation, firms can significantly reduce unnecessary, inflated or fraudulent payouts. These critical capabilities help insurers increase their profitability by giving them the ability to:

- Resolve legitimate claims more quickly
- Assign the right resources to the right claim at the right time
- Automatically detect new forms of fraud through analytics that “learn” from data
- Determine if individual claims should be forwarded to a special investigative unit
- Analyze textual claim data such as accident descriptions for indicators of fraudulent behavior
- Determine if a claim will involve a legal dispute
- Determine if a claim can be recovered from a third party insurer

Because claim payouts and loss adjustment expenses represent a significant portion of insurance expenses, the optimization of claims handling through predictive analytics can generate dramatic benefits for an insurer’s bottom line.

## Risk-based pricing

Insurance carriers typically apply broad-brush business rules to quote new policy applications or policy renewals. By more accurately assessing the risk of an individual applicant, the carrier is able to underwrite to a profit. Predictive analytics provides deep insight into the variables and interrelationships that define risk, so insurers can craft premiums and coverage that are the best fit for customers’ needs and most financially rewarding for the company.

Carriers that do not apply advanced analytics to their pricing strategies have the double disadvantage of overcharging good customers, leading to low satisfaction and increased churn, and undercharging for potentially bad customers, leading to unacceptable exposure. Predictive analytics enables insurers to perform deeper analyses of risk, allowing for many more optimized price points. This helps reduce underwriting leakage and retention risks, while increasing profitability for each individual customer.

## Agent management

Intermediaries such as agents and brokers remain a major route to market for insurance carriers. Relationships with these stakeholders can be improved through the use of predictive analytics from two perspectives; growing the business and managing interactions.

Carriers have a broader perspective of customers than the individual agent. This insight can be provided to sales representatives in the field to help agents win and keep more business. For example, the carrier could predict the best cross-sell leads for an individual agent, and the best offer for each customer.

Carriers can also analyze agent attributes and use models to predict the most effective ways to increase agent retention, manage risk and control costs. Larger carriers can also use analytics to give managing agents deep insight into their network of sub-agents, helping them to determine how to increase revenue and motivate better performance.

By deploying the insights of predictive analytics to the wider community of agents and brokers, carriers provide a powerful resource for growing and retaining customers and improving agent productivity. And that creates a stronger, more profitable relationship for both the company and the front-line sales representative.

### **Superior customer experience**

Filing an insurance claim is the moment of truth in the relationship between an individual and their insurance company. Similarly, other interactions such as taking out a new policy, renewing a policy or making administrative changes to a policy have the power to “make or break” the relationship with a customer. With predictive analytics, insurers can accurately measure how the customer experiences these interactions and relate that experience to customer decisions such as policy renewal, uptake of additional products and services and positive or negative feedback. Gathering and leveraging this information helps insurers understand where to make improvements that will eliminate customer dissatisfiers and strengthen areas of competitive differentiation.

By doing this, insurers can intercept customer satisfaction issues before they spiral out of control and take actions to improve customer loyalty and boost retention. Predictive analytics makes it possible to take advantage of data from every customer interaction – web data, claims data, and unstructured text data from social media, emails and call center scripts. These predictive capabilities become even more beneficial when insurers proactively go out and ask customers about their experience through survey research or other feedback mechanisms, providing rich insights that will help ensure a superior customer experience.

### **IBM SPSS predictive analytics solutions for insurance**

Around the world, leading insurance companies rely on IBM SPSS predictive analytics solutions to grow and retain customers, prevent fraud, increase customer satisfaction, accelerate productivity and improve profitability. The four product families of the IBM SPSS software suite offer comprehensive capabilities for achieving the full benefits of predictive analytics.

### **Data Collection: Discover what customers want**

The IBM® SPSS® Data Collection product family helps you easily conduct customer research across multiple touch points including web, phone and in-person in any language. Powerful yet easy to use, Data Collection gives you the ability to collect feedback throughout the customer lifecycle so you can create personalized and timely interactions that generate better outcomes. Because deep customer insights are essential for growing and retaining customers, effective research is a key capability. It empowers you to go beyond demographic or transactional data and gather valuable attitudinal data. These are the thoughts and opinions that will help you understand the “why behind the what” – such as why customers buy your policies, why they prefer certain features, why they might consider defecting to competitor, why they will or won’t respond to promotions or marketing campaigns.

