DriveAbility® 3.0

The most advanced predictive Insurance Risk Score

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Executive Summary

The OCTO DriveAbility® 3.0 Score represents a next-generation approach to insurance risk assessment, leveraging high-resolution telematics data and actuarially sound methodologies to deliver materially improved accuracy, transparency, and fairness in underwriting and pricing.

Unlike traditional rating factors—which rely on static proxies such as age, location, or vehicle type—the DriveAbility® Score is grounded in actual driving behavior and contextual exposure, enabling insurers to more precisely quantify individual risk.

Moreover, based on publicly available information and competitive assessments, the DriveAbility® Score is among the industry's leading telematics risk scores in its ability to assess and predict driver risk, providing insurers with more accurate risk segmentation and stronger underwriting insights than alternative market solutions.

Developed using enriched, per-second driving data combined with verified insurance claims, the model applies established predictive modeling techniques to produce a transparent and interpretable framework. This approach ensures that the Score is not only highly predictive—demonstrating up to a 10x lift between the safest and riskiest drivers—but also transparent and explainable to regulators, insurers, and consumers.

The Score delivers meaningful benefits to both insurers and policyholders. By significantly improving risk segmentation, it reduces longstanding cross-subsidization, ensuring that safer drivers are more accurately rewarded, while higher-risk drivers are priced appropriately. This leads to more equitable, behavior-based pricing and strengthens alignment between risk and premium.

Taken together, the DriveAbility® 3.0 Score combines superior predictive performance, methodological transparency, strong governance, and proven regulatory acceptance, positioning it as the most advanced telematics risk scoring solutions available in the industry today.

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The DriveAbility® Advantage

The guiding principles behind the DriveAbility® Score are that a telematics risk score should be: **highly predictive, actionable and insightful for users, and flexible enough to support a wide range of use cases**. The success of the DriveAbility® program is built on three core pillars: **people, data, and analytical approach**.

Deep domain expertise and strong analytical abilities are critical to building an effective scoring algorithm. Too often companies focus solely on predictive power resulting in an algorithm that is not fit for purpose. The DriveAbility® team includes product managers, actuaries and data scientists with strong technical skills and unmatched domain experience with insurance telematics.

Knowing how the driving score will be used in practice is key to building a predictive score meeting the broader requirements, like transparency and flexibility. The OCTO DriveAbility® team works closely with each client to ensure the Score is deployed in the way that best aligns with their specific business objectives, market dynamics, and underwriting strategy, maximizing the value delivered. Should a client later decide to enhance the Score or develop a proprietary model, the OCTO DriveAbility team will remain a trusted partner, providing guidance, expertise, and support throughout that journey.

Analytical excellence can only be achieved with the right data. Driving, contextual and insurance data are all critical components for building an effective driving score.

- **Raw driving data**: fundamental building block to build features measuring how, how much, where, and when a vehicle is operated.
- **Contextual data**: environmental factors, like road characteristics and weather, to put the behavioral features in context.
- **Insurance claims data**: verified claims—rather than detected crashes--used as a response variable to quantify the impact of the Score features on the frequency and severity of losses.

Driving data is different than traditional data used for insurance ratemaking. Unlike traditional factors (e.g., age, garage location) that are relatively static, driving data behaviors and conditions change every second. Most competitors convert the rich, granular driving data into heavily summarized features (e.g., percentage of late-night driving, harsh brakes/ mile) to conform to their standard correlation-type analysis. We maintain per-second level data to study the exact circumstances at the time of the accident. This approach results in better signal and richer insights.

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The Analytical Process

This section describes the six stages of the analytical process used in developing the DriveAbility® 3.0 Risk Score.

All business requirements are collected from key stakeholders during the **Scoping** phase. While predictive power is critical, it isn't the only key requirement. Other key requirements include transparency for end users, approvability by regulatory authorities and flexibility to be configurable for different insurance products.

The second phase, **Data Wrangling**, involves the collection, validation and cleansing of telematics data. There is significant variation in the quality of data collected by different telematics service providers (TSPs). Prior to scoring data from any TSP, we conduct a comprehensive data quality review (DQR) and outline issues that must be fixed. Even after fixing issues uncovered by the DQR, there are still anomalies inherent in telematics data. Proprietary cleansing routines are run to clean the data addressing typical anomalies. It is also during this phase that insurance claims are attached to the per-second telematics data.

