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Data Analysis for Insurance
Providing greater depth and
insight through technology



Insurance Industry Outlook:

China marketplace continues to experience phenomenal growth, but not without pressure for bottom-line results

What are China life and property, casualty, and annuity companies up against in the challenging year and decade ahead? What hurdles must they clear to win the race against their competition? What operational enhancements, distribution solutions and tech upgrades should carriers consider to position their organizations so they have a better chance of succeeding over the long haul?

With the surge in the customer base, China insurers face fundamental, potentially game-changing developments threatening their long-term ability to achieve top- and bottom-line growth. The Chinese insurance market enjoyed excellent growth in recent years, but now insurers and regulators are interested in protecting their business into the future by enhancing business infrastructure and improving risk management. The good news is that insurers also have a number of strategic options and support tools available to implement the correct structure, and not just to survive, but to prosper profitably. Leading-edge carriers are responding proactively to these critical challenges in a variety of ways, employing new policies, practices and products to bolster their operational efficiency and effectiveness. Among the key areas of focus for insurers:

- **Positioning for growth.**

An increase in customer counts can sometimes mask real issues preventing profitable growth: product pricing issues, lower investment returns, higher expenses, etc. This could prevent a company from achieving its full potential, making profitability elusive, particularly for carriers that merely try to maintain the status quo rather than experiment and innovate.

- **Business optimization.**

Customers and business partners are looking for simpler ways to do business, and management at insurers are looking for ways to better understand the composition and nature of costs in order to identify, quantify and prioritize savings opportunities. Insurers are interested in improving their operations based on what they learn from the numbers they collect.

- **Managing for risk.**

Beyond data management, the use of advanced analytics, predictive models, underwriting and claims fraud software, and other technology tools could make the difference between success and failure for many insurers.

Responding Proactively to Critical Changes

Employing New Policies, Practices and Products

There is a middle class in China that has been historically underserved in their insurance needs, from basic property and casualty to life, health, and retirement. This underserved market has fed top-line growth in recent years, with China insurers pursuing aggressive growth strategies, but these strategies have not been focused on the bottom line; thus, profits have suffered. Moreover, multinational insurers have real competitive advantages over their Chinese counterparts, particularly in business management, underwriting, product development, claims, technology, distribution and channel management, risk management, financial reporting, and customer service.

That said, insurers in China need to take action now by positioning for growth, optimizing business processes and managing risk aggressively. Some of the key levers in implementing this long-term view to business management include:

Positioning for Growth

In China, gains for life insurers have come from sales of the simplest products, as consumers seek to cover their basic risks with the cheapest coverage available. Multinationals are adapting by offering more

hybrid products, such as including a long-term care option on life insurance policies. As consumers in China become more aware of options, interest in life insurance, and perhaps annuities as well, could be increased if carriers effectively call attention to the ongoing challenge of protecting one's family and adequately financing one's retirement. In order to better position for growth, carriers can focus on:

- Improving the "customer experience" and meeting new customer expectations;
- Developing new products to serve new customers and markets;
- Expanding distribution channels; and
- Differentiating the value propositions for agents/producers.

Business Optimization

The recent focus of companies in China has been on strategic growth, often resulting in a reduced focus on processes and operational effectiveness;

Successful companies understand that financial strength is built from a cohesive and well managed operational platform. As organizations face slowed growth and higher operating costs, these inefficiencies become major risks.

Driving out process inefficiencies improves costs and the company's position for future growth, and can work in the following areas:

- Improving the efficiency of claims processing
- Enabling "ease of use" for customers, agents/producers and underwriters
- Implementing more strategic sourcing, consolidation of suppliers, and improved purchase execution
- Implementing responsible, insightful financial reporting and performance measurement

Managing Risk

Preventive controls and measures can be configured to address the dual business requirements of managing risk and maximizing profits. In order to efficiently address risks and better position for growth, carriers can focus on:

- Enhancing risk selection and pricing;
- Identifying high risk claims for potential fraud
- Improving the efficiency of claims processing

Deloitte Analytics: Benefits to Insurers

Our Success Comes From the Combination of Deep Industry Knowledge and Technical Sophistication

How to Deploy New Policies, Practices and Products: Focused Insight

We believe the right business analytics create a competitive advantage that drives material benefits to the bottom line.

