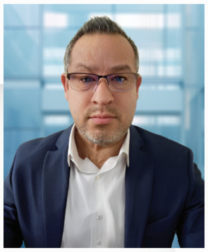
OEMs Turn to AI in Vehicle Manufacturing:

Why Retail Warranty Reimbursement Has Never Been More Important

by Sean Reyes
CMO | **Armatus**



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For decades, vehicle warranty work has been viewed as an unavoidable cost of doing business. Manufacturers designed and built vehicles, dealerships repaired them, and warranty reimbursement served as the financial bridge between the two. But that equation is changing.

According to a recent analysis by McKinsey & Company, global automotive warranty costs have nearly doubled since 2012, reaching approximately $58 billion in 2024 - roughly 2.2% of industry sales. For some automakers, warranty expenses now exceed 4% of annual revenue, rivaling their investment in research and development.

Faced with mounting financial pressure, OEMs are aggressively investing in artificial intelligence to identify quality issues sooner, detect failure patterns before they spread across vehicle populations, and shorten the time between identifying a defect and deploying a remedy. McKinsey reports that manufacturers expect AI-enabled quality systems to reduce warranty costs by 5% to 10% or more through earlier detection, better root-cause analysis, and more targeted corrective actions.

These investments will undoubtedly improve vehicle quality over time. But dealerships should not assume that AI will dramatically reduce warranty work anytime soon. In fact, the opposite may be true. AI will undoubtedly eliminate some service visits through better targeting and over-the-air remedies. But it will not eliminate the physical, diagnostic and safety-related repairs that must still be performed at franchised dealerships and those remaining repairs are likely to require increasingly specialized labor and equipment.

Today's Vehicles Are More Complex Than Ever

Modern vehicles have evolved into rolling computers. Software now governs everything from advanced driver assistance systems and infotainment platforms to battery management, braking systems, transmissions, and powertrain controls. While these innovations improve safety and convenience, they also introduce thousands of new opportunities for defects that simply did not exist a decade ago.

The industry's own data tells the story. In the [2025 State of Recalls] published by Recall Masters, the company reported 447 NHTSA safety recall campaigns affecting more than 28.5 million passenger vehicles and light trucks during the year. Software and electronics represented the largest recall category, accounting for 119 campaigns affecting more than 8.19 million vehicles, while powertrain defects followed closely with 87 campaigns impacting nearly 8 million vehicles.

These aren't isolated incidents. They reflect a structural transformation of the automobile itself. Software/electronics has been in the top spot since the report was first released in 2016, introducing new quality challenges. AI may help manufacturers detect these issues sooner, but it cannot eliminate the complexity that created them.

McKinsey's research reinforces this reality. While OEMs are turning to telematics, diagnostic, and warranty data, most still rely heavily on warranty claims to identify problems after vehicles are already in customer hands. The average manufacturer surveyed requires approximately seven weeks to identify a root cause and another 9 to 10 weeks to develop and implement corrective actions. During that period, additional vehicles continue entering the marketplace.

Dealerships Remain on the Front Line

No matter how sophisticated predictive analytics become, one fact remains unchanged: someone still has to perform the repair. Whether the remedy involves a software update that fails remotely, recalibrating safety systems, replacing electronic modules, repairing powertrain components, or installing redesigned parts, franchised dealerships remain the face of the manufacturer throughout the ownership experience.

Every recall consumes technician time, service bay capacity, diagnostic equipment, administrative effort, and customer communication. As reported in the 2025 State of Recalls, many software recalls still require dealership intervention, while powertrain campaigns often demand lengthy diagnostic procedures, specialized tools, extensive technician expertise, and constrained parts availability. These repairs frequently occupy service departments for significantly longer than traditional maintenance work.

At the same time, dealerships continue facing technician shortages, rising labor costs, growing customer expectations, and increasing competition for qualified employees. None of those expenses disappear simply because AI helps manufacturers identify defects earlier. If anything, dealerships must become more efficient at recovering every dollar they are entitled to for performing warranty work.

Protecting Profitability While Warranty Volume Grows

As manufacturers work to reduce warranty costs through AI, dealerships face a different challenge: ensuring that every warranty repair contributes appropriately to the financial health of the store. Warranty reimbursement has never been about creating additional revenue. It has always been about receiving fair compensation for work already performed.