Raw telematics data includes the geographic position (i.e., longitude and latitude) of the risk for each record which does not provide environmental context without additional data. During the third stage, **Data Enrichment**, the geographic points are mapped to road segments and external elements—

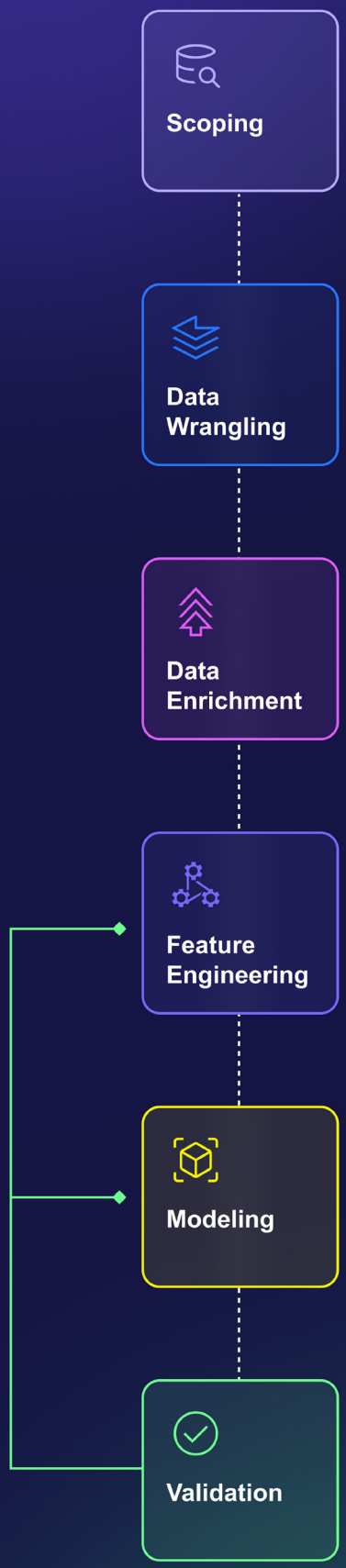

Fig.1: The Analytical Process

like road characteristics and weather—are added to the dataset.

Feature Engineering involves converting the enriched telematics data into features that will be studied. Having access to enriched raw telematics, rather than events or averages, allows the team the flexibility to create any feature. For example, if only harsh braking events are collected, the analysis is limited to the impact of harsh brakes at that g-force. With granular data the team can study any deceleration event desired. Another benefit of this approach is that it enables OCTO to remain data agnostic, applying a consistent and standardized feature construction methodology regardless of the underlying telematics data source.

As a result, the DriveAbility® framework can be reliably deployed across different input data sets while maintaining comparability and integrity of the score thereby allowing DriveAbility® Score to be constructed on data from any telematics provider that adheres to OCTO's input specifications. Ultimately, the DriveAbility® team brainstormed and created a library of 500-700 features.

The **Modeling stage** uses a combination of generally accepted predictive modeling approaches. A variety of machine learning techniques are applied to the superset of features to determine the most important features and identify any potential interactions. Primary focus is on driving behavior and contextual features, avoiding the use of prohibited or sensitive attributes that may be problematic with regulatory authorities. Generalized linear modeling (GLMs) is used to build "final" frequency and severity models incorporating the key features. GLMs, rather than "black box" approaches, are used at this point to achieve the transparency necessary.

During the final stage, **Validation**, the "final" models are validated qualitatively and quantitatively. Standard statistical tests (e.g., hold-out sample testing) and expert peer reviews are conducted to assess the statistical validity of the models. User acceptance testing with a set of end users identifies any qualitative issues. If any issues are uncovered during this stage, the process may return to the Feature **Engineering** or **Modeling** stage. Robust validation practices ensure the model remains stable, predictive, and appropriate over time. In addition, the model development process incorporates rigorous data quality controls, version governance, and documentation standards, making the score fully auditable and reproducible.

