



How AI is Transforming the Future of Automotive Services

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Key Takeaways

- AI is remaking automotive maintenance and repair, driving operational shifts and elevating customer expectations industry wide.
- From predictive maintenance to inventory optimization, AI's applications are growing, fueled by both startups and established players.
- With a focus on leadership, culture, and strategic alignment, companies can leverage AI to drive meaningful, long-term value.

Automotive services are undergoing a profound shift as **artificial intelligence** becomes increasingly essential across the industry, enabling predictive maintenance, redefining efficiency standards, and automating tasks. While startups push the boundaries by developing advanced applications, large established players are also racing to adopt the technology to stay competitive in a fast-changing market.

For auto maintenance and repair companies, AI offers a unique opportunity to transform their

business models. Beyond streamlining operations, organizations can use these advances to introduce predictive capabilities that reduce downtime, optimize resources, and set new service standards for consumers. This shift empowers them to deliver proactive, data-driven services that meet modern demands and strengthen customer loyalty.

However, many companies face challenges in developing a cohesive AI strategy for automotive services. Concerns about high costs, complex data management, and the need to train employees on AI

tools contribute to hesitation, making it difficult for leaders to prioritize initiatives. Organizations that delay risk falling behind as smarter, faster services set a new industry standard.

So where should companies begin? The use cases in Fig. 1 highlight AI applications that are already delivering results across the automotive services industry. This roadmap outlines key areas that maintenance and repair companies should be exploring for high-impact investments in customer engagement, diagnostics, and resource management.

By taking steps like those shown in Fig. 1 to embed AI into core operations, businesses can achieve new levels of quality, efficiency, and scalability, helping them stay competitive in a technology-driven market. This article explores these applications in depth, offering insights into different use cases as well as crucial but practical steps that companies can take to integrate AI strategically.

AI Use Cases in Automotive Services

Operational Efficiency: Automating Service Delivery and Documentation

AI is transforming how routine tasks such as vehicle inspections, diagnostics, data entry, and documentation are managed. By automating these processes, businesses can significantly reduce the time spent on manual work, enabling technicians to focus on more complex challenges. Beyond task automation, AI continuously monitors and refines workflows, reallocating resources in real time to maintain optimal productivity. This leads to faster service, improved accuracy, and better overall customer experiences. Additionally, AI automates documentation processes, ensuring adherence to best practices and regulatory standards.

- **Examples:** ProovStation’s AI-powered car inspection systems and Tractable’s damage assessment tools for insurance claims acceler-

Figure 1: Mapping Use Cases to Automotive Service Categories

Opportunities for automotive maintenance and repair companies to explore in applying and incorporating AI into operations and customer engagement and services.

Category	Step	Examples of AI Integration	Operational Efficiency	Resource Optimization	Predictive Capability	Workforce Transformation
A Customer Engagement and Vehicle Intake	1. Problem Recognition and Initiation	Predictive maintenance alerts			✓	
	2. Appointment Scheduling and Vehicle Drop-off	Chatbots	✓	✓		
B Diagnostics and Estimation	3. Initial Assessment and Diagnostics	Diagnostic AI tools	✓	✓	✓	✓
	4. Problem Identification and Estimate Preparation	Automated estimation software	✓			✓
C Authorization and Repair Execution	5. Customer Approval and Parts Procurement	AI-enabled inventory management systems		✓	✓	
	6. Repair and Maintenance Work	AI-guided repair procedures	✓	✓		✓
D Finalization and Customer Return	7. Quality Control, Final Testing, and Customer Notification	Quality control AI	✓			✓
	8. Payment, Vehicle Pickup, and After-Sales Service	Automated payment systems; customer feedback analytics	✓	✓	✓	

ate traditionally slow processes, while Dealer-FX integrates AI to streamline customer service at auto dealerships, simplifying service scheduling and increasing transparency. Compliance-Quest's AI-powered platform supports automakers by automating compliance documentation, ensuring consistent quality and streamlined data sharing with suppliers.

- **Benefits:**

- Reduced service wait-times for customers.
- More consistent, reliable service that builds customer trust.
- Increased technician capacity to focus on higher-value repairs.

Resource Optimization: Enhancing Inventory and Supply Chain Management

AI-driven inventory and supply chain management optimizes stock levels and streamlines procurement, ensuring the availability of parts when needed and reducing costly delays. By predicting part failures and analyzing usage patterns, businesses can prevent stockouts and minimize the need for last-minute emergency orders. This results in faster repair times, smoother operations, and greater customer satisfaction by ensuring parts are available when required.

- **Examples:** PartsTech's AI-driven platform predicts part demand based on purchasing history and usage patterns, helping match auto shops with major suppliers to maintain optimal inventory levels and avoid delays. BMW has created an AI-based inventory optimization platform that uses the technology to forecast inventory needs, analyze data quality, and streamline procurement.¹

- **Benefits:**

- Timely service with fewer stockouts.

