

Infographic: Artificial Intelligence Use-Case Prism for Automotive Enterprises

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Initiatives: [Manufacturing Digital Transformation and Innovation](#); [Artificial Intelligence](#)

This infographic identifies 16 of the most prominent AI use cases that can improve operations from manufacturing to customer interactions in the automotive enterprise. Data and analytics leaders can use this as a starting point for further fine-tuning.

Additional Perspectives

- [Summary Translation: Infographic: Artificial Intelligence Use Case Prism for Automotive Enterprises](#)
(29 October 2020)

Figure 1: Automotive Use-Case Prism

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Use-Case Glossary

In the above infographic, we explore the following use cases:

- **Autonomous Mobile Robots (AMR):** Using self-directed robots for automating processes in a factory or warehouse. Useful time- and money-saving devices in large assembly plant settings, but still costly compared with simpler existing AGVs and does not change the fundamental operations of a plant.
- **Buyer Intent Analysis:** Using AI to guide the sales process for optimized sales closure, including cross-selling and upselling. Has the potential to drive up revenue for companies that use it by optimizing sales closure, but the ability to collect relevant data without impacting personal privacy is challenging.

- **Customer Satisfaction Monitoring:** Applying text analytics to customer satisfaction surveys to extract what customers would like to see improved and where customers see progress. This AI can increase the frequency and accuracy of reporting while saving manual effort. While valuable, the technology is not readily available off the shelf and requires customization and specialty vendors.
- **Customer-Facing Chatbots:** Using natural language processing chatbot technology to automate parts of the sales process. It is effective at managing a narrow set of inquiries such as order status, pricing and returns to offload volume from human agents, but incapable of managing more complex and higher value-added questions.
- **Demand Prediction:** Using forecasting methods to estimate demand. Accurate estimation of demand to match production requirements is valuable for eliminating excess inventory or product shortages, but models still cannot predict the sorts of unusual events that typically create dramatic imbalances in supply and demand.
- **Dynamic Pricing:** Using sensitivity models and competitive information to set prices. This AI-based technology, which can drive higher revenue and move inventory more quickly, is already widely used online in consumer goods retail. Implementing this for vehicle purchases is challenging because of the large number of independent vehicle dealers who control pricing.
- **Machine Predictive Maintenance:** Using AI-based failure-prediction capabilities to avoid machine downtime. Predictive maintenance is a low-cost, high-return implementation of AI and IoT. More complex systems require greater use of IoT sensors and analytics platforms and may have limited additional benefit.
- **Manufacturing Process Optimization:** Using AI models to optimize manufacturing processes for fault tolerance, energy efficiency, optimal throughput and decreased idle time. This has the potential to save significant money over the lifetime of a plant. However, the complexity of the environment and the potential for products and equipment to change over time may limit the feasibility of long-term gains.
- **Manufacturing Quality Control:** Using AI such as vision-based inspections or anomaly detection to find defects in all kinds of parts and processes. It has a high business value for the potential to eliminate scrap and reduce warranty issues. These systems are increasingly becoming available, but implementing them across an entire plant could be costly.

- **Model-Based Generative Design:** Using AI to optimize the design of parts and entire vehicles. AI enhances techniques already used in automotive for lightweighting and cost reduction. While gains have been made, without manufacturing-scale 3D printing, many of the most exotic designs would be difficult or impossible to manufacture.
- **Parts/System Simulation:** Using AI-based simulation to improve parts and systems for cost, efficiency and performance. There is potential to create more innovative designs more quickly and with lower costs, but the computational power requirements and multisystem simulation capability are still roadblocks to implementation.
- **Replenishment Optimization:** Automatic ordering of items from inventory for use in manufacturing when supplies are low. A quick-to-implement IoT and AI system that can speed up production and lower the need for excess inventory. Already implemented by a number of automakers, it is quite feasible. Its overall impact on the business may not be large, but it is a straightforward win.
- **Sales forecast:** Forecasting sales using AI to analyze data inputs. Advanced sales forecasts typically require the use of external data, which many organizations are not using. The forecasts are useful for financial planning and decision making on new products, but actual sales are heavily dependent on consumer incentives and competitive pricing.
- **Vehicle Inspection:** Using image recognition and other sensory input to inspect the vehicle condition. It is becoming available from a small number of vendors and has the potential to lower labor costs and speed up logistics, but wide adoption may be limited.
- **Virtual Salesperson:** Using an AI-based virtual assistant that explains the features and functionality based on interest levels during a test drive. It could enable sales during off hours and reduce the need for physical contact or even a traditional dealership. Implementations have been limited because of complexity and the potential to cause annoyance to users.
- **Visual Damage Estimation:** Using image recognition to estimate the cost of repair from an accident. It speeds up damage assessment, reduces fraud and could lead to higher customer satisfaction. There are only a small number of vendors serving this area, and they provide solutions to different markets, including the insurance or repair shop.

