



STRATEGY MEETS ACTION

a ReSourcePro company

Capitalizing on a Location Intelligence Strategy for P&C Insurance

Use Cases for Competitive Advantage Across the Enterprise



"Location intelligence is at the heart of the P&C insurance business, but old perceptions limit the range of use cases. An expanded view of the potential business uses, coupled with an enterprise location strategy can deliver enormous value and real bottom line results for insurers."

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This Use Case Study is based on SMA's ongoing research on geospatial solutions and the P&C insurance industry. ESRI has purchased distribution rights.



Table of Contents

<u>Location Intelligence in Insurance</u>	3
<u>Expanded View of Companies and Lines</u>	4
<u>Expanded View of Business Areas and Use Cases</u>	4
<u>Expanded View Beyond Static Analysis</u>	5
<u>Use Cases That Are Delivering Value</u>	6
<i>Use Case #1: Location Intelligence for Disaster Claims</i>	
<i>Use Case #2: Location Intelligence for Exposure Management</i>	
<i>Use Case #3: Enterprise Location Intelligence Strategy to Enable Growth and Profitability</i>	
<i>Emerging Use Cases</i>	
<u>Location Intelligence Strategy and Solution Components</u>	10
<u>Conclusion and SMA Call to Action</u>	12
<u>About Esri</u>	13
<u>About Strategy Meets Action</u>	13