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DriveAbility® 3.0 Risk Score

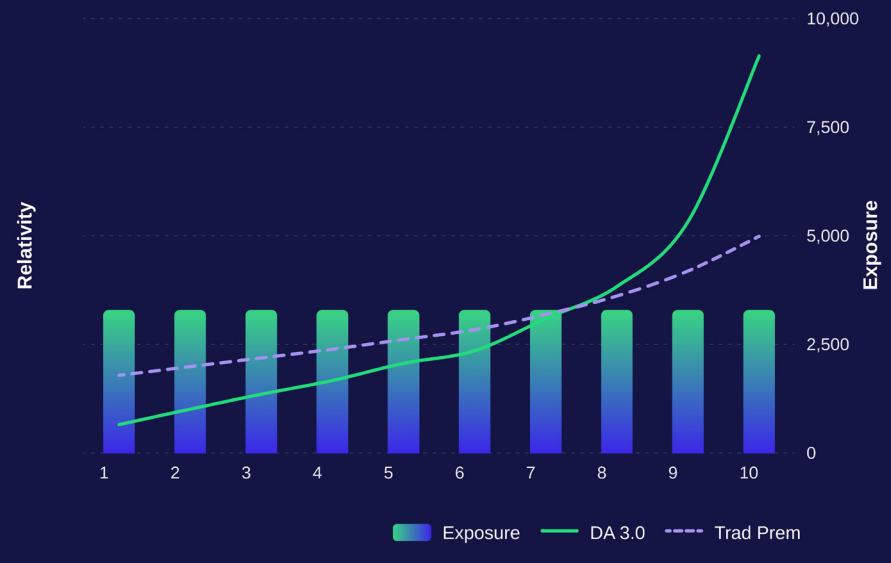
The final DriveAbility® 3.0 Risk scoring algorithm produces an overall score and eight score components.

4.1 Score Lift

Figure 2 confirms the score is extremely predictive of insurance losses and produces material segmentation power above that possible relying solely on traditional factors. This validation chart is based on a group of approximately 35,000 risks whose data was not included in the modeling process. The risks were ordered based on the overall DriveAbility® 3.0 Risk Score and subdivided into ten equal groups (or deciles) with group one being the safest and group 10 being the riskiest.

The green line shows the actual loss cost results for each of the ten groups. The actual results confirm there is significant segmentation power with the highest group having 10 times higher loss costs than the safest group. To put that in perspective, the most powerful traditional factors have a lift of about 3. Additionally, there is significant differentiation throughout the entire population of risks in the sample as evidenced by the upward sloping line.

Fig.2: DriveAbility® Opportunity



Decile	% Diff
1	-63%
2	-49%
3	-38%
4	-30%
5	-21%
6	-17%
7	-3%
8	6%
9	27%
10	83%
Abs(Avg)	34%

