Harvard Business Review
ANALYTIC SERVICES

Briefing Paper

# MASTERING LOCATION DATA: CLOSE, BUT NOT QUITE THERE

## Location Data Still Out of Place for Risk Management

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Large-scale use of location data is a cornerstone of the insurance industry. It touches virtually every aspect of the business, from risk assessment and underwriting to claims and customer acquisition. Insurance companies today have more location-based data available to them than ever—yet operationalizing that data across the business remains a significant challenge.

What companies want is accurate and complete data that gives them a reliable view of risk for a single property or for an entire building or neighborhood, or an aggregated view of risk across the enterprise. But what most companies we talk to today have is imprecise data based on an estimate of the actual location. Moreover, the data is trapped in siloed lines of business and disparate legacy systems, making a single version of truth about a property or a building extremely difficult to acquire.

Harvard Business Review Analytic Services surveyed industry experts and analysts about the state of location intelligence data in the insurance industry. Their findings confirm what we are seeing in our work with clients—that the opportunities to reduce risk and increase profits by improving the accuracy of location data and managing it effectively are significant.

While every insurer can translate an address to a latitude and longitude, that alone is not sufficient to deal with the flood of new location information today. First, that lat/long must be hyper-accurate—in many cases only a few feet of error can make a difference in risk profile. Second, insurers must be able to relate each property to a single, unique, persistent ID that can be used across data sets. With these capabilities, an insurer attains the ability to make error-free linkages across the organization with minimal processing time as well as the ability to layer additional contextual data onto that unique identifier.

The resulting insights about a property can impact use cases across the company. For example, we helped a company successfully pursue a strategy of insuring low-risk properties in high-risk areas in wildfire zones in California. By declining to write coverage on selected properties based on insights from an accurate location, wildfire data, and underwriting expertise, the company avoided incurring a significant number of total losses. Of the properties it did insure, zero had total losses and claims paid were significantly below total exposure.

Or consider how evaluating cumulative risk in a single multiuse building such as an urban high-rise depends on consolidating data across multiple business lines within a company—small businesses such as retailers and restaurants on the first floor, large enterprise commercial for the major chain hotel on the next 10 floors, and personal lines for the condos on the remaining floors. That takes location master data management (MDM).

In the following pages, you'll find other examples of how location MDM strategies are helping insurers understand exposures, reduce risk, and increase profitability. The report also explores new data sources and new technologies, such as internet of things (IoT) devices and their impact on the business. All this new data will only put a higher premium on the ability to master location data.

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# MASTERING LOCATION DATA: CLOSE, BUT NOT QUITE THERE

## Location Data Still Out of Place for Risk Management

Pricing home and automobile insurance policies depends on a detailed understanding of the property being insured. Currently, though, a lack of nuanced understanding of location is causing insurers to gauge risk imprecisely—sometimes to a dramatic degree. At the same time, IT departments are frustrated with trying to manage growing mounds of data in order to react quickly to their organizations' needs. Taken together, there's a risk management gap confounding insurers and the organizations that are their customers.

An emerging sentiment is that the insurance industry needs a new, all-encompassing approach to location master data management (MDM), the method of defining and managing critical data to create a single point of reference, to address the situation. This approach requires three elements to be in place: 1) the location data be hyper-accurate, which means going beyond basic postal address information and using geo-coordinates and other data for greater precision; 2) that there is a unique and consistent identifier for each property; and 3) the ability to link other data sources to the property identifier exists.

"Carriers have been slow to realize that they need more than just improved data. They need a new and better way to think about location data," says Michael Reilly, a managing director in Accenture's Insurance Practice. "They really need to consider it as a data fabric with the ability to layer different data sets on top of an overall framework."

Such an approach can provide profound advantages to both the business and IT sides of insurance companies, especially given that other technologies, such as artificial intelligence (AI) and the internet of things (IoT), can buttress what location MDM does and help it be even more effective. This report will explore those advantages and explain why, thus far, they have been elusive for insurers.

**HIGHLIGHTS**

- Poor location data results in billions of dollars of inaccurate and underpriced insurance policies
- The insurance industry needs a new, all-encompassing approach to location master data management (MDM)
- Improved location data will allow IT departments to create better algorithms and operate more efficiently

## Underestimated Potential for Wildfires and Other Risks

The use of location data is becoming paramount across all industries. The 2019 Location Intelligence Market Study Report done by Dresner Advisory Services found the perceived importance of location intelligence has increased steadily over the past six years, most notably between 2017 and 2019. Some 48% of survey respondents said location intelligence is "critical" or "very important."