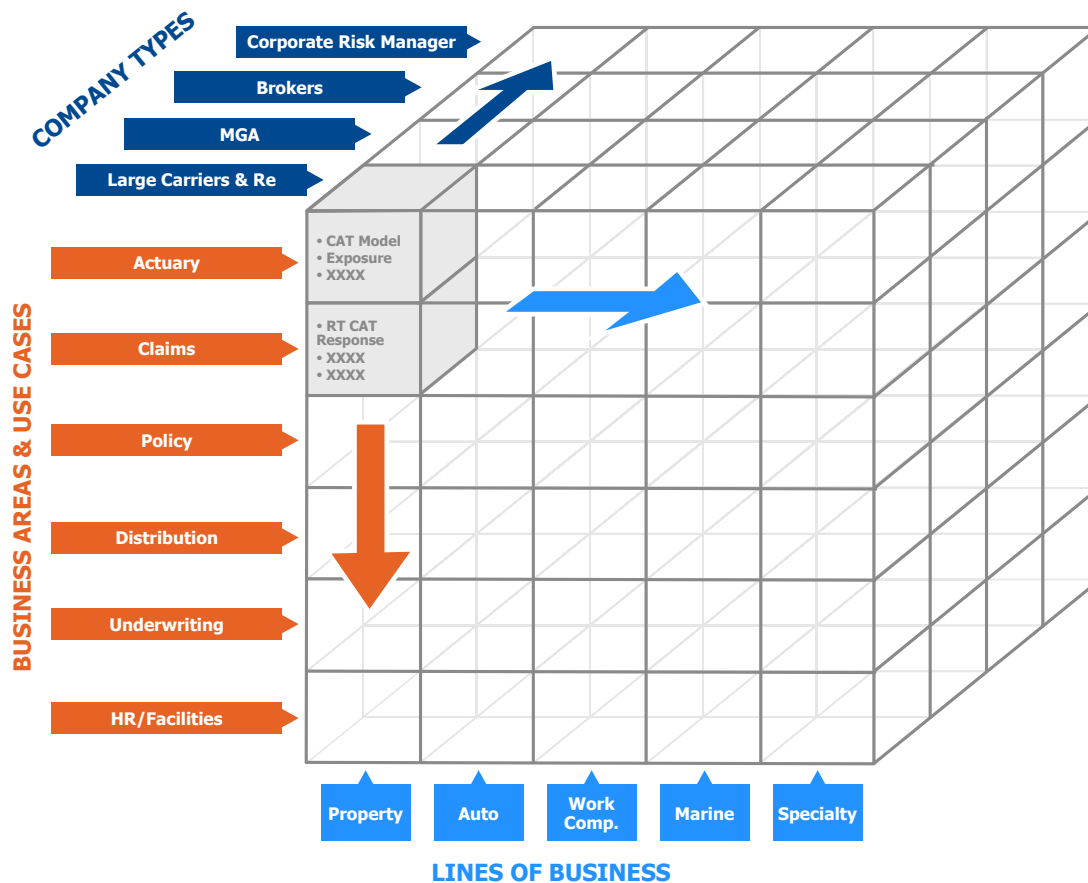


Location Intelligence in Insurance

Since the genesis of the insurance industry, actuaries, underwriters, and other professionals have built the insurance business around a deep understanding of data. Central to the analysis of data in understanding and managing risk is the role of location. Where the insured property, vehicles, and people are located has major implications for the exposures they are subjected to, which translates into specific insurance coverages, prices, and claim services for the insured business or individual. Geospatial solutions enable the visual analysis of customers and risk, through both historical and real-time views. Geographic Information Systems, or GIS, have been used in the industry for quite some time to provide these analysis capabilities; however, many industry executives have a limited perception of where and how these solutions can be leveraged. There are, in fact, high-value use cases for many areas of the insurance business. Thus, rather than pigeonholing geospatial solutions and allocating them to a few highly trained individuals that perform CAT modeling and exposure management, it would be beneficial to think in terms of an enterprise location strategy.

As Figure 1 illustrates, the potential uses for geospatial solutions in insurance can be expanded beyond traditional boundaries in three dimensions: lines of business beyond property, business areas beyond actuarial and claims, and companies beyond large (re)insurers. Even within the traditional area of actuarial and claims, value can be derived from expanded uses where possible. The cube below illustrates the universe of potential solution areas. The remaining sections of this paper will highlight current examples of how carriers are using geospatial technologies within this growing universe.

Figure 1. The Universe of Use Cases for Geospatial Technologies





Expanded View of Companies and Lines

For a long time, large carriers and reinsurers have used geospatial solutions for CAT modeling and exposure analysis, especially for homeowners and commercial property insurance. This will continue to be a very high value use for the technology because assessing the probability of various perils that could damage a property is highly dependent upon location. Overlaying maps to show the proximity of wildfire or earthquake zones, the distance to coast and elevation to assess hurricane or coastal storm exposure, the adjacency to inland water subject to fluvial or pluvial conditions, and the implications of other perils provide insights on risks not detectable by just looking at raw data points. Over the past decade, large carriers have also increasingly leveraged real-time data about catastrophes in combination with aerial imagery to improve the response to policyholders with damaged property.

Now, innovative companies are extending the uses beyond property to personal and commercial auto, workers' comp, specialty lines, and other areas. In addition, there are now mid-sized insurers that are beginning to use geospatial technologies. And the maturity of the solutions now makes it possible for smaller carriers to use the capabilities as well. There is also value, not just for primary carriers and reinsurers, but for MGAs/MGUs, program administrators, large brokers, reinsurers, and others as well.

Expanded View of Business Areas and Use Cases

While actuarial analysis and CAT claims have been the main business areas making use of geospatial technology, there is potential for use in virtually every business area across the value chain. And not just potential – real value is already being delivered. Examples of use cases in other business areas include:

- ✓ **Marketing:** Visual analysis of the response to marketing campaigns that highlights the targeted prospects, the response rates, and the results of the campaigns allows marketers to adjust campaign tactics more frequently.
- ✓ **Distribution:** Determining where to appoint new agents and other distribution partners for expansion into new geographic territories can be greatly aided by geospatial analysis of the demographic characteristics of specific locations.
- ✓ **Underwriting:** As underwriters evolve from focusing on assessing individual risks to managing the portfolio, there will be more opportunities to leverage geospatial capabilities for nearly real-time evaluations of the book.
- ✓ **Policy Servicing:** Insurers are able to provide contextual location data analysis for route safety and route planning, hazard alerts, safe driving behavior, and loyalty programs.
- ✓ **Claims:** As mentioned, large carriers have already been using geospatial solutions for post-CAT response. The new opportunities involve improving ways to be more proactive in anticipating impending disasters, alerting policyholders, and positioning resources.
- ✓ **Reinsurance:** Advanced mapping and analytics support risk exposure management and risk accumulation activities.
- ✓ **Operations and Facilities Management:** Insurers planning new facilities such as contact centers, regional offices, or claims centers can determine the best locations for these facilities in the context of the local economic conditions, potential employees, and positioning relative to customers. Another set of use cases revolves around security operation centers management, the life safety of human assets, and asset management for physical properties.