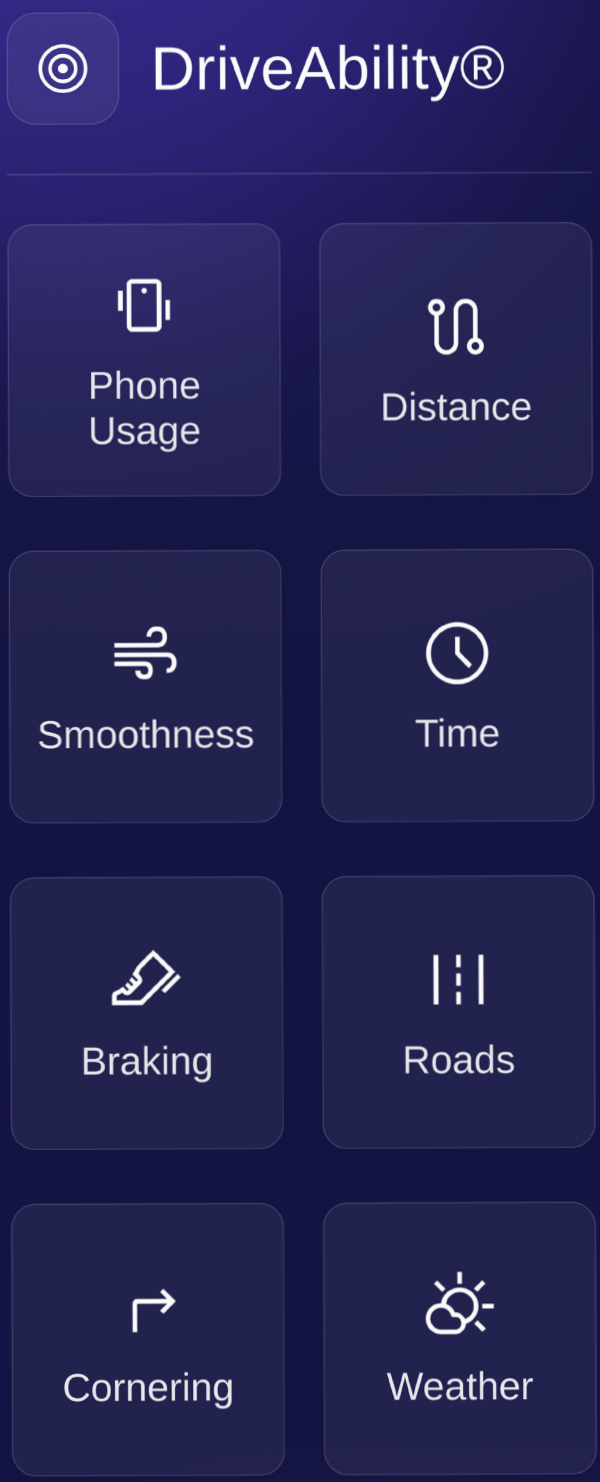
Even if a score is predictive, it is only valuable to an insurer if it provides information above and beyond what is possible through the traditional factors. The purple dashed line represents the average traditional premium charged by the insurers for each group. The gap between the two lines represents the “opportunity” the insurance company has to improve the accuracy of their traditional pricing using the driving data. The graph shows that 70%-80% of the risks (i.e., deciles one through eight) are subsidizing 20% of the risks (i.e., deciles nine and ten). There is opportunity throughout the population with indicated decreases up to 60% in the safer deciles and indicated increases of 25% and 80% in the ninth and tenth deciles, respectively. Insurance companies can use this powerful score to reward safer risks through significantly lower premiums and reduce the subsidization of the riskiest insureds.

The exact results will vary from one insurer to another based on their customer segments and pricing plans. Note, this evaluation was based on a sample of risks that voluntarily participated in a telematics program. In other words, this sample is biased toward a population who are, on average, safer drivers. Had the sample included the general population, **the segmentation would likely have been significantly higher**.

4.2 Score Components

Score components are critical to promote transparency and flexibility. The components provide the company or end user with detailed information to understand how each of the underlying behaviors are impacting their overall score. The components also create flexibility for insurance companies to create a different configuration that better aligns with their proprietary telematics-based insurance product. For example, a pay-per-mile product will exclude the distance component to avoid double-counting.

The DriveAbility® 3.0 Risk Score is comprised of eight components. There are four behavioral components (Phone Usage, Smoothness, Braking and Cornering) representing driving actions that are largely within the control of the driver and four exposure components (Distance, Time, Roads and Weather) that are typically less controllable by the driver.



