



Edge Intelligence and Insurance Underwriting

Leveraging data from smart devices

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● Summary

Edge Intelligence solutions integrate sensors, gateways and analytics to deliver continual and automated data collection and real-time analysis. The result: a new level of critical insight that allows businesses to redefine their approach to designing strategy and managing operations. While specific applications vary, a common thread is the ability to improve prediction. By enabling early detection, rapid response, forecasting and proactive action, Edge Intelligence can help anticipate outcomes and minimize negative consequences to property as well as risk to human health and safety. Recognizing this capability, forward-looking insurers are exploring the implications of Edge Intelligence and newer data elements for underwriting models.

**“ HELP ANTICIPATE OUTCOMES &
MINIMIZE NEGATIVE CONSEQUENCES
TO PROPERTY AS WELL AS RISK TO
HUMAN HEALTH & SAFETY. ”**

● Tip of the Spear

Edge Intelligence represents the “tip of the spear” of the Internet of Things. The opportunity lies in deploying low-code applications on smart devices at the point of business activity to eliminate noise and telecom chatter while supplying critical data to back-end analytical platforms. The result: continual data collection and analysis that yields actionable insights – insights that improve operational efficiency, enhance regulatory compliance and drive viable business outcomes.

Businesses in a wide range of industries are taking advantage of this model. Consider these examples:

- Fleet managers of transportation companies are deploying telematics, GPS and sensors in vehicles to precisely monitor a truck’s location and calculate an optimal route based on traffic conditions, improve workforce management and reduce gas consumption. In addition to aiding logistics, the sensors document distance and travel time, which is essential to addressing increasingly stringent regulatory requirements around driver manifests. Car sensors track braking patterns, acceleration and deceleration and engine noise to monitor driver behavior patterns and generate data points to enable predictive maintenance. In the payload, valuable goods can be tagged with location sensors so that they can be tracked if stolen. Temperature monitors within the cargo bay alert managers of potential spoilage.

“**CONTINUAL DATA COLLECTION
& ANALYSIS THAT YIELDS
ACTIONABLE INSIGHTS.**”

● Tip of the Spear

- > In the restaurant and hospitality industry, a single instance of freezer failure can cost a business between \$4K and \$40K in lost produce. The cost of labor to continually monitor equipment can cost up to \$8.5K annually per store (one individual manually tracking temperature for 1 hour per day). Intermittent power failures during off-hours can go unnoticed, leading to the risk of tainted food. To address these challenges, [restaurant chains are using temperature monitors](#) to gauge heat and humidity levels in refrigeration units and send alerts to managers 24/7. For supply-chain operations, dashboard functionality can provide oversight for multiple locations. Sensors also detect potential fire hazards when ovens and heating units have inadvertently been left on. HVAC add-ons in dining areas can determine warm and hot spots in restaurants to ensure a comfortable experience. During off hours, sensors can check HVAC settings to optimize energy efficiency and reduce costs.
- > Retail pharmacies face a similar if not greater challenge, as maintaining specific temperature and humidity levels is critical for storing certain vaccines and prescription medications such as insulin. Undetected outages can result in the shipment of tainted medicine, creating health risks for customers, as well regulatory and legal problems. [IoT-enabled monitoring devices connected to analytical platforms allow pharmacies to collect, analyze and react in real time.](#) In addition to sending alerts when a unit goes out of range, these solutions can provide detailed documentation of how a specific failure impacted a medicine's safety, as well as determine whether regulatory standards were breached.

While Edge Intelligence applications vary, a key shared benefit is reducing operational and safety risk while tracking compliance indicators. For transportation, it's keeping drivers safe and conforming to regulations on driver hours and mileage. For restaurants, it's preventing freezer outages and the possibility of health code violations and food poisoning. And for pharmacies, tracking the source and destination of medicines and ensuring their efficacy lowers the risk of medical liability.

● **Redefining Underwriting**

The ability of smart sensors to help businesses avoid and prevent potential losses and liabilities is of keen interest to insurance companies. Indeed, Edge Intelligence solutions are providing a variety of businesses critical information beyond the reach of traditional insurance underwriting. The smart sensor benefits described above illustrate how investments in these solutions can lead to lower damages, allowing insurers to reduce claims and avoidable payouts.

Thinking more broadly, a homeowner's insurance policy that covers damage to a valuable painting could carry a lower premium if a smart home system were in place to automatically shut off water pumps in the event of a burst pipe. Drivers who use vehicle devices that prove they observe speed limits and operate their vehicles safely could similarly benefit.

**“ ALLOWING INSURERS TO REDUCE
CLAIMS AND AVOIDABLE PAYOUTS. ”**

● Keys to Success

Deploying sensors in a business environment generates enormous volumes of data. The challenge lies in applying analysis of that data to identify and solve specific business problems while delivering measurable outcomes. In terms of insurance underwriting, disciplined data analytics and management are essential to separating analytical insights from data noise.

An effective approach is characterized by a starting point for “lightweight” solutions focused on outcomes that yield clearly recognizable and measurable business value. Consider the use cases described earlier:

- > Reducing the likelihood of truck accidents or predicting operational disruption due to mechanical failure
- > Minimizing the damage of freezer and refrigeration failure in restaurants or pharmacies
- > Keeping medicines and other temperature sensitive materials viable and safe

Each of these examples involves a straightforward application that yields a quantifiable outcome. While the benefits of a “keep it simple” approach may seem obvious, too often the businesses leaders defining Edge Intelligence and IoT strategies start with a big picture perspective. The expectation is that collecting vast amounts of information for the sake of having information will inevitably produce gold mines of new insights that support a wide range of new initiatives. In reality, however, this approach typically produces a data swamp in which improvement initiatives become hopelessly mired.

● Conclusion

Today, more and more insurers are examining the potential application of Edge Intelligence to improve predictability of an event and determine accurate rate structures. In the trucking industry, for example, pilot programs that extract information from dashcams are being deployed with the intent of enhancing driver safety and reducing risk.

While the insurance industry has a long history of integrating new data streams, today's sensor and edge device innovations promise to have a significant impact on how insurers assess liability, respond to customer demand, price their policies and proactively mitigate risk scenarios.

● About the Author

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