**Executive Summary**

This executive report makes the case for applying predictive analytics to achieve the objectives of insurance claims management professionals. A predictive analytics-based solution for claims management:

- Improves the three key claims management objectives to provide a superior customer experience, to achieve operational excellence and to manage risk
- Helps strike the appropriate balance between these three objectives
- Enables a “predict and act” approach that is the basis for the highest quality of business decision making
- Delivers measurable and proven ROI
- Is applicable to a wide range of decisions in claims management
- Applies analytics at the point of decision making
- Leverages the data you already have
- Makes your existing systems smarter
- Uses a pragmatic “journey” approach
Introduction
Claims management professionals have to deal daily with formidable, and sometimes competing, challenges:

- **How to deliver a superior customer experience** – filing a claim is perhaps the single most important of all “Moments of Truth” in the relationship between insurer and insured and lays the foundation for customer retention, growth of customer value and positive word-of-mouth. Insurers that do not accurately understand the relationship between key customer actions (such as policy renewals, buying additional products and services and referrals) and how their customers experience interacting with them, risk investing inappropriately in initiatives for improving operational processes, customer relationships or risk management.

- **How to achieve operational excellence and cost containment** – claim payouts and Loss Adjustment Expenses represent a significant portion of all insurance expenses so any improvements have a very visible effect on the insurer’s bottom line. Insurers that fail to make accurate decisions in, for example, the “right-tracking” of claims, suffer unnecessary costs and worsened combined ratios in comparison to peers that do.

- **How to manage the risks** inherent to the insurance business – Insurers that fail to detect and avoid unnecessary payments from fraud or fail to recover paid claims from third party liability represent an “easy target” which, in addition to damage to the corporate reputation, also leads to unnecessary costs and worsened combined ratio.

Predictive analytics can help improve each of these three outcomes individually:

- It helps insurers gather information about each customer’s attitudes and preferences, apply a range of analytical techniques to deeply analyze both structured and unstructured data, and apply advanced algorithms to determine the best course of action for every individual customer to optimize investments in customer retention, cross-selling and operational efficiency.

- It applies advanced algorithms to help insurers identify as early as possible if a claim will require specific resources such as senior handling teams, litigation support or third party services such as external assessors or a rental car agency. Based on this assessment, insurers can assign exactly the right resources at exactly the right time.

- It applies advanced algorithms to help insurers identify as early as possible where the company can minimize fraud and unnecessary payments and maximize recovery from third parties.

But, more importantly, it can help strike the right balance between these three objectives. Imagine that for each new claim, you could make the following assessments:

- How likely is it that this policy holder will cancel their policy at the next renewal?
- How likely is it that this claim will require our senior handlers to get involved?
- How likely is it that we will be able to avoid full or partial payment because of fraud?

If you had that information available, how would you change the way you deal with each claim compared to how you currently work?

The following figure shows some examples of ways to differentiate your claim treatment based on the combination of these three factors:
Predictive Analytics Defined

Predictive analytics helps connect data to effective action by drawing reliable conclusions about current conditions and future events. It enables organizations to make predictions and then proactively act upon that insight to drive better business outcomes and achieve measurable competitive advantage.

Together with other business analytics capabilities, it allows organizations to adopt a “predict and act” approach to business decision making by answering three key questions:

- **How are we doing?** – Answering this question requires combining two perspectives: how does an organization think it’s doing as well as how its customers think the organization is doing. This combined insight needs to be made available widely within the organization.

- **Why?** – Using a wide range of analytical techniques, this question can be answered by digging deep in the evidence that is contained in your organizations data through two complementary approaches: user driven top down analytics and data driven bottom up analytics.

- **What should we be doing?** – Answering this question involves optimizing both at the individual claim level as well as at the portfolio level. This optimization needs to happen at the point of impact, which often means directly embedded in the claims management process.

Historically, decisions have been made on the basis of anecdotal experience, or hunches, of seasoned domain experts. These “gut feel” decisions, though, are subjective and often inconsistent, thereby limiting their value.