Expanded View Beyond Static Analysis

In addition to the dimensions shown in the cube in Figure 1, the value of geospatial solutions can be greatly increased by capitalizing on real-time location intelligence. Historical data is highly valuable and has formed the basis of the insurance industry since its inception. Understanding loss experience by analyzing claims and events from past years enables actuaries to create loss probabilities which are foundational elements for designing insurance products and developing prices, as well as setting reserves to cover projected losses. However, the world of data has rapidly evolved. Real-time data is available everywhere – as weather events develop; demographics shift; economic and social conditions change; and incidents like theft, equipment malfunctions, home fires, job-site injuries, and a multitude of other conditions occur. The world is becoming increasingly instrumented, with sensors collecting data on all these things and more – and a wide range of government and private industry entities collect, manage, and make available the real-time data that is collected.

The following are areas where insurers can embrace the power of real-time location intelligence data:

- ✓ Underwriting book analysis (to identify overexposed geographic areas, perils, class codes, etc.)
- ✓ Appetite adjustment (including moratoriums on writing business due to impending CAT events)
- ✓ CAT planning and response (pre-event, during event, post-event)
- ✓ Business resilience
- ✓ Marketing campaign analysis and adjustments

This significantly expanded view of usage and business value results in a need for an enterprise location strategy. This strategy should encompass the following:

- ✓ Acquisition and management of location data
- ✓ Technologies and tools to analyze that data in the context of non-location data on customers and risks
- ✓ Talent and expertise required to fully capitalize on location intelligence
- ✓ Related services to actualize the intelligence from analytics

There is high value in implementing a consistent approach and methodology for location intelligence at the enterprise level. The remainder of this paper will profile specific use cases across the P&C value chain, emphasizing the value of creating an enterprise-wide location strategy.



Use Cases That Are Delivering Value

There is a broad universe of potential use cases for geospatial solutions in property/casualty insurance. But the discussion of these use cases is far from academic. There are many powerful situations in which insurers have leveraged geospatial solutions to deliver high value to their enterprise. The following are examples that illustrate the range of applications already being used in the market.

Use Case #1: Location Intelligence for Disaster Claims

One of the most prominent and valuable use cases for location intelligence occurs when insurers leverage aerial imagery data combined with machine learning and geo-visualization capabilities for responding to catastrophe claims. Many Tier 1 insurers have been capitalizing on these capabilities for several years, providing value to their policyholders and enabling a more rapid, targeted response. The following are examples of how insurers have used location intelligence to respond to multiple CATs.

THE OBJECTIVE: Catastrophes such as hurricanes, wildfires, and floods have a huge impact on insurers' financial results. More importantly, the response to policyholders is critical – not just to fulfill the insurance contractual promise, but also to respond in a very timely manner to customers in their time of need. Insurers seek near real-time information about impacted areas and damaged property so that claim resources can be deployed to geographic areas and specific customers that are most in need of help.

THE SOLUTION: In 2018, a campfire decimated Paradise, California, leaving many homes significantly damaged or completely destroyed. Aerial imagery enabled insurers to provide advice to their policyholders on the condition of their properties, provide early support for temporary housing and living expenses, and advise them on when it was safe to return to the area.

In another of many examples, Hurricane Michael hit the Florida Panhandle as a Category 5 storm in 2018, the first of that magnitude to make landfall in the contiguous U.S. in over 25 years. The damage was so widespread and extensive that it was imperative to use aerial imagery to rapidly identify the top priority areas in order to guide CAT claims resources to the properties and customers quickly. ESRI, partnering with the Geospatial Intelligence Center, provided visualizations to insurers and government agencies starting within 24 hours of the landfall, which significantly improved the response to individuals and businesses whose properties were damaged.

THE BUSINESS OUTCOME: Aerial imagery through satellites, fixed-wing aircraft, and drones provide before-and-after views of CAT-impacted areas. Analyzing and visualizing the aerial imagery data by mapping the precise locations of a customer's insured property and the available claims resources enable targeted, rapid response where it is needed most.

