

Predicting Failure Modes: How an OEM saved \$32 million



Manufacturers are under pressure to operate more efficiently and cost-effectively while navigating supply chain volatility, labor shortages, and rising customer expectations. That means eliminating catastrophic defects and product failures before they happen.

The Challenge

Manufacturers are sitting on petabytes of data that's often siloed and disconnected, preventing teams from making real-time, informed decisions when it matters most.

This was the case for an automotive OEM who produced a large number of engine failures in the field. Without understanding root cause, defective vehicles kept shipping which was hurting their bottom line and customer satisfaction ratings.

The OEM captures operational data across telematics, warranty claims, service records, parts history, and customer feedback. But without a way to connect these data sources into a unified view, critical questions, like the following, go unanswered:

- Which repairs are essential to retain your most important customers?
- Which actions today will reduce warranty costs over the next two quarters?

Instead, they spent months manually pulling data from disconnected systems and trying to piece together an aggregated view of their environment. By the time patterns started to emerge, it was too late. The financial damage was done and customers started to churn.

Automotive OEM
managing data from:

300,000+
Vehicles

300M+
Sensor readings
per day

34M+
DTCs logged

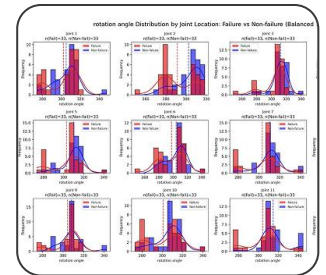
5M+
Claims

The Solution

This automotive OEM needed more than a tool or one-off analysis, they needed a partner. They needed a partner with a proven technology platform that could scale with their business and a team of experienced data scientists who could customize a solution to meet their requirements.

Viaduct's predictive failure modes solution identifies which vehicles are at risk of failure and prioritizes them for action by:

- Unifying data sources — creating a single view of the OEM's data sources to rapidly surface failure patterns
- Conducting exploratory data analysis (EDA) - going beyond traditional EDA to analyze complex signals at scale, transforming them into predictive patterns by isolating the real, physical factors that drive failure
- Building predictive models - deploying high-performance ML models with Viaduct's proprietary TSI Engine
- Planning and monitoring field actions - modeling financial trade-offs, launching targeted campaigns, and tracking impact over time



Correlating datasets to predict failure

Why Viaduct?

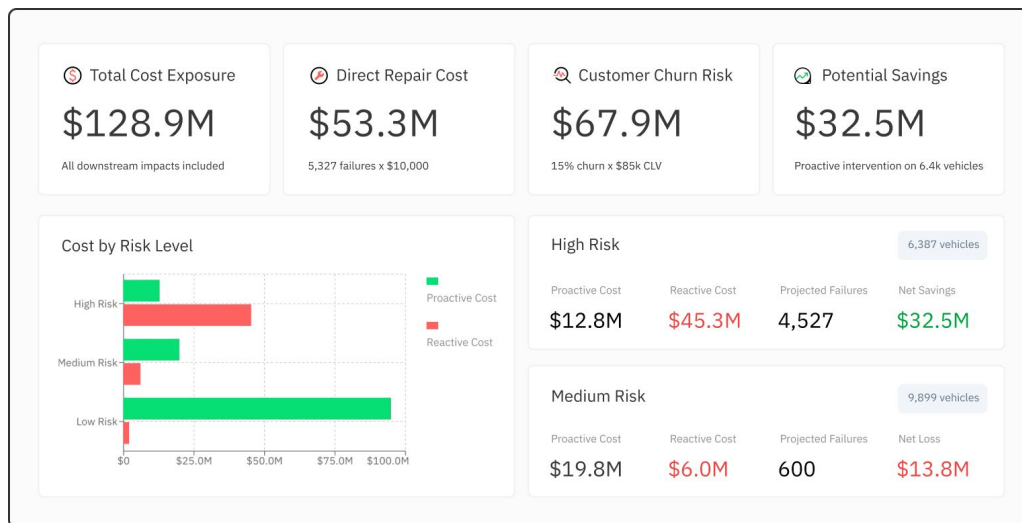
Patented AI technology combined with decades of manufacturing experience.

Proven scale

Faster time to insights

Flexible delivery

Strong partnership



The Impact

By identifying and prioritizing the highest-risk vehicles for repair, this OEM dramatically reduced on-the-road failures, protected customer relationships, and **recovered \$32 million in repair costs.**