

WHITEPAPER

HOW OPTIMIZING VEHICLE DATA CURATION HELPS SOLVE LOSS RATIO CHALLENGES

DATAONE SOFTWARE

The auto insurance marketplace is rife with challenges to reversing rising loss ratios in the years following the peak of the COVID-19 pandemic. The Insurance Information Institute has noted a rising tide of issues that are out of insurers' hands, including a spike in accidents and fatalities, supply chain issues increasing the costs of repairs, and more intensive attorney involvement in auto accident claims has significantly driven up insurer expenses.

These issues are ultimately out of an auto insurance organization's control, but there is one control lever which can help mitigate loss ratio inflation, and that is a comprehensive, accurate understanding of the insured vehicle. PropertyCasualty360's multi-part series on insurance industry needs for this year emphasizes that, "as the industry's usage of data and analytics has matured, so has the need for a clearer view of real-time trends and relative performance within the industry." Additionally, "It's all about accessibility, shared data and analytics that help drive insurers' strategic imperatives."

ADAS: A Bellwether for Managing 21st Century Risk Analysis

When assessing a vehicle model's safety, this data must be as granular as possible to best align premiums with risk, but this is difficult when the industry is evolving at such a rapid pace. The adoption of ADAS (Advanced Driver Assistance Systems) is a prime example. Grandview Research has detailed that worldwide government safety mandates, consumer demand, and vehicle electrification has projected ADAS market cap to have an annual growth rate of over 18% for the next seven years.

The fast pace of innovation for this technology has meant there is no universal standard for ADAS implementation and efficacy. System packages have differences in location (e.g. front, rear, and side), and can vary in functionality (such as crash avoidance, blind spot detection, and lane keeping assistance). Grandview elaborates that "the ADAS component market is further segmented into sensor, processor, software, and unique parts." The functioning of ADAS is primarily dependent on sensors and their functional accuracy. LIDAR, RADAR, ultrasonic, camera, and other sensors work together to perform the desired assistance and safety function."

Technology's Compounding Impact on Risk Evaluation

The Insurance Institute for Highway Safety has stated that these variables have their own unique limitations. Some examples they share include "lane departure warning systems [using] sensors to register lane markings or the road edge, which may be problematic on roads that aren't well-marked or are covered with snow. Sensors may not function well in low light or inclement weather. Some systems only work at certain speeds. While pedestrian crash avoidance systems are effective during the day or on lit roads, they struggle to detect pedestrians in the dark."

Vehicle security platform provider Autocrypt further breaks down the benefits and risks associated with the three main types of vehicle sensors:

- *Camera sensors* are low-cost and are the only sensor that can detect 2D shapes and colors, but function poorly in extreme weather events. This would directly impact the evaluation of cars with these sensors, especially in the northern United States.
- *Radar sensors* are not impacted by poor weather conditions and are very accurate for assessing speed. Radar's drawback is that it cannot generally tell the difference between similarly shaped objects, and may struggle in closed environments such as a tunnel. However, not all radar is the same, with a wide disparity between the type and number of sensors which will greatly affect the degrees of coverage as well as accuracy and various speeds and distances.
- *LIDAR sensors* have longer detection ranges and stronger 3D modeling than radar, but their high development and manufacturing costs mean that any collision with a LIDAR-installed vehicle will come at a very high repair price.

The depth of an ADAS system does not just stop at sensor categories, but the underlying technology within them as well. As an example, the types of camera sensors employed in ADAS can also be differentiated - they may be mono or stereo-cameras, use infrared, be forward-facing, rear-facing, or side-mounted, and in the near future, incorporate thermal imaging.

Most ADAS installations use more than one type of sensor and/or camera, and be deployed in unique locations in the vehicle. A full, granular understanding of the exact makeup of a vehicle's ADAS features, and its relationship to their location and common weather conditions, is imperative to understanding its role in policy evaluation.

The Challenge: Determining the Levels of Risk by Package

Lexis-Nexis released an internally researched whitepaper examining the impact these complex technological shifts have had on the auto insurance claim severity. Their findings showed that while claim severity was overall reduced slightly with ADAS features installed, there is significant opportunity for segmentation, with a direct correlation between the significance in loss cost reduction and the type of driver assistance packages installed in the vehicle. Lexis-Nexis concluded that, "controlling for factors that you are not comparing dissimilar ADAS and non-ADAS vehicles allows the true loss cost benefit of ADAS to be isolated...understanding which vehicles have which ADAS features, combined with loss cost performance, equips insurance carriers to apply appropriate discounts and deliver on consumer expectations along the way."

Future-proofing Your Organization's Risk Management

The high technological and performance variability in ADAS is just one of the major reasons why granular, accurate 17-digit VIN data is imperative for auto insurance providers to build a profitable and sustainable process for policy generation, claims, and underwriting. Current ADAS is the vanguard for a massive technology leap in the automotive industry, with more complex EVs and assistive systems surely on the way soon. The move to electrified, autonomous, connected vehicles **permanently changes how vehicles will be built and managed**, both through technological advancement and shifts in government regulations to require more robust safety features. Canada's Victoria Transport Policy Institute released a whitepaper in May 2023 predicting that limited Level 5 autonomy may be available as early as the late 2020s.

These changes are resulting in a large, complex data flow that auto insurers will need to manage if they are going to utilize it to their advantage. In order to do so, new tools and processes will need to be put in place. These will provide immediate benefits in supporting their rate-to-risk strategy, and will only become more important as the move toward autonomous vehicles accelerates in coming years.

DataOne Software streamlines the data management process for option-level VIN Decoding by translating OEM Build Data (and fully verified third-party records) into a standardized format; the proprietary marketing terminology is removed, and users are aware of exactly which specific features are present in the vehicle when it is reviewed. DataOne's in-depth segmentation, and the curation tools to ensure it is performed properly, can play a key role in effectively managing current loss ratios and chart a path for long-term profitability and market share growth.

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