Aerial imagery, machine learning, and geospatial intelligence solutions have revolutionized the way that insurers and governments now respond to major catastrophes. Yet, there is still great potential to harness these solutions even further for the benefit of the customer. Today, most of these tools are activated post-event, and the response times after an event have improved dramatically. However, the potential to use the technologies before an event or during an event to position resources and advise customers is tremendous. This will be the next great leap forward for location-based intelligence use in CAT situations.



Use Case #2: Location Intelligence for Exposure Management

Many insurers rely on geospatial solutions to assess and manage exposures to their book of business. This may take the form of CAT modelers assessing the risk for specific perils in defined geographic areas or underwriters managing their exposures and market appetite.

THE OBJECTIVE: Assessing natural perils such as wildfires, coastal storm surge, earthquakes, hailstorms, and other weather-related events is mandatory for (re)insurers. But insurers must increasingly evaluate the potential for man-made CAT events such as riots, terrorism, and political risk. Although these were formerly of concern mostly to reinsurers and large global carriers, it now is important for insurers of all sizes to understand these risks.

THE CAT SITUATIONS: The ArcGIS platform is well suited for helping insurers identify exposures across multiple portfolios, which is often the case for man-made perils. The 9/11 terrorist attacks opened the eyes of the industry to the potential for terrorism to affect a range of lines and segments in ways not seen before. Commercial property, workers' comp, life insurance, aviation, business interruption, and many other insurance lines were impacted by one event. Since then, other terrorist events and regional riots have emphasized the potential for broad exposure across a book and reinforced the need for more sophisticated analytics.

THE SOLUTION AND BUSINESS OUTCOMES: The ability to overlay multiple map layers and insured elements (commercial, personal, property, workers, etc.) enables accumulations and estimates of maximum probable loss across different silos in the insurer's book of business. This enables insurers to revise market appetite; dynamically impose moratoriums on writing certain business; and inform policy coverages, deductibles, and exclusions as well as reinsurance strategies.





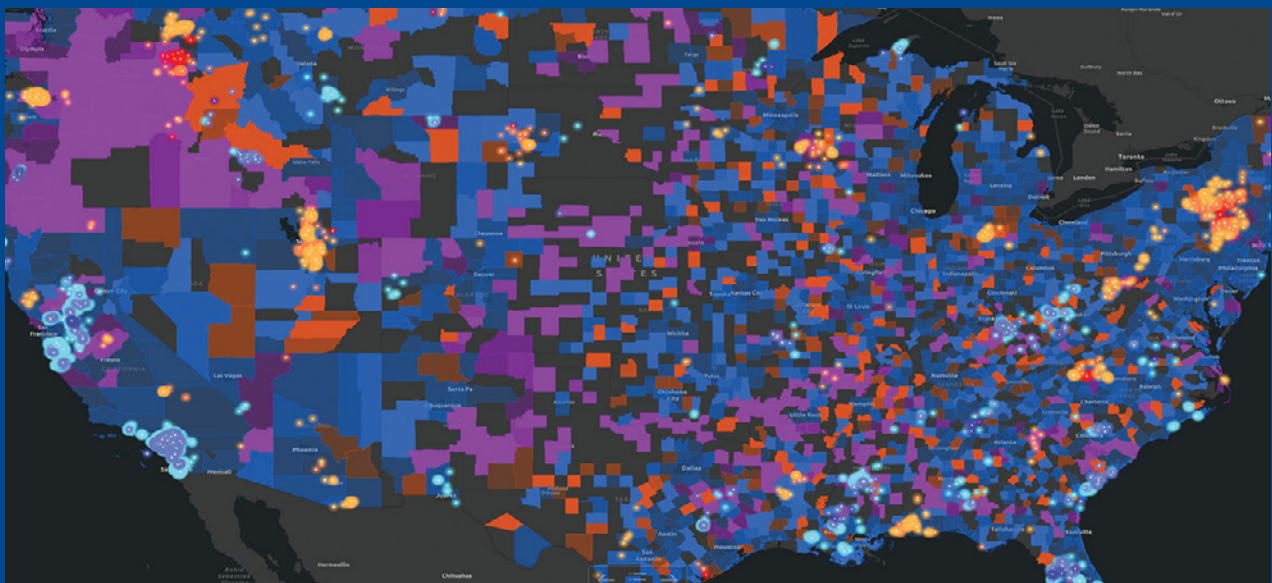
Use Case #3: Enterprise Location Intelligence Strategy to Enable Growth and Profitability