Three powerful trends are driving the adoption of business analytics:

- An unforgiving demand for consistent performance
- Dual wake-up calls around the need to proactively manage risk in an increasingly more stringent regulatory environment
- Exponentially increasing amounts of data to process, comprehend, and react to

The Use Of Analytics to Drive Competitive Advantage in Insurance is Expanding Across the Globe

Insurers are realizing that, to compete, they need the ability to:

- **Use** information to drive innovation and competitive advantage
- **Access** information tools that can help measure and improve enterprise-wide performance
- **Identify** insights from data that can drive more value from business and IT investments
- **Leverage** information to manage risk, improve compliance, and drive business outcomes

How We Help: Deep Industry Business Knowledge

Successful business analytics requires three powerful engines: deep sector knowledge, broad functional capabilities and a high degree of technical sophistication. Deloitte brings a big-picture approach, combining each of these strengths to provide unmatched services.

Advanced Analytics — Insurance Sector

| | Business Imperative | Business Strategy | Deloitte Solution |
|---|--|-------------------------------------|--|
| Advanced Analytics, including predictive analytics, provide solutions to enable business strategies for success across the enterprise | <ul style="list-style-type: none"> • Reduced underwriting costs and increased efficiency • Improved underwriting management • Improved pricing precision • Enhanced risk selection capabilities | Underwriting Excellence | <ul style="list-style-type: none"> • Underwriting Model to focus on high-risk, complex applicants • Price Optimization Analytics to identify demand elasticity of products within segments, and model competitive and marketplace response to actions |
| | <ul style="list-style-type: none"> • Reduced transaction costs • Straight through processing • Improved ease of doing business | Operational Efficiency | <ul style="list-style-type: none"> • Algorithmic Solutions streamline the underwriting process by reducing the number of requirements needed and allowing underwriters to focus on high-risk, complex applicants |
| | <ul style="list-style-type: none"> • Target the right risks for non-renewals • Improved results by focusing retention efforts on better risks • Deeper understanding of lifetime value of customers • Increased cross-sell opportunities • Recruiting of profitable producers | Marketing and Retention | <ul style="list-style-type: none"> • Retention Modeling to focus efforts on retaining/not retaining customers who are most likely to lapse • Cross and Up Sell Modeling - can determine likelihood an offer will be accepted • Customer Segmentation - Data driven, granular insights for smarter business decisions |
| | <ul style="list-style-type: none"> • Identify claims at risk for higher severity • Optimize claims resource deployment to decrease claims severity • Improved fraud detection, while speeding up payment of legitimate claims | Effective Claims Management | <ul style="list-style-type: none"> • Claims Analytics/Improved Claims Management to determine which claims qualify for immediate or fast-track approval, flag suspicious claims, and facilitate claim handling in other ways. |
| | <ul style="list-style-type: none"> • Increase the value of data within the organization • Improve data governance | Improved Decision Making | <ul style="list-style-type: none"> • Enterprise Data Management (EDM) which assists client organizations with a data governance model, with a focus on improving data quality management, data retention standards and data security and privacy within an organization |
| | <ul style="list-style-type: none"> • Develop new innovative price conscious product for select populations • Analyze mortality assumption at point-of-sale | Informed Product Development | <ul style="list-style-type: none"> • Customer Segmentation - Data driven, granular insights for smarter business decisions • Underwriting Model to adjust pricing and options at point-of-sale |

How We Have Helped

Deloitte Analytics has Assisted Clients in the Following Ways

Customer Insights and Analytics Case Study: Large Insurer

To differentiate themselves, our client needed to make a significant investment in order to improve their analytics capabilities. Deloitte had been working with the client's management team on a multi-year program designed to enhance identification, creation, and delivery of analytics capabilities.

The goals of the program was to:

- Increase effectiveness of sales activity;
- Improve efficiency of insurance operations;
- Support executive decision making;
- Improve knowledge and adoption of analytic capabilities;
- Increase retention as a result of improved customer satisfaction

The value Deloitte delivered included:

- Developed blueprint to transform existing analytics functions into a Center of Excellence that served entire enterprise;
- Identified duplicative analytical activity in the enterprise to improve quality, efficiency and consistency in analysis used to support business decision making;
- Improved policy retention by 300 basis points and increased acquisition rates on abandoned quotes by 200 basis points
- Improved adoption of actions identified by advanced analytic techniques, which improved sales and customer service functions.

Claims Fraud Analytics Case Study: Property and Casualty Insurer

Our client had preventative controls over its claims processing function, but was continuing to suffer losses from fraud. Deloitte suggested a unique approach of using analytics combined with deep industry knowledge and experience to:

- Identify fraud patterns;
- Assist with root cause analysis of the fraud types;
- Install upgraded procedures to assist with fraud prevention and detection.

Continuous monitoring was deployed to assess that improvements to the internal control

structure were in place and working on an ongoing basis.