Much location data was originally derived from delivery information. According to Accenture estimates, this approach results in 50% of addresses being off by more than 500 feet, and 14% off by a quarter mile. "You can see this when your car's guidance system says you've reached your destination, but you know it's still a few hundred feet down the road," Reilly says. "You're close, but you're not quite there."

That slight imperfection translates into billions of dollars of inaccurate and underpriced insurance policies because this approach underestimates the potential for wildfires, floods, and other risks. Many location sources provide latitude-longitude coordinates for the middle of the street in front of a property. Reilly points to the pitfalls of relying on such information, using his own house as an example. The property backs up to woods, and later to a small stream. "If I am evaluating the hazard from the middle of the street in front of my house, everything looks fine," he said. "If I looked instead from the building or the middle of the parcel, my view of the risk of flooding or wildfire damage could be considerably different."

For such reasons, different buildings on the same parcel could have dramatically disparate levels of risk. Indeed, risk could vary at a parcel level, a building level, a floor level, and a tenant level. Moreover, conditions are not static. While geospatial coordinates are absolute, location data can be ever-changing.

Consider a carrier that is writing a commercial automotive policy for a trucking company located on a corner with two streets. One street has traffic that goes 50 mph; the second street has traffic at only 25 mph. The risk profile will be affected by which street the sidewalk on the property faces. If the trucking company relocates the driveway to the other street because of the roadway construction, the risk profile changes significantly, even though the location of the company remains fixed.

## "Weathering" New Data Sources

As insurance companies take a more expansive view of location data, risk profiles are being refined by combining location data with other sources of information.

Michele Goetz, a principal analyst with Forrester Research, noted that weather information played a key role for insurance companies that provided coverage for properties where the devastating California wildfires occurred in 2018. Fires burned 1,893,913 acres, resulting in insurance claims that topped $12 billion.

"Air currents operate differently in mountainous conditions than in flat conditions," she says. "If you know where a house is located on a mountain, how forested that area is, and how hot and cold air pockets operate, you have a much better perspective of the potential for property loss. The way the air currents flow can mean the difference between a slow-moving fire and a fire tornado that takes out a whole town."

This understanding of weather patterns and their potential impact is anything but theoretical. Reilly recounts how one carrier that insured properties in the wildfire area experienced no major losses because it carefully analyzed the location of the individual buildings on the properties it insured. Using precise location data from multiple sources allowed the carrier to determine which properties to underwrite and which to pass on. The data also helped the carrier take steps to reduce its risk on those properties, such as suggesting where to install fire brakes.

As the benefits of new data sources become clear, insurers are rapidly turning to more sources of information. A report from Willis Towers Watson about the insurance industry's use of data found that smart home/smart building data, usage-based information, images, and other new data sources will leap in importance over the next two years. FIGURE 1

New data can be leveraged for strategic advantage in an increasing number of ways. For example, accurate geo-coordinates and digital imagery can allow drones to create photos of individual properties. "These photos can be analyzed to determine a wide range of information from how many windows are in a house, the square footage, and its relationship to the topography of the surrounding land to determine flood or wildfire risk," explains Donna Burbank, managing director of Global Data Strategy, an international information management consulting company.

An IOT-enabled water pipeline in a home could identify a small water leak so it can be addressed before it causes major damage. Telematics could determine whether insured cars are parked in risky areas at night.

A study by research and consulting firm Parks Associates found that consumers are eager to use connected devices to minimize risk and share IoT information with their insurers. FIGURE 2

These developments just scratch the surface of the possibilities for using location data. "The smart carriers are recognizing that new data sources can serve two distinct purposes," says Accenture's Reilly. "They can be used as new data elements to consider for pricing, or to validate, update, or improve the quality of their existing data elements."

## A More Holistic Approach

While most insurance organizations are keenly aware of the value and necessity of managing location data in a better way, many are constrained by operating systems built to perform a specific task, such as issuing a policy or launching a marketing campaign.

"Typically, these systems were not designed with information sharing in mind," according to Global Data Strategy's Burbank. "Compounding this issue is the fact that mergers and acquisitions are common in the industry, which adds additional complexity in integrating the disparate systems of the merging organizations."

As the need to share information increases, insurance companies are fundamentally rethinking their data strategy. "Insurance companies are not viewing data as a pocket within analytics, claims, or sales and marketing," Forrester's Goetz says. "They are starting to think about a more holistic data strategy, using wider enterprise data platforms that democratize information and democratize the insights that come out of the information, so they feed into business processes." This holistic approach also increases the need for location MDM so the information can be shared more easily and efficiently.