Yet too many dealerships continue operating under antiquated labor reimbursement rates - even as technician wages, employee benefits, equipment investments, and operating expenses have climbed dramatically. Every repair completed under outdated reimbursement rates widens the gap between actual retail costs and what the manufacturer pays.

The growing complexity of today's repairs only magnifies that disparity. Sophisticated electronic architectures require more highly trained technicians, more expensive diagnostic equipment, and continual investments in education and certification. These costs are becoming permanent features of modern dealership operations. If reimbursement rates fail to keep pace, dealerships effectively subsidize a portion of the manufacturer's warranty obligation.

Customer Confidence Depends on the Service Experience

McKinsey also emphasizes that warranty performance is no longer simply a cost issue for OEMs. It has become a major driver of customer satisfaction, loyalty, and future vehicle purchases. Customers are less tolerant of repeat repairs, extended downtime, or inconsistent service experiences than ever before.

Consumers rarely distinguish between the manufacturer and the retailer when something goes wrong with a new vehicle. They simply expect the dealership to resolve the issue professionally, efficiently, and on the first visit whenever possible.

Delivering that experience requires more than skilled technicians. It requires the financial resources to recruit and retain those technicians, invest in advanced diagnostic equipment, maintain sufficient shop capacity, and continually train employees as vehicle technology evolves. Those investments become increasingly difficult when warranty reimbursement fails to reflect the true cost of performing the work.

Why Retail Warranty Reimbursement Has Become a Strategic Priority
Forward-thinking dealership groups no longer view retail warranty reimbursement as an annual administrative exercise. They recognize it as an essential component of fixed operations strategy. As warranty repair volume increases, optimized reimbursement rates offset rising labor costs, support technician compensation, strengthen service department profitability, and provide additional resources to improve the customer experience.

That is where specialized expertise matters. Companies like Armatus help dealerships optimize the reimbursement opportunities already available under state statutes by managing the highly technical process of retail warranty reimbursement submissions. Through proprietary technology, proven processes, and deep expertise in state regulations and OEM requirements, Armatus helps dealerships pursue reimbursement rates that more accurately reflect their retail labor rates and parts pricing.

The objective is straightforward: ensure dealerships receive the compensation they have earned for performing increasingly complex warranty repairs. As warranty workloads continue growing, that objective becomes increasingly important.

AI Changes the Future - Not the Present

There is little question that AI will reshape automotive quality management. Over time, these technologies should reduce unnecessary warranty costs and improve overall vehicle quality. But that future will not arrive overnight. McKinsey notes that only a small percentage of manufacturers have fully implemented AI-enabled quality systems at production scale. Most remain in pilot programs or early stages of deployment, constrained by fragmented data, integration challenges, and organizational complexity. Meanwhile, today's dealerships continue repairing millions of recalled vehicles.

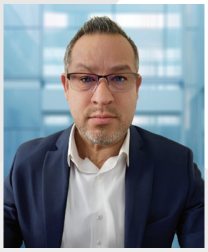
Software and electronics defects remain the industry's largest recall category, while powertrain recalls continue to grow in both volume and complexity. Those trends are expected to continue as vehicles become increasingly connected, electrified, and software-defined.

The Dealerships That Prepare Today Will Win Tomorrow

While the automotive industry enters a new era , one constant remains. When customers receive a recall notice or experience a warranty issue, they turn to their local franchised dealership.

Dealerships will continue carrying the operational responsibility for preserving customer confidence, protecting brand reputation, and restoring vehicles to safe operating condition. The question is whether they will be adequately compensated for doing so to keep pace with the realities of modern service operations.

Dealerships that invest in optimized retail warranty reimbursement today will be better positioned to recruit technicians, expand service capacity, remain profitable, and retain the confidence of tomorrow's new-vehicle owners.



Sean Reyes oversees all marketing efforts at Armatus Dealer Uplift as Chief Marketing Officer. Sean's experience spans more than 35 years of business development and strategic marketing experience, having developed go-to-market products and solutions for the automotive, healthcare, insurance, finance and technology industries. Sean has extensive network in automotive, having served as one of the original team that founded Recall Masters. He spent more than 10 years advocating for vehicle safety and supporting dealer warranty reimbursement related to recall repairs.