Our procedures included the analysis of payments of more than US\$1.5billion. Example findings:

- Approximately US\$300million worth of payments with no approver;
- Approximately US\$100million worth of payments with no posting user or approver;
- Approximately US\$4million worth of payments with the same user posting and approving.

Contract Risk and Claims Fraud Case Study: Large US-based Health Insurer

Our client had been experiencing significant inefficiencies in its claims handling process. Deloitte began working with this client and identified certain areas contributing to the inefficiencies, including activities occurring at third party contracted facilities. Scope of the project included:

- Assessment of risk in relationships with other healthcare organizations (contract risk and contract compliance); and
- Creation of a more efficient claims handling process which addressed risk more effectively, contributing savings to the bottom-line.

Our activities included:

- The performance of a risk assessment of relationships with other healthcare organizations, including an evaluation of existing terms within existing capitation agreements with contracted facilities, and compliance with those terms;
- The creation of an automated screening process for paid pharmaceutical claims to identify duplicate payments, invalid National Drug Code (NDC) numbering, inappropriate or unexpected National Association of Boards of Pharmacy (NABP) assignment, and an evaluation of the validity of data fields capturing days supplied, generic vs. brand, electronic vs. paper claim submissions, etc.;
- The review of claims processing of policy holders for data integrity from claim to system storage, identifying patterns of fraudulent claims or claims filed in error, and areas of improvement in claim reconciliation and business process controls; and

- The improvements to processes and controls which enabled our client to conduct a more thorough review by relying on risk-based selection and claims handling as opposed to random sampling and balancing.

Worker's Compensation Case Study: Government Sponsored Worker's Compensation Program

Our client manages a government workers' rehabilitation and compensation scheme on behalf of approximately 50,000 employers and 200,000 employees.

A viable and financially sound workers' compensation scheme is in everyone's interest, and our client's premium compliance policy includes actively pursuing unpaid and underpaid premiums – with the aim of ensuring a fair and equitable premium system for all employers.

Deloitte was approached to gather, analyze and interpret data from a range of sources to identify non-compliant employers. We used these insights to recommend which employers to target, resulting in additional payments of millions of dollars for our client.

Deloitte's solution included the development and implementation of analytic models to identify non-compliant employers, which allowed our client to chase these in order to receive the correct premium. The models also recognized if employers were paying the incorrect premium based on their industry classification.

Our Deloitte Analytics team helped our client recover millions of dollars through this approach, and the models created could be used by the client for future auditing and checks into non-compliant employers. While we were working with the premium non-compliance audit team in this instance, the same approach can be applied to any targeted auditing or business problem where resources are limited, and efforts need to be focused on certain areas. Likewise, this approach can also be used to gain insights using historical data, or predict future trends.

Predictive Underwriting Model Case Study: General Liability and Commercial Property Insurer

For insurance companies, few innovations are more important than predictive modeling, especially when it comes to underwriting and pricing. So when a major U.S. insurance carrier wanted to improve its underwriting and pricing discipline, it looked for a professional services provider that could not only develop algorithmic and predictive modeling capabilities but also deliver, integrate and deploy an end-to-end business solution across a range of product lines.

Deloitte was asked to develop predictive underwriting models and scoring engines for the client's Business Owner's Policy, Commercial Automobile and Commercial Package (General

Liability and Commercial Property) lines. The scoring engine that was developed was combinations of IT infrastructure and software that generates the predicted profitability score and lets the company monitor the effectiveness of business strategies derived from the models.

Once the predictive modeling solution was fully integrated into the insurer's technical and business infrastructure, Deloitte assisted in the business implementation of the models and the development and delivery of training content for regional underwriting offices.

Today, the client can effectively assess policies for risk quality, price adequacy, customer retention, agency management and underwriting decision compliance. It can also flag policies for follow-up attention in areas such as claims handling, agent training and customer service. The insurance carrier is able to measure the benefits of its predictive models and implemented methods, learning from past data and responding proactively to future needs.

Conclusion

Turning Data Into Business Insight

With experienced industry specialists, Deloitte Analytics can help you identify which questions matter most and where to find the answers. Whether you need to look backward to evaluate past performance or look forward to engage in scenario planning or predictive modeling, you need

proven strategies for turning your data into valuable insight. Deloitte Analytics can help. By delivering uncommon insights, we help you see beyond the data and provide you with what you need to know to improve your operation's performance and hone your competitive edge.



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We have considerable experience in China and have been a significant contributor to the development of China's accounting standards, taxation system and local professional accountants. We also provide services to around one-third of all companies listed on the Stock Exchange of Hong Kong.

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