About This Research

This infographic was created by the authors, who generated a list of technology applications and scored them based on criteria that then determined business value and feasibility. The determination made by the authors was based on both empirical evidence from working with clients and industry experience. Your experience may vary based on your use case and maturity with supporting technologies.

Please note: These use cases have been selected and positioned based on an assessment by Gartner analysts and customer feedback. Their applicability may vary across organizations and industries. For detailed customization, clients can use Gartner's use-case prism toolkit (see [Toolkit: How to Rank and Prioritize Your Use Cases With a Gartner Prism](#)).

Recommended by the Authors

[Hype Cycle for Connected Vehicles and Smart Mobility, 2020](#)

The connected vehicle and a host of new technologies are leading to an evolution of existing business models in the automotive industry.

[How to Become the Digital Automaker of the Future](#)

Automakers must transform from legacy metalworks companies into software-defined technology organizations. We explain the approach CIOs must adopt to help transform their companies into the digital automakers of the future.

[Guide to the Impact of 5G on Connected Vehicles](#)

This document is an overview of expected trends for 5G in connected vehicles, including expected rollout and use cases, and the areas of most interest to CIOs.

[Toolkit: Assessing Your Digital Business Platform in Automotive and Smart Mobility](#)

CIOs accelerating digitalization in automotive and other manufacturing industries can use this Toolkit to create a map of their digital business platform and the ecosystem it operates in.

[Uncovering Artificial Intelligence Business Opportunities in Over 20 Industries and Business Domains](#)

This research collection gives an introduction to the prism and points at over 20 published prisms.

[Toolkit: How to Rank and Prioritize Your Use Cases With a Gartner Prism](#)

This Toolkit allow clients to create and modify their own prism according to their own strategic goals, maturity and context.

[Survey: Manufacturers See Quick Return on IoT Projects](#)

CIOs in manufacturing should take advantage of IoT projects as a means to drive digital transformation. The IoT Implementation Trends Survey shows a strong trend of budget increases for IoT projects in manufacturing and that companies are seeing an ROI faster than they had originally anticipated.

[Infographic: Artificial Intelligence Use Case Prism for the Media Industry](#)

This infographic identifies 15 of the most prominent artificial intelligence use cases that can improve media firm operations. Application leaders in the media industry can use this prism as a starting point for further fine-tuning.

[Infographic: Artificial Intelligence Use Case Prism for the P&C and Life Insurance Industry](#)

This infographic identifies 16 of the most prominent AI use cases that can improve P&C and life insurance operations. Insurance CIOs can use this to help determine the best use case based upon maturity and business impact.

[Infographic: AI Use Case Prism for B2B Sales](#)

This infographic identifies 14 of the most prominent AI use cases that can improve B2B sales operations. Across many industries and organizations, data and analytics leaders can use this as a starting point for further fine-tuning.

[Infographic: Artificial Intelligence Use Case Prism for Digital Commerce](#)

Digital commerce applications see great value in AI due to the abundance of data and the opportunity from improved unified customer experience across channels. This research identified 21 popular use cases in digital commerce, and application leaders can use this as a starting point to further prioritize opportunities for their organizations.

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