

DRIVING SAFETY AT THE EDGE :

MOTER X SONATUS CASE STUDY

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Background

MOTER Technologies is a software and data science company focused on bridging the gap between the automotive and insurance ecosystems. MOTER's mission is to enable smarter, data-driven decisions for automotive and insurance businesses by leveraging comprehensive driving behavior and vehicle sensor data analytics.

Introduction

MOTER Technologies is helping to redefine the future of Insurtech by moving beyond traditional underwriting factors such as age or ZIP code to focus on real-world driving behavior. The company's mission is to transform how driver risk is measured, priced, and continuously improved. The company promotes an insurance model that is dynamic, personalized, and proactive, designed to make roads safer rather than simply reacting after accidents occur.

Unlike conventional Usage-Based Insurance (UBI) programs that rely on limited telematics inputs, MOTER's approach incorporates a wider range of behavioral and contextual factors, including driver distraction, surrounding traffic, pedestrians, traffic signals, following distance, and lane-changing frequency. These contextual inputs provide a more complete and accurate view of driver risk than traditional UBI models can deliver.

MOTER's advanced risk models are embedded directly within vehicles, enabling access to high-fidelity sensor data while using onboard computing to reduce data transmission costs and address privacy concerns. This embedded approach allows insurers and mobility partners to deliver real-time insights, improve driver safety, and create new opportunities for personalized risk management.

MOTER partnered with Sonatus to embed its advanced driver risk modeling and coaching technology within Sonatus' in-vehicle edge AI platform. Through this integration, MOTER gains the ability to access high-fidelity vehicle and environmental data in real time, deploy its behavioral and contextual risk models directly at the edge, and safeguard data privacy and proprietary algorithms. The result is a scalable, production-ready solution that enables real-time driver coaching, supports continuous risk assessment across diverse driving conditions, and reduces data transmission and cloud processing costs for OEMs and insurers alike.

Challenges

While MOTER's embedded approach provides clear advantages, bringing such models into production required addressing several long-standing challenges in the telematics and insurance domains.

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Traditional UBI solutions have relied on OBD dongles or smartphone apps, both of which present significant limitations. Dongles are costly, do not operate reliably across all vehicle types, and can interfere with other onboard systems such as ELDs in commercial fleets. Smartphone-based UBI apps often lack precision and struggle to distinguish between driver and passenger behavior. Data-sharing permissions can be denied or later revoked, allowing users to inadvertently or intentionally manipulate their UBI scores.

Modern vehicles produce highly accurate and richer data than what aftermarket devices can provide. The additional context enabled by vehicle data allows MOTER to create scoring models with far greater predictability than standard UBI models. Most U.S. state departments of insurance require that scoring models used for underwriting be submitted and approved prior to deployment. MOTER's models are approved for use by the majority of US states.

After meeting these regulatory requirements, MOTER set out to deliver an embedded driver risk intelligence solution capable of operating directly within the vehicle, enabling personalized driver feedback and real-time risk assessment without reliance on external data transmission. To achieve this, the company needed to overcome several key integration and deployment challenges:

- Accessing and standardizing diverse in-vehicle data signals across multiple OEM platforms.
- Maintaining consistent model accuracy and responsiveness across different ECU compute environments.
- Protecting proprietary algorithms and sensitive data during in-vehicle execution.
- Avoiding costly, custom integrations for each OEM or vehicle program.

The Solution: MOTER's AI-Based Scoring Models + Sonatus AI Director Platform

MOTER's AI-based scoring models rely on a rich set of CAN bus signals that include traditional telematics data such as high-frequency speed, acceleration, braking, and cornering, along with non-traditional indicators such as following distance, stop sign and traffic light detection, lane keeping, and driver distraction information. These inputs feed MOTER's proprietary risk models, which generate two complementary types of outputs:

- **Insurance Premium Scores** for rating, designed to enable dynamic insurance pricing and underwriting.
- **Driver Coaching Scores**, developed to promote safety culture among individual drivers and fleets, providing both trip-level and factor-specific feedback that highlights opportunities for improvement.

To address these challenges, MOTER leveraged the Sonatus AI Director to deploy these models directly within the vehicle in a secure and scalable runtime environment. The integration enables seamless access to in-vehicle data, real-time model execution, and dynamic feedback without depending on continuous cloud connectivity. The Sonatus AI Director platform provides:

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- Secure, containerized model execution that safeguards MOTER's proprietary algorithms, and the driver's data.
- Streamlined access to vehicle data through standardized APIs.
- Flexible deployment across diverse ECU and vehicle architectures.
- A unified software framework that minimizes integration effort for OEMs.

Together, this collaboration demonstrates how in-vehicle AI can deliver advanced driver risk assessment and coaching while eliminating unreliable aftermarket devices, reducing data transmission costs, enhancing privacy, and accelerating OEM deployment of behavior-based safety and insurance solutions.

Results & Benefits:

Through this collaboration, MOTER successfully demonstrated how in-vehicle AI can transform driver risk assessment from a cloud-dependent process into a real-time, edge-executed capability.

Key Benefits for OEMs:

- **Differentiated Insurance and Fleet Services:** Creates new monetization and partnership opportunities by enabling OEMs to offer embedded insurance, advanced driver coaching, and risk intelligence services as part of their connected vehicle ecosystem.
- **Enhanced Safety and Driver Insight:** Enables OEMs to deliver real-time, in-vehicle driver coaching and risk assessment that improves safety outcomes and strengthens brand reputation for responsible mobility.
- **Privacy-By-Design Architecture:** Supports regional data privacy regulations such as GDPR and CPRA by keeping sensitive behavioral data within the vehicle, reducing compliance risk and simplifying data governance.
- **Reduced Data Transmission and Cloud Costs:** By executing MOTER's risk models directly at the edge, OEMs minimize the volume of telematics data sent to the cloud, lowering communication and processing expenses.
- **Rapid Integration and Scalability:** The Sonatus AI Director platform provides a unified, software-based deployment framework that allows OEMs to integrate MOTER's models across multiple vehicle lines in days rather than months.
- **Hardware and Platform Flexibility:** Compatible with a wide range of ECU compute environments and adaptable to future software-defined vehicle architectures without hardware redesign.

Looking Ahead:

Beyond risk modeling, MOTER has developed advanced collision detection models to be used for First Notice of Loss (FNOL) and claims management processes. These additional services enable faster and fairer claims handling for consumers while creating new revenue opportunities for OEMs.

Together, MOTER and Sonatus are demonstrating how embedded intelligence can make the next generation of connected vehicles not only smarter, but safer and more insurable by design.