### **Statistics: Analyze your customer data**

After capturing attitudinal data with Data Collection, you can combine that with demographic and behavioral data in your customer database and analyze it with the IBM® SPSS® Statistics family of products to extract even more insights. IBM SPSS Statistics provides a comprehensive set of tools to help users of all skill levels transform data into actionable insights that drive customer intimacy. For example you can perform analyses that identify your most valuable customers, segment customers into different target groups, analyze different customer actions and attributes to measure satisfaction, or determine the best targets for up sell campaigns. As the world’s leading statistical software suite, IBM SPSS Statistics is easy to use and provides the capabilities to take on any analytical task.

### **Modeling: Apply the power of prediction**

The ability to anticipate what customers want and will do next is an essential component of applying predictive analytics in the insurance industry. The IBM® SPSS® Modeler product family puts the power of prediction directly in your hands, even if you are a business user without advanced technical skills. This versatile data and text analytics workbench enables you to build powerful predictive models from a wide variety of data sources including research data from Data Collection, analytic results from Statistics, and unstructured text data. You can use these predictive models to anticipate a wide range of customer behaviors in order act quickly and effectively on new opportunities. For example, you can use this technology to determine:

- Which customers are most likely to leave
- Which customers would be receptive to cross-sell or up-sell initiatives
- How to create targeted marketing campaigns for microsegments based on behavior and not just demographics.

### **Deployment: Execute, optimize and automate**

The final and, perhaps, most critical phase of using predictive analytics is ensuring that analytic results and predictive insights reach the people, processes and systems that touch your customers. That's where the IBM® SPSS® Deployment product family comes in. It delivers the predictive insights from the Data Collection, Statistics and Modeler families to your front-line systems and decision-makers. IBM® SPSS® Decision Management is an exceptionally effective resource for optimizing this process. It draws on both predictive models and business rules to generate recommended actions, and builds a "closed loop" system that feeds the results of today's customer interactions into the models that recommend and drive tomorrow's. By optimizing and automating decisions, it helps insurers retain customers, grow revenue and drive profits by creating a personalized approach to every customer and prospect – whether they interact with you by phone, web, point-of-sale or email.

### **Conclusion**

Predictive analytics helps insurance providers move beyond the "rearview mirror" approach of traditional data analysis. With analytic-based foresight, executives can make more informed decisions about what they should do next. By uncovering hidden patterns and trends in business data, it enables insurers to take actions that improve customer retention and growth, fraud detection and prevention, risk-based pricing, agent management and the overall customer experience.

To learn more about how IBM business analytics solutions can help your organization achieve its business goals, please visit:  
[www.ibm.com/software/analytics/insurance](http://www.ibm.com/software/analytics/insurance)

### **About IBM Business Analytics**

IBM Business Analytics software delivers complete, consistent and accurate information that decision-makers trust to improve business performance. A comprehensive portfolio of business intelligence, advanced analytics, financial performance and strategy management and analytic applications gives you clear, immediate and actionable insights into current performance and the ability to predict future outcomes.

Combined with rich industry solutions, proven practices and professional services, organizations of every size can drive the highest IT productivity and deliver better results.

As part of this portfolio, IBM SPSS Predictive Analytics software helps organizations predict future events and proactively act upon that insight to drive better business outcomes. Commercial, government and academic customers worldwide rely on IBM SPSS technology as a competitive advantage in attracting, retaining and growing customers, while reducing fraud and mitigating risk. By incorporating IBM SPSS software into their daily operations, organizations become predictive

enterprises – able to direct and automate decisions to meet business goals and achieve measurable competitive advantage. For further information or to reach a representative visit [www.ibm.com/spss](http://www.ibm.com/spss).

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1 Source: IDC, “Predictive Analytics and ROI: Lessons from IDC’s Financial Impact Study”  
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