For all the benefits location data offers, it has represented an immense IT challenge. Data comes in different proprietary formats and structures. Each requires different inputs and handling. Combining multiple sources and varieties of data has been a costly and time-consuming task, riddled with errors, which overburdened IT departments have struggled to address.

"When the data itself is not stored and managed in an organized way, it becomes expensive and time-consuming, decreasing the overall efficiency of both the IT and business organizations," Burbank explains. "Because location data is so valuable, the analysis and integration on this data will get done, but without robust data management fundamentals and associated data governance best practices in place, it will get done in a less-than-ideal way that is manually intensive and repetitive."

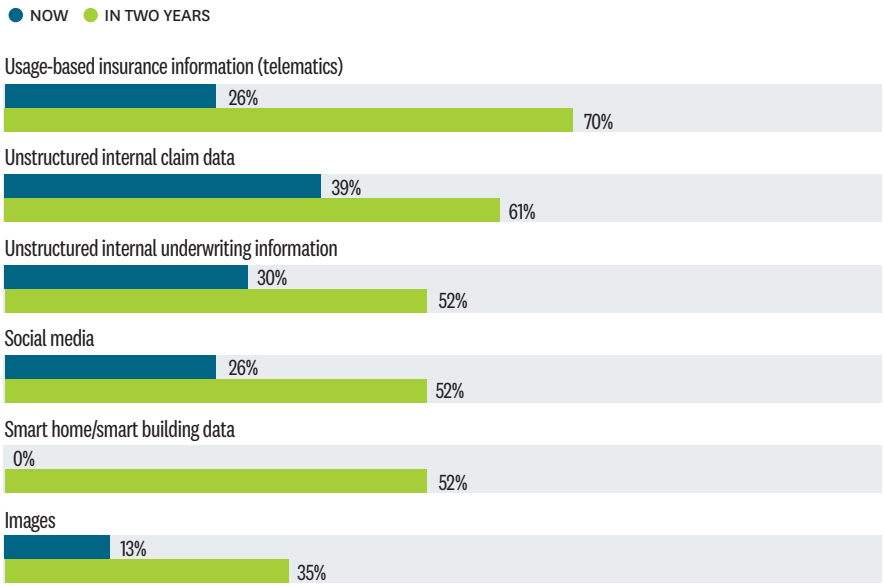
For example, when location data is stored redundantly in multiple systems or across a variety of policies, IT teams must run geo-coding and address checks multiple

FIGURE 1

## INSURERS ARE USING MANY NEW DATA SOURCES

More sensors in the home and more external information are enabling insurance companies to better assess risk.

TOP DATA SOURCES FOR CUSTOMER CENTRICITY



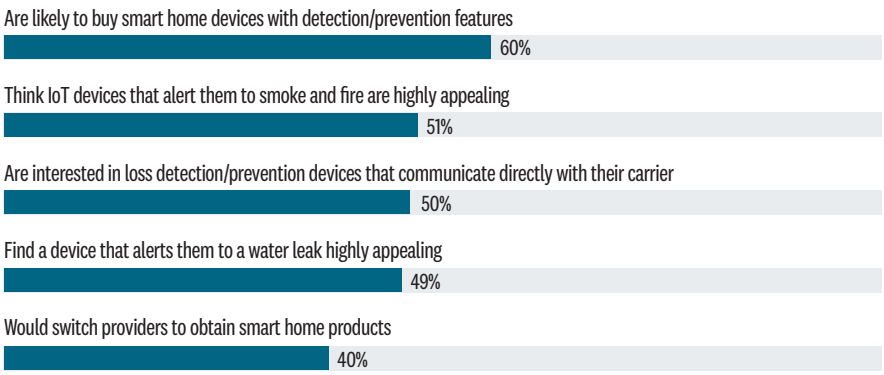

SOURCE: WILLIS TOWERS WATSON 2018 P&C ADVANCED ANALYTICS SURVEY

FIGURE 2

## POLICYHOLDERS WANT TO GET CONNECTED

Many consumers are eager to share internet of things data inside their homes with their insurance carriers.