Having the need to standardize key decisions and make them more consistent and reliable, many organizations have moved toward automated decision-making by using business rules. Although this automation provides a degree of efficiency and objective consistency, and improves the collective quality of decisions, static rules quickly obsolesce in ever-changing situations and conditions, and the limits of this approach become apparent.

Predictive decision-making, based on analysis of historical patterns and current conditions, is the basis for the highest quality means of making decisions. The reasons are because the models consider all available data and continuously adapt to new information, becoming smarter over time.

With predictive analytics, the right decision for the given conditions can be made at the point of impact at the time when the decision needs to be made. Decisions are customized for each unique case, rather than using generalizations for the aggregate.

Proven ROI from Predictive Analytics

The power of predictive analytics in driving optimal outcomes and profitable revenue growth is clearly demonstrated by organizations that deploy predictive solutions. An independent financial impact study by IDC found that the median return on investment (ROI) for the projects that incorporated predictive technologies was 145 percent, compared with a median ROI of 89 percent for those projects that did not.

An independent assessment of IBM SPSS customers found that 94 percent achieved a positive ROI with an average payback period of 10.7 months. Returns were achieved through reduced costs, increased productivity, increased employee and customer satisfaction, and greater visibility. Flexibility, performance, and price were all key factors in purchase decisions.

Infinity Property & Casualty Corporation (IPACC) deployed IBM SPSS solutions to reduce its payments on fraudulent claims and improve its ability to collect payments from other insurance companies. An independent assessment of the ROI achieved shows the following impressive results:

- ROI: 403 percent
- Payback: 3 months

The IBM SPSS solution was chosen for a number of reasons, including:

- It could be deployed on an on-premise basis, and IPACC wanted to maintain sole ownership of both the deployment and the underlying data.
- The IBM SPSS platform could be expanded beyond claims management and could also be used for other insurance-specific functions including predictive models for pricing strategies, marketing strategies, product and agency management, and customer retention. Use of this solution could also be expanded over time to support broader collection of data from different sources for analysis.
- Although purpose-built for the insurance industry, it could readily be customized to accommodate IPACC’s workflows and preferences.
Improving Decisions in the Claims Management Process

As demonstrated by the Infinity case study, there are many decisions in the claims management process that can benefit from the foresight that predictive analytics provides. The figure below shows a simplified claims process flow, and highlights examples of decisions that predictive analytics can help improve:

Figure 1: The sample decision points in red in the figure above are described in more detail in the table on the next page:
Typically, an insurer would start with maybe one or two of these decision points and subsequently extend the use of predictive analytics to all relevant points in the claims process. Using such a pragmatic “journey” approach is recommended as opposed to a “big bang” approach.

### KPI Claims management challenges Decisions impacting those challenges How predictive analytics helps

<table>
<thead>
<tr>
<th>KPI</th>
<th>Challenges</th>
<th>Impacting Decisions</th>
<th>Helps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reserve Adequacy</td>
<td>I need to control reserve creep without increasing my risk exposure</td>
<td>What is the right amount to reserve for an individual claim?</td>
<td>Suggest the reserve amount most appropriate given the full set of claim characteristics</td>
</tr>
<tr>
<td>LAE</td>
<td>I need to reduce handling expenses but I cannot just automate all claims</td>
<td>Which resource is best placed to deal with an individual claim?</td>
<td>Identify the right resources at the right time</td>
</tr>
<tr>
<td>LAE</td>
<td>I cannot use 3rd party resources (such as an assessor or legal assistance)</td>
<td>Should I assign this claim to an outside party?</td>
<td>Identify which claims are likely to require external resources later on in the handling process</td>
</tr>
<tr>
<td>Fraud Avoided</td>
<td>I need to reduce unnecessary payouts but I cannot investigate every claim for fraud</td>
<td>Should I investigate this claim?</td>
<td>Identify claims with the highest likelihood of avoiding (full or partial) payout</td>
</tr>
<tr>
<td>Investigator Efficiency</td>
<td>I cannot investigate all the claims that are referred</td>
<td>Which ones should I investigate first?</td>
<td>Identify referrals with the highest likelihood of a successful investigation outcome</td>
</tr>
<tr>
<td>Amount Subrogated</td>
<td>I need to maximize the amount recovered from 3rd parties but I don’t have the capacity to chase every claim</td>
<td>Should I subrogate this claim? Which ones should I chase first?</td>
<td>Identify the claims with the highest likelihood of successful recovery</td>
</tr>
<tr>
<td>Number of Products per Policyholder</td>
<td>I need to make the most of the customer contact a claim offers me, but I cannot randomly make offers to customers</td>
<td>Should I make this customer a cross-sell or retention offer?</td>
<td>Identify the offer with the highest likelihood of being accepted by the customer</td>
</tr>
<tr>
<td>Customer Retention</td>
<td>I need to improve the customer experience but I cannot invest in everything</td>
<td>Should I invest in this proposal to improve the customer experience?</td>
<td>Identify accurately which customer dissatisfiers are the strongest drivers of policy cancellations</td>
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Table 1. Improving claims management outcomes with predictive analytics – some examples
**Technology Components**

