Developing a better understanding of risk.

Enterprise-wide customer views aid in catastrophe management while helping carriers meet competitive and regulatory challenges.
A rising tide of natural disasters and competition

Australia is a country prone to natural disasters. It is not uncommon for one part of the country to be battling ferocious bushfires, whilst at the same time another area is dealing with devastating floods. It is a country of extremes. This is the challenge that insurers in Australia face—how to best manage this risk and reduce the financial impact of natural disasters such as storms, floods, cyclones and bushfires.

Between 1967 and 2012, Australia suffered at least four natural disasters a year, with 2011 the worst year on record.¹ The Queensland floods in 2010/2011 affected at least 70 towns, more than 200,000 people and resulted in losses of over A$2 billion.² In 2011, Cyclone Yasi in North Queensland caused major home, building and crop damage estimated at over A$1.3 billion.³

Insurance losses from claims following a series of severe storms that hit eastern Australia in April and May 2015 have passed A$1.55 billion.⁴

As insurers face the present and future, natural disasters are only part of the headache. In the marketplace itself, heightened competition and reduced investment income underscore the need for greater underwriting discipline. The pressure to maximise efficiency, reduce costs and comply with regulations is unrelenting.

Underwriters, actuaries, catastrophe modelers and executives require an improved understanding of risk to manage the organisation's exposure and reinsurance balance, and to maintain profitability and solvency. They need a clear and highly accurate common operational view of risk across their organisation to:

- Comply with new legislation and regulations that mandate corporate-wide risk management
- Better understand the risk of a policy in context of the existing book of business
- Better understand probable maximum loss in real time, to model the impact of a catastrophe on the business and optimally allocate resources after an event occurs
- Gain an easily consumable, near-real-time perspective on enterprise-wide risk exposure
- Drive insights from customer data for superior customer care, product design and precision pricing
- Optimise business development strategies and marketing campaigns to align with the risk profiles of potential customers so that offers aren't made to people they can't or won't insure.

Carriers are implementing new technologies that support these goals. These technological solutions can provide a single common set of high quality data, location intelligence for data visualisation, and predictive geoanalytics.

A large U.S. insurance company deployed analytics to better understand the risk categories of its customers. After paying out billions in claims in the wake of Hurricane Katrina, this insurer needed to revise its risk modeling processes. It worked to develop programs utilising geocoding capabilities to determine areas of greatest risk and refine which products and coverages were offered to which prospects. As a result, the organisation was able to dramatically improve its risk planning process.

An insurance company in the United Kingdom, which writes marine, aviation, transport and casualty reinsurance, along with healthcare liability insurance, needed to make faster and more accurate underwriting decisions. It wanted an integrated solution that could match postal codes to instances of flooding, subsidence and crime.
To meet this company’s goals, a predicative analytics application that enables location-specific risks to be assessed by postal code or geographical coordinates was developed. These applications provide the insurer with an integrated, location-specific view of potential risks.

The solution has helped the company develop a better understanding of the risks and exposures attached to certain postal codes. Its automation capabilities enable the company to analyse thousands of postal codes in seconds, providing employees with the ability to produce sophisticated analyses in near real time. The company is also now able to offer policies more closely tailored to the needs of the insured.

**How a single view of risk drives competitive advantage**

**The foundation: highest-quality data**

Attaining a single view of risk that can be used by individual departments or executive management is the goal for P&C carriers. The starting point is data: the most comprehensive set of data that’s available: accurate, up-to-date, linked and integrated to form a “common version of truth.” This view acts as the foundation of operational analysis and risk visualisation throughout the organisation. Building that foundation is a process that takes multiple steps.

**Data quality improvement.** With the rise of online self-service applications and surveys, along with the boom in unstructured data that comes from notes, diaries, emails and social media conversations, data hygiene has never been more important. Data cleansing and correction, especially address validation and standardisation, is essential to determining the precise location of properties. Data transformation eliminates redundant records, identifies incomplete records, and creates an enterprise-wide risk database.

**Data integration.** Claims history, policy administration and transactional information must be collected and aggregated from within the enterprise. It has to be accessed across multiple departments and often from disparate systems, applications, data sources or models. Serious obstacles, ranging from breaking down organisational silos to reconciling heterogeneous software and IT systems and disparate data models, often must be overcome to integrate data into one common foundation for risk assessment and visualisation.

**Geocoding.** An accurately geocoded property forms the basis for the most powerful, comprehensive and accurate way to geographically analyse risk. Based on the geographical information in the underlying databases and the quality or standardisation of the address, a geocoding engine delivers successive degrees of precision in determining the location of property. Some geocodes are based on data like postcodes, or at the “address level,” which offer latitude or longitude data accurate to the block or street-intersection level.

Point, or parcel-centroid-level, geocodes offer the most precise determination of location, especially in comparison with estimates that are based on postcodes, which often contain inconsistencies. Point-level geocoding provides precise property location using latitude and longitude, as well as assessors’ parcel identification numbers.

**Data augmentation.** Overlaying enterprise transactional data with best-in-class, third-party information about risks and perils, demographics and psychographics, landmarks and points of interest, enriches geocoded internal data. Companies that utilise data suites that combine geospatial information with historical data to provide insights on areas that are prone to loss from floods, storms, cyclones, bushfires, terror attack and criminal activity, as well as data on distance-to-coast, distance-to-fire-stations and other location-based intelligence, are better prepared to manage the exposures they are presented with.
Cross-enterprise visualisation of risk data helps employees make better, faster decisions

One data foundation, multiple uses
Using a comprehensive common data foundation enables carriers to make risk decisions from the simplest of use cases to the most complex.