AMONG U.S. BROADBAND HOUSEHOLDS WITH INSURANCE

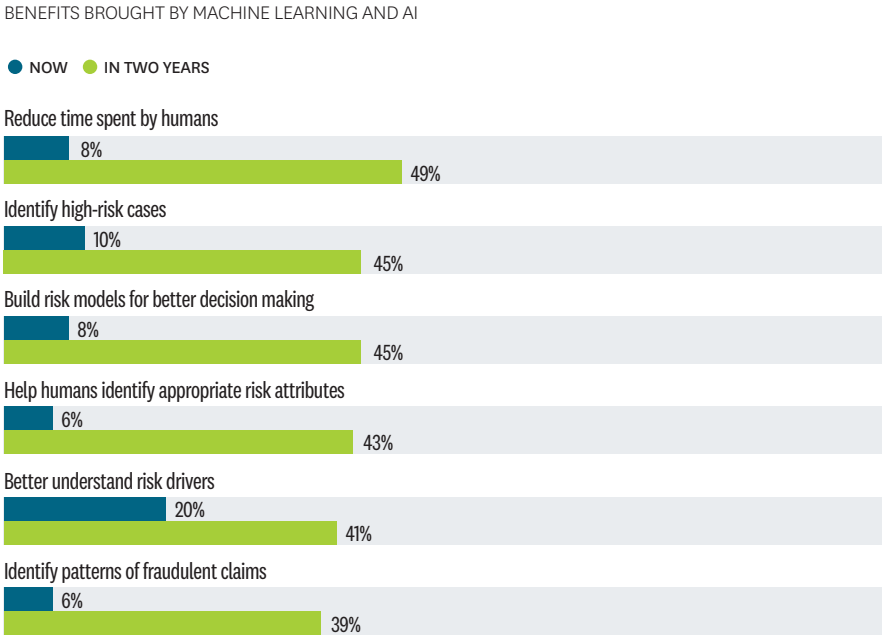



SOURCE: PARKS ASSOCIATES, 2018

FIGURE 3

## A FOCUS ON MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE

Insurers are using more advanced analytics, fueled by new sources of data, to gain more risk management insights.




SOURCE: WILLIS TOWERS WATSON 2018 P&C ADVANCED ANALYTICS SURVEY

times. Without location data stored in an independent and flexible way, organizations are limited in their ability to change and evolve their systems, which can hamper their competitiveness in the market.

"You can hire a data scientist who wants to do a lot of cool projects that will benefit the business, but too often their time is wasted getting the data clean," Burbank says. "A key first step for AI and predictive analysis is to have a clean, robust, well-understood data set on which to run the analysis."

### Creating a Golden Record

As this situation becomes more problematic, a new approach is emerging to promote data consistency using location data to determine risk more accurately and promote IT efficiency. This approach depends on three steps: 1) gathering hyper-accurate location data, 2) creating a unique identifier for each property, and 3) using that identifier to link to other data sources.

For IT departments, using location data as the catalyst to collect and hold a diverse and dynamic set of other information dramatically simplifies and boosts their ability to respond quickly. Location MDM can create what's known as "a golden record" for each location, storing descriptive attributes that can reveal patterns and relationships among the data sets.

"Don't think of location data as something you're capturing that you can see on a map," says Goetz. "It's also the key to help you navigate across these different data sets. Location is where these different data sets connect."

The IT benefits are wide-ranging. A superior location MDM approach centered on precise location data will promote greater automation of core processes, thus enabling better performance and reducing manual interventions to resolve unmatched records. Location MDM will keep the information updated, make it easier to enrich, and simplify the ability to exchange information with business partners, customers, and suppliers, and internally across systems—tasks that now challenge IT departments.

In addition, location MDM supports the use of advanced analytics and new technology. Increasingly, insurance companies are deploying AI and predictive analytics—initiatives that depend on high-quality data and governance—to reduce risk and boost efficiency. FIGURE 3 "For insurance companies, their models are their competitive advantage," Goetz asserts. "They can only improve those models based on the kind of data they pull in."

### Conclusion

By aligning all analytics models to the same data sets, they can then be streamlined with the insurer's workflow and integrated into business processes, such as underwriting tasks. Analytical consistency also ensures that all models an insurance company uses are generating the same output and enables better usage and compliance, allowing IT to meet the requirements of the carrier's business unit more easily.

In this way, superior location MDM will benefit both the business and IT sides of insurers. Companies will be able to price policies correctly to attract the most profitable customers and write policies in high-risk areas with a heightened degree of confidence. IT departments will be able to adopt cutting-edge technology more easily while also future proofing the organization for fresh types of data sets that are sure to emerge and lead to even more demands for new risk management products.

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