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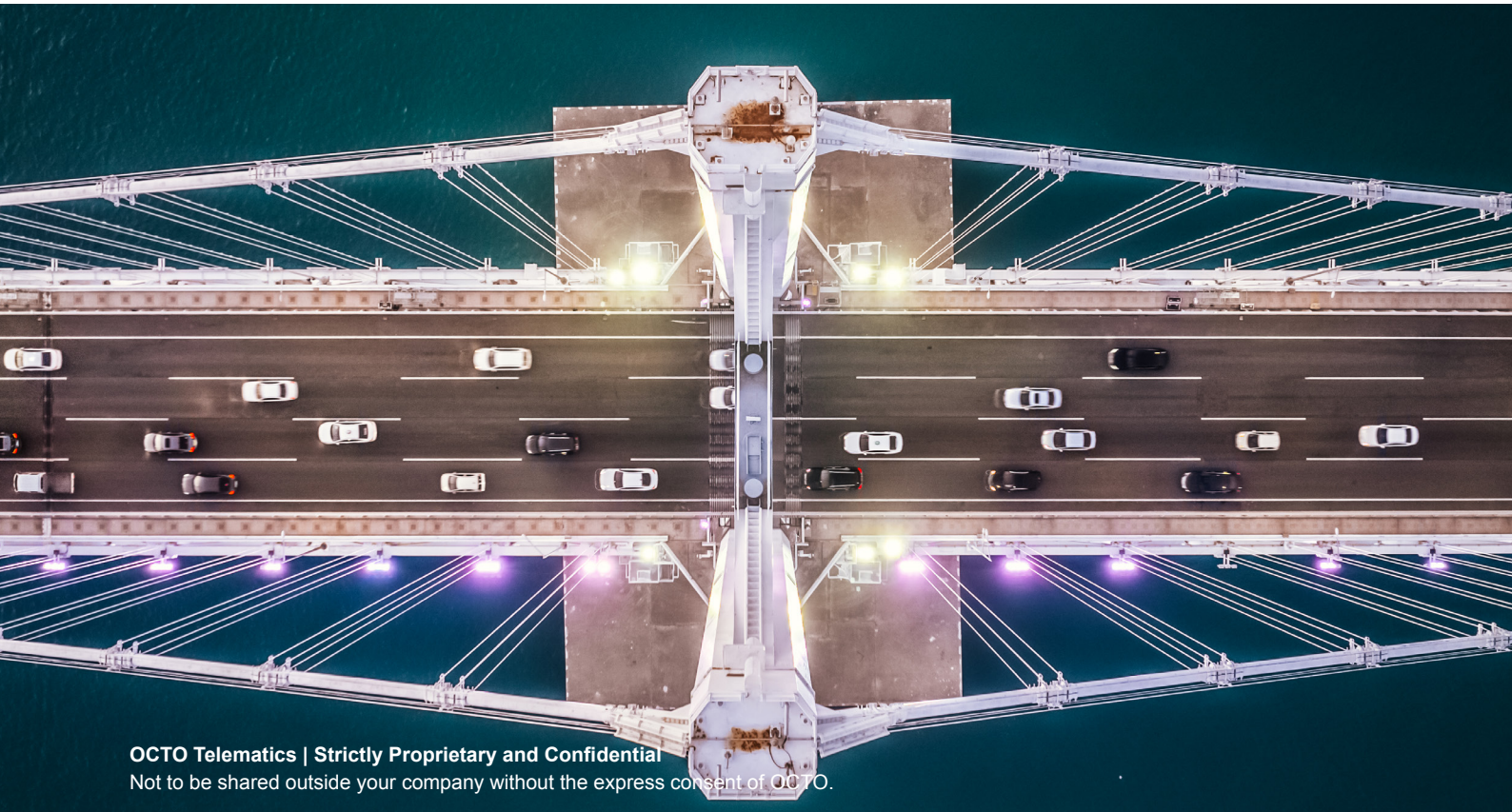
Regulatory Readiness

The DriveAbility® 3.0 Risk Score has been designed with a clear focus on regulatory compliance, transparency, and strong governance practices.

The modeling framework is grounded in well-established actuarial practices, ensuring that all model inputs and outputs are fully interpretable and can be clearly explained to regulators, insurers, and consumers. The score is based solely on observed driving behavior and contextual exposure, intentionally excluding prohibited or sensitive attributes to avoid unfair discrimination.

DriveAbility® 3.0 Risk Score has been filed and approved in 48 US states. Each approval reflects adherence to established actuarial standards and guidance for the use of advanced analytics in insurance. Its design and supporting documentation are audit-ready, and independent third-party validation can be facilitated as needed.



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Competitive Analysis

Competitive analysis supports our claim that the DriveAbility® 3.0 Score is among the most comprehensive and predictive telematics risk score available on the market today.

We regularly review publicly available information to benchmark the DriveAbility® 3.0 Risk Score against insurance companies and competitors.
The following compares the DriveAbility® 3.0 Score to the proprietary score developed and used by another leading TSP.

Their filing included a chart showing the segmentation produced by their score using a hold-out sample split into five equal-sized buckets or quintiles. Their results show a lift of 3.8x (i.e., loss cost of worst quintile divided by the loss cost of the best quintile). Additionally, their score has limited differentiation between the first three quintiles. In other words, their score may be good at identifying the worst 40% of drivers, but is less effective at differentiating the safest drivers.