Many insurers focus on one or two high value use cases related to location intelligence. Others have developed a location strategy at the enterprise level and leverage location across many use cases to support broad growth and profitability goals. Some utilize a common, unified platform that many business units can use to support traditional CAT modeling/exposure management applications. But others want to expand the usage into areas related to distribution, product, geographic or channel expansion, underwriting, claims, and reinsurance. Here is an example of how an insurer can use location intelligence for a broad set of initiatives.

THE OBJECTIVE: Achieve top-line premium growth while maintaining profitability targets through a comprehensive enterprise strategy involving all facets of the organization.

THE SOLUTIONS: Deploy the ESRI ArcGIS platform to create a base map for analysis of customers and risks, using data points and mapping layers with variables related to existing policy and claims data, as well as demographic, firmographic, and geographic data. This location intelligence platform will enable geospatial analysis to support multiple use cases, including areas such as A) analysis of potential growth areas, B) targeting of agencies, C) driving leads to agencies, D) informing models to predict profitability for specific state and line expansion, E) CAT claims analysis, and F) reinsurance negotiations.

THE BUSINESS OUTCOME: A carrier capitalizing on this broad-based approach can drive growth initiatives through intelligent selection of new distribution partners, create products to match the needs of specific customer segments, improve the precision of underwriting decisioning, and provide more targeted, rapid response to catastrophe situations.





Emerging Use Cases

In addition to the specific use cases just profiled and those cited earlier for various general business areas, there are other emerging use cases for telematics and the Internet of Things. A few examples that illustrate the potential are detailed below, but there will be innumerable possibilities as the world becomes increasingly instrumented with real-time sensors.

- ✓ **Driving pattern changes during the pandemic:** As the COVID-induced lockdowns hit full force in 2020, vehicle driving patterns changed dramatically. Insurers with extensive usage-based insurance programs in the market were able to track the decreases in mileage driven. But most did not leverage location-based data to gain deeper insights into the driving patterns that could enable a shift to more accurate location-based UBI models for rating driver and location risks.
- ✓ **Contextualizing UBI data:** Telematics/usage-based insurance programs can track the speed of a vehicle but may not be able to determine if that speed is excessive in the context of the location and conditions. Contextualizing the speed data can help determine conclusively if the speed behavior was, in fact, a deviation from safe speeds and give a more accurate representation of the true risk.
- ✓ **Smart city hot-spot alerts:** As sites increasingly implement sensors on a wide range of infrastructure, the potential to spot impending problems and take proactive actions increases. This has great potential for loss control engineering as insurers advise their business customers on solutions that can identify problems. Gaining a view of many properties across a city and leveraging visualization and mapping capabilities can help to spot an emerging crisis in advance.





Location Intelligence Strategy and Solution Components

As demonstrated by the range of use cases described in this paper, insurers should consider developing an enterprise-wide location intelligence strategy. Today, many uses of location intelligence and geospatial solutions are focused on individual use cases. Although high value in their own right, there is enormous power in creating a strategy and platform that can be used in a common manner for many different uses across the enterprise. Insurers that have taken this step find that a location intelligence strategy can provide a significant competitive advantage.

Figure 2. Elements of a Location Intelligence Strategy





The five major areas outlined in Figure 2 must be considered holistically, recognizing the strong dependencies and interrelationships within and between the areas. A robust location strategy should incorporate the following:

- ✓ **Strategic Commitment:** One of the strategic initiatives insurers have underway relates to geospatial tech and aerial imagery. This initiative needs to be expanded and reoriented to focus on location as a strategic weapon. Creating and managing an enterprise-wide strategy for location that spans all aspects of the company requires a sustained senior executive commitment, along with the resources and funding to ensure success.
- ✓ **Data Acquisition Strategy:** A coordinated strategy for obtaining and purchasing data across the enterprise is a baseline requirement for an enterprise location strategy. Individual business areas are still able to identify and acquire information, but a coordinated strategy and plan ensures optimum cost management and reuse of data. Since data will be increasingly acquired from many public, private, and internal sources, a Location-as-a-Service strategy should be considered. This strategy would ensure that data can be acquired in a cost effective, secure, and authorized fashion from cloud-based sources.
- ✓ **Location Data Management Strategy:** A comprehensive master data management strategy is imperative for any insurer today. Establishing the right governance, data models, database and warehousing structures, usage and compliance policies, etc. are key capabilities. The data management strategy must be extended to consider location as a fundamental aspect of data, subject to the same policies and management.
- ✓ **Location Data Access Strategy:** Once the data is well defined, of high quality, and organized, it is vital to establish the right access policies, procedures, and technology tools. Data securing is paramount and will continue to increase in importance as the volume of data increases and the nature of the data itself expands. Access must be both easy and authorized, allowing home office and field professionals to access data related to their role from any device and from any location.
- ✓ **Location Platform:** The support for a location strategy must include the deployment of a location platform. A location platform connects maps, apps, data, and people and can be deployed on a variety of technical architectures. Insurers should embrace a common platform supporting all location needs, rather than a disparate deployment of tools and systems implemented primarily for specific uses. The platform should also provide the framework to manage, analyze, and visualize data, as well as integrate with other operational systems.

In total, these elements form a comprehensive location strategy that will allow the insurance enterprise to incorporate location data into many aspects of the business in a manner that is cost effective, provides insurance professionals with new insights, and creates new competitive advantages in the marketplace.





Conclusion and SMA Call to Action

Leading companies and innovators in the insurance industry recognize the power of location intelligence via geospatial solutions. These companies are already gaining advantage through a sophisticated use of these technology solutions. However, there is still tremendous untapped potential to expand usage across the industry to a wide range of companies and business use cases. Even for those companies that have been relying on traditional GIS solutions for a long time, there is value in developing an enterprise location intelligence strategy and creating a platform for applications across the business. The increasingly connected world, the urgency to develop aggressive growth plans, an intense focus on writing profitable business, and the frequency of ultra-large CAT events all contribute to the imperative to leverage sophisticated solutions for location intelligence. Re(insurers) should consider the following strategic actions:

- ✓ **Think beyond CAT Modeling:** The industry at large recognizes the high value of geospatial solutions to support CAT modeling, and every company is leveraging them, either natively or via a partner. Now, the opportunity (and challenge) is to expand the thinking to a much broader set of use cases that can also deliver high value to the enterprise.
- ✓ **Inventory current business needs for location data:** Assess business needs in marketing, distribution, product development, underwriting, and every other business area to identify where a deeper understanding of location is critical. Along with that, identify the specific types of data from internal and external sources that have location elements or require location context to enhance meaning.
- ✓ **Assess geospatial solutions partners:** If you have a current partner, determine if they are able to support a broader enterprise location intelligence strategy and a wider range of use cases. If you do not currently have a tech solution, or rely solely on third parties, evaluate ESRI as a potential partner.

Every day, every re(insurer) is bombarded with technology solutions that promise to revolutionize their business. Many of those do have great potential. But in the midst of all the possibilities, every insurer would be wise to understand the foundational role that a location intelligence platform can play. Extending existing solutions or implementing new ones can support business needs at the heart of the business, drive true competitive advantage, and produce strong financial returns.





About Esri

Esri, the global leader in GIS software and location intelligence, engineers innovative solutions for digital transformation, the Internet of Things (IoT), and advanced analytics. Esri technology empowers insurers to unlock the full potential of their data by contextualizing disparate sources with insightful apps to better understand, communicate, and manage risks.

For more, [visit ESRI Solutions for Insurance](#).



About Strategy Meets Action

At Strategy Meets Action, our clients advance their strategic initiatives and accelerate their transformational journeys by leveraging our forward-thinking insights, deep vendor knowledge, and vast industry expertise. Strategy Meets Action, a ReSource Pro company, is an advisory firm that works exclusively with insurers and vendors in the P&C market, offering advisory retainers and project-based consulting services.

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