- Reduced repair delays, improving customer confidence.
- More efficient resource allocation, enhancing operational performance.

Predictive Capability: Enabling Proactive Maintenance

AI's predictive maintenance capabilities allow businesses to shift from reactive to proactive service. By continuously monitoring vehicle health in real time with sensors that collect data from systems like engines, brakes, and tires, AI can help track and anticipate maintenance needs, preventing unexpected breakdowns and ensuring seamless management. This not only enhances customer trust but also improves overall service quality.

- **Examples:** Bridgestone leverages AI in fleet management to track tire performance and vehicle health, optimizing maintenance schedules to reduce service interruptions and maximize operational efficiency.² General Motors integrates Internet of Things and AI sensors to monitor factory conditions and predict machine failures and other potential breakdowns.³

- **Benefits:**

- Fewer breakdowns and disruptions for customers.
- Reliable, proactive service that fosters long-term customer loyalty.
- Consistent service quality through automated best practice adherence.

Workforce Transformation: Elevating Employee Expertise

AI is reshaping roles across the workforce, providing employees with advanced tools like augmented reality (AR) and machine learning that enable them to perform repairs with greater precision and efficiency. By equipping teams with AI-guided

tools, businesses can improve repair accuracy and reduce service delays, ultimately delivering a more seamless experience to customers. Moreover, AI accelerates training and onboarding, allowing new employees to become proficient more quickly.

- **Examples:** PTC's Vuforia Expert Capture provides AR-guided interactive work instructions and AI-enhanced inspection to assist technicians with complex repairs. Siemens' Senseye Predictive Maintenance platform uses AI-driven insights and sensor data from machinery to automatically generate behavior models, helping maintenance teams focus on high-priority areas, reduce unplanned downtime, and improve operational efficiency across all assets.
- **Benefits:**
 - Improved technician skills, reducing service disruptions.
 - Increased repair precision, minimizing repeat visits.
 - Faster onboarding and reduced downtime for businesses and customers.

Four Steps for Making Progress in the AI-Impacted Industry

To stay competitive and fully realize AI's potential, businesses should take a proactive approach. The cost of inaction is high: as AI becomes integral to connected automotive services, companies that fail to adapt risk falling behind. We have identified four keys to laying the groundwork for delivering the most from your technology investments:

1. Align Leaders on the Urgency to Act.

By embracing AI as an opportunity to enhance all areas of the business, **leaders** can drive immediate and impactful change. Bridgestone, for example, has made AI central to its digital transformation, enhancing supply chain efficiency and customer experience by embedding AI into its operations.

This strategic pivot is guided by leadership's focus on evolving from manufacturing to providing solutions.⁴ Similarly, ExxonMobil is implementing AI across its enterprise to drive cost savings, embedding it into global operations to boost efficiency and effectiveness.⁵



2. Prioritize High-Impact Areas for Immediate Wins.

To build momentum, businesses should target areas where AI can deliver quick, measurable results. For example, AI-driven predictive maintenance can drastically cut downtime and repair costs by identifying issues before they escalate. AI-enhanced customer service solutions, such as virtual assistants and chatbots, can also improve customer engagement by offering personalized support and reducing wait times. Early successes in these areas will help secure stakeholder buy-in and lay the foundation for broader AI integration.

3. Invest in Building Long-Term AI Capabilities.

Quick wins are essential, but sustained success requires building a solid foundation. Innosight's *Leading into the Age of AI* highlights three pillars for long-term capability: data management, talent development, and strategic alignment. Integrating AI with enterprise systems, for example, supports data accessibility and quality. Siemens has applied this approach, developing data lakes that give technicians seamless, real-time access to diagnos-

tic information, making AI tools more effective in daily operations.⁶ By upskilling employees to work with these tools, companies align AI investments with strategic goals, ensuring they are prepared to scale as technology evolves.

4. Foster a Culture of Innovation.

Building an **AI-ready culture** goes beyond technology; it requires an environment where people, processes, and leadership align to drive sustainable change. Mercedes-Benz exemplifies this approach through its extensive investments in workforce development. The company's Turn2Learn initiative aims to build digital and AI expertise, training hundreds of employees in production and administration to become AI specialists. Through hands-on projects, practical experience, and clearly defined paths to new roles, Mercedes-Benz nurtures adapt-

ability, cross-functional collaboration, and continuous learning, aligning the entire organization to harness AI's transformative power.⁷

As AI continues to advance, its impact on the automotive services industry—from predictive maintenance to customer service—will grow exponentially. Companies that recognize the urgency of AI adoption, focus on high-impact applications, build enduring AI capabilities, and foster an AI-ready culture will be well-positioned to lead the industry's transformation. The future of automotive services is not just about adapting to technological change—it's about driving it. Those who act now will not only survive but thrive in this evolving landscape.

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ENDNOTES

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