Figure 3 compares the DriveAbility® 3.0 and competitor results on a quintile basis. The comparable DriveAbility® 3.0 Score lift (7.9x on a quintile basis) is twice as high as theirs (3.8x). Additionally, the DriveAbility® Score is more effective at identifying risks in both tails as evidenced by the green line being steeper than the purple line at both ends. The indicated discounts for the best risks (i.e., quintiles 1 and 2) are 35-40% lower if using the DriveAbility® Score, giving insurers greater confidence to give larger discounts.

Their filing included a few details that are likely to contribute to the difference in segmentation power.

First, the DriveAbility® 3.0 Score includes more comprehensive features. Figure 3 compares each score's components. Both scores include Roads, Braking and Distraction components. The DriveAbility® Score also includes Distance, Time/Day, Cornering, Smoothness and Weather. Speeding is the only component in their score that is not in the DriveAbility® 3.0 Score. Speeding was specifically excluded from DriveAbility® 3.0 as an individual component due to regulatory and consumer acceptance concerns. That said, absolute speed is included in the DriveAbility® 3.0 Score via interactions with other components like Braking (i.e., the risk of harsh braking varies by the starting speed).

A deeper dive confirms that the DriveAbility® 3.0 Score is also more detailed for the common components. For example, their Roads component only seems to differentiate based on the road type travelled. In contrast, the DriveAbility® 3.0 Roads component has road type, but also includes other road characteristics (e.g., road complexity and proximity to junctions) that have significant impact on risk.

Secondly, it appears their data scientists used summarized features (e.g., percentage of time on highways) suggesting they did not model at the per-second level. The DriveAbility® 3.0 Score model was built using a modeling dataset at the per-second level. As stated earlier, the per-second approach is better for identifying the full signal and understanding causation.

Finally, their filing indicates they use detected crashes (rather than verified insurance losses) as a response variable for modeling. Crash detection algorithms have difficulty detecting low-impact claims and can produce false positives. Additionally, crash detection algorithms identify a crash happened, but not the amount of the claim restricting the data scientists to frequency-only modeling. In contrast, OCTO uses verified insurance claims data, rather than detected crashes. Consequently, our models are built using real insurance claims, including low impact crashes.

By having the loss dollars by coverage, OCTO can study the impact of each feature on both loss frequency and severity across different coverage types.

We performed similar analysis comparing DriveAbility® 3.0 Score to other driving scores in the market. While the specific facts differed, the overall findings were consistent.

Fig.3: Component Comparison

Components	DA 3.0	Competitor
Mileage	✓	✗
Time	✓	✗
Weather	✓	✗
Roads	✓	✓
Braking	✓	✗
Smoothness	✓	✗
Cornering	✓	✓
Speeding	✗*	✓
Phone Usage	✓	✓

*Speeding is not included in the Octo Score to help ensure a more consistent and reliable customer experience, minimizing potential concerns related to speed limit accuracy.

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Conclusion

DriveAbility® 3.0 demonstrates that telematics-based risk scoring can deliver meaningful advancements in risk assessment vs both standard insurance factors and other telematics providers, while meeting the standards required for regulatory acceptance.

Through its combination of high-quality data, disciplined feature construction, and actuarially grounded modeling, the score provides a consistent, scalable framework that can be applied across insurers, geographies, and data sources without compromising integrity or comparability.

Equally important, the model has been designed not just for performance, but for accountability. Its transparent structure, well-defined governance processes, and audit-ready documentation enable evaluators to clearly understand how the score functions, how it is validated, and how outcomes are produced. This level of clarity is critical to building confidence in the use of advanced analytics within insurance.

As the industry continues to evolve toward more data-driven approaches, DriveAbility® 3.0 Risk Score provides a proven path forward—balancing innovation with responsibility. It equips insurers with a more precise and behaviorally grounded view of risk, while aligning with fundamental principles of fairness, explainability, and consumer protection. In doing so, it establishes a strong foundation for the continued adoption of telematics in a manner that benefits all participants.

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