The figure below extends the process flow to include the technology components that are combined to optimize claim management outcomes with predictive analytics:

*Figure 2: A short description of the components is provided in the table on the next page, using the numbered circles as references.*
<table>
<thead>
<tr>
<th>Number</th>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Information Management</td>
<td>Create a trusted information platform, “one version of the truth”, bringing together the various disparate data sources required.</td>
</tr>
<tr>
<td>2</td>
<td>Text Analytics</td>
<td>Extract actionable insight from non-structured data sources such as claim handler notes, assessor reports, investigator notes, customer emails or customer service notes.</td>
</tr>
<tr>
<td>3</td>
<td>Predictive Modeling</td>
<td>Use the evidence captured in your (structured and non-structured) data to create predictive models that can be applied to bring foresight to new claims as they are being filed.</td>
</tr>
<tr>
<td>4</td>
<td>Decision Management</td>
<td>Enable business users to apply predictive models and business rules to the decisions they are responsible for.</td>
</tr>
<tr>
<td>5</td>
<td>Enterprise Integration</td>
<td>Applies the decision logic at the point of decision making by integrating it into your operational processes and systems, in batch or real time as dictated by the business process.</td>
</tr>
<tr>
<td>6</td>
<td>Collecting Attitudinal Data</td>
<td>Measure the customer’s experience with the claims process through targeted questionnaires and integrate with other data</td>
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<tr>
<td>7</td>
<td>Business Intelligence</td>
<td>Provide information to all levels of an organization how, when, and where they need it to make faster and better aligned decisions</td>
</tr>
<tr>
<td>8</td>
<td>Asset &amp; Process Management</td>
<td>Manage analytical assets and automate analytical processes (such as refreshing models on new data or automated daily batch scoring).</td>
</tr>
</tbody>
</table>

Table 2. Technology components in a predictive analytics solution for claims management

IBM is uniquely positioned to deliver this technology stack, as the only company leading the market in all of these categories.

**Making Your Existing Systems Smarter**

Optimizing your claims handling decisions typically doesn’t require you to “rip and replace” your existing claims handling system. Your existing system can be leveraged and made much more effective by having it work together with a predictive analytics engine that assesses each claim and communicates the recommended action. From there on, the claims handling system can continue the process.

The figure below shows a demo claims system with an alert (highlighted in red) based on the assessment of this claim using predictive analytics. In this case, the claim has a likelihood of being fraudulent and the insurance company in question has decided that when that happens, the claim should be investigated.

**Further Reading**

The following may be of interested for more details on what is presented in this document:


About IBM Business Analytics

IBM Business Analytics software delivers actionable insights decision-makers need to achieve better business performance. IBM offers a comprehensive, unified portfolio of business intelligence, predictive and advanced analytics, financial performance and strategy management, governance, risk and compliance and analytic applications.

With IBM software, companies can spot trends, patterns and anomalies, compare “what if” scenarios, predict potential threats and opportunities, identify and manage key business risks and plan, budget and forecast resources. With these deep analytic capabilities our customers around the world can better understand, anticipate and shape business outcomes.

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To request a call or to ask a question, go to ibm.com/business-analytics/contactus. An IBM representative will respond to your enquiry within two business days.