Underwriters can assess risk for a single policy, mapping a single location against peril data. Distribution, marketing and sales can evaluate single locations against demographic and psychographic datasets as well as peril information. Actuaries can analyse ratings territories, regions, cities, and states against multiple layers of risk data. Catastrophe modelers can get a clearer picture of risk accumulation in near-real time. Executive management can assess the entire book of business to make critical business decisions. However, management’s ability to quickly analyse this data, and make decisions based on it in near real time, is greatly enhanced by their ability to visualise it.

Risk visualisation—the ability to leverage the highest-quality operational risk data—is crucial for both day-to-day operations and long-term strategic planning.

Location Intelligence enables carriers to gain operational efficiency and capabilities to map and visualise risk data about single policies or aggregated risk across the enterprise, in the context of critical spatial and geography related information.

A single, clear visualisation of risk puts greater decision-making power into the hands of actuaries, underwriters, claims executives, chief risk officers and upper-level management. Carriers can:

• Make better risk management decisions
• Analyse risk exposure down to the individual policy holder level
• Develop detailed catastrophe simulation models for better exposure management
• Get a clear view of crucial data, and discover unanticipated, “hidden” risk
• Drive reductions in combined loss ratio
• Improve responsiveness and productivity
• Identify potential losses from and respond swiftly to catastrophic events
• Reduce decision latency and accelerate quote-to-bind performance
Organisational benefits of a single view of risk

The ability to use the insight gained by leveraging a greater understanding of location in a straight-through processing scenario, or exception handling though visual analysis of risk, has multiple benefits across the P&C carrier organisation.

**Executive management** gets the clearest view, in near real time, of risk across the entire book of business. Executives get a clearer handle on aggregated and geography-based risk exposure and probable maximum loss scenarios and can better monitor underwriting performance, claims adjustment, customer acquisition and retention and other processes that influence overall profitability and competitive position. With a granular, accurate and updated understanding of their risk portfolio, executives can optimise their relationships with reinsurers and comply with regulatory commissions where they operate.

**Underwriters** can better assess risk at the policy level for both individual and multiple locations. They can model potential losses based on location-based hazard data before they issue a quote, or quickly determine if risk thresholds in areas are in danger of being exceeded. They can deliver faster and more accurate quotes and better ensure that the policy is based on the right coverages and the right pricing.

**Actuaries** can better assess actual, aggregated risk exposure to develop the appropriate rating structure, improve underwriting guidelines, model events and outcomes, and perform other analyses that are critical to risk management, corporate governance, territory designations and other issues.

**Catastrophe modelers** can manage exposure to probable maximum loss due to a natural disaster such as a cyclone, flood or bushfire. They can better understand the impact of natural and man-made catastrophes on the built environment and in near real time can plot the path of a pending weather event such as a cyclone, and its potential impact on the book of business.
Claims personnel can expedite adjustment and claims processes and optimally plan for catastrophic events by precisely determining areas and insured properties likely to suffer losses. They can better manage the aftermath of those events, helping them get “boots on the ground” to allocate claims-unit resources, prioritise claims, get adjusters to the site of damaged properties as fast as possible, set up triage units, or route customers to the closest possible branch office or auto repair facility.

Distribution, sales and marketing strategists can optimise agency networks, align distribution with actuarial and underwriting appetite, improve customer acquisition and retention processes, and optimise customer relationships through predictive modeling, a high degree of accuracy and responsiveness, and efficiencies in policyholder communications.

A single, integrated view of risk.
More than 80 percent of data has a location-based aspect. Geospatial analytics explore the relationships of risk data that can be linked to a specific geographic location, thereby driving insights and helping to model potential scenarios. Geospatial risk analytics is driven by the single view of operational risk that comes from high quality and complete transactional data, precision geocoding and Location Intelligence, and superior visualisation tools.

Predictive analytics models are developed for risk management to help determine tolerance capacity within specific geographic areas, as well as catastrophe planning and probable maximum loss analyses based on different types of events, and based on real-time peril information such as the track of a cyclone, bushfire or severe thunderstorm.

Predictive risk analytics can also transform underwriting processes and improve risk avoidance because insurers can model the potential impacts of peril events on insured properties during the quoting process—before, rather than after, the policy is issued. And it’s especially valuable for strategic marketing and distribution planning.

Many carriers implemented, or are still implementing, advanced policy administration systems as the backbone of their information technology strategy. Now they are grappling with the magnitude of the big data challenge, managing the information generated by their own transactional systems and the massive amounts of unstructured data they collect from emails, diaries and social media conversations.

Attaining an enterprise-wide view of operational risk, the “common version of the truth,” is the next challenge that will drive differentiation and competitive advantage based on better decision-making, greater responsiveness, and superior execution.

A strategy that incorporates operational efficiency and location capabilities—risk aggregation, visualisation and analytics systems that integrate seamlessly into existing policy administration systems, claims systems and data repositories—will position carriers to gain a significant competitive advantage.

To achieve the benefits of an operational single view of risk, carriers must perform a self-assessment on their capabilities in the areas of:

- Data quality
- Data integration
- Geocoding
- Risk data
- Risk visualisation

The quality of assessment will guide the next steps on the journey toward greater understanding and use of location in achieving improvement in the combined ratio.

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