

ARTIFICIAL INTELLIGENCE | ARTICLE

The Stairway to (Gen)AI Impact in the Automotive Industry



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Key Takeaways

Automotive companies have moved quickly to implement (Gen)AI, but many may be celebrating too early before achieving measurable benefits. It's time for a focused approach.

About two-thirds of executives in industrial goods industries (including automotive) say they are not satisfied with their company's progress in (Gen)AI, and about half are still expecting cost savings within the year, according to a BCG survey.

Automotive companies can make an impact on the bottom line with three (Gen)AI value creation levers, potentially achieving a return on investment (ROI) of 10 to 15 times in less than three years. These are new revenue streams from an augmented direct sales approach, cost reduction through automation of more complex tasks or services, and productivity gains through allowing teams to focus on the most critical tasks of supply chain management or EV/software product innovation.

But to achieve the full potential of (Gen)AI, leaders must identify realistic profitability improvement goals at the outset and use a rigorous process to prioritize value-creating use cases and establish accountability.

In business technology, generative artificial intelligence (GenAI) is often seen as a new miracle engine that promises to put early adopters on the track to greater efficiencies, lower costs, and quick wins. But most companies in the automotive sector find that after a year of investing in endeavors that have underdelivered compared with expected results, the effect seems more like a collective spinning of wheels. In some cases, automotive companies have encountered significant challenges with (Gen)AI implementations, such as a major North American manufacturer whose chatbot mistakenly offered a vehicle for just \$1 USD.

In addition, many organizations have celebrated their success too early, before realizing benefits that show up on the bottom line. As a result, the perceived effects evaporate before they can be substantiated. According to a recent BCG survey, 67% of executives in the industrial goods sector (including automotive) said they are not satisfied with their company's progress in (Gen)AI. Automotive companies should not give up too soon, however—49% of industrial goods' respondents (including automotive) still expect the technology to deliver cost savings in 2024. The risk is that disappointed expectations can lead to disillusionment and lost momentum, when there are real benefits to be had.

Nevertheless, the automotive industry is particularly well-positioned to capitalize on (Gen)AI advancements. The sector has been a leader in (Gen)AI, as seen with the progress in autonomous driving technologies over the past decade. However, the current landscape is marked by the shift to electric vehicles (EVs), heightened global competition, particularly from Asia, and pricing pressures from rising post-pandemic inventories. Such an increasingly complex environment demands a deeper exploration of (Gen)AI applications. From product development to supply chain optimization, automakers must leverage (Gen)AI not only to streamline operations but also to secure a competitive edge.

Moreover, automotive companies have a unique opportunity to unlock further value from (Gen)AI, thanks to the expansion of connected vehicles, which now generate vast amounts of data. This data, coupled with decades of investment in building the necessary digital infrastructure, provides automakers with a foundation that few industries can match. The ability to harness this information and apply (Gen)AI-driven insights across operations positions the industry to achieve significant gains in both efficiency and revenue generation, setting a clear path to future growth.



Setting Your Company Up to Succeed with (Gen)AI

BCG's experience with automotive clients suggests that many businesses are failing to realize value from (Gen)AI because they lack a structured approach and clear value focus from the outset.

Specifically, companies have treated (Gen)AI like a typical technology upgrade or a collection of pilots, with tech teams leading the way. While this is fine for the technology side of the equation, it fails to achieve real bottom-line impact. In fact, (Gen)AI requires an even higher level of craftsmanship than other types of transformation. It needs a greater focus on critical enablers like process and operating-model redesign, training, and employee adoption—factors that are often overlooked—as well as measurable P&L or balance-sheet improvement goals.

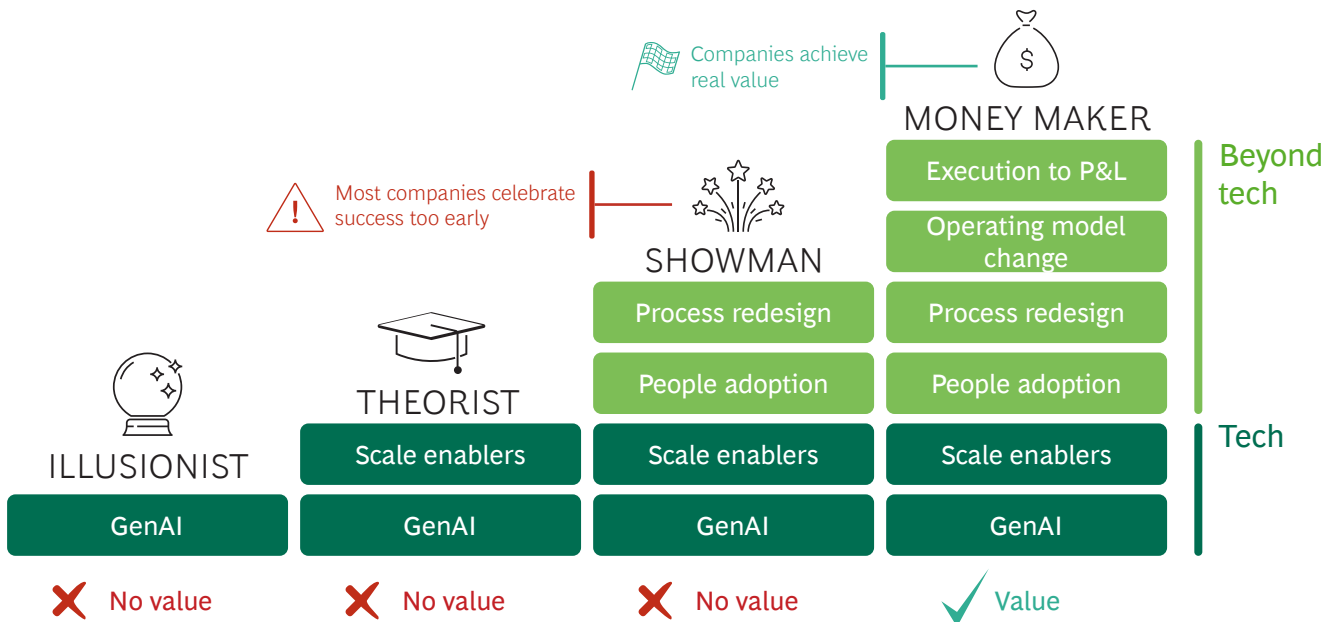
Visible support from leadership is an important success factor. (Gen)AI transformations need to be led from the C-level, and business unit and functional leaders must be accountable for defining value-creation levers and achieving results. This can help propel the holistic, people-driven transformation that is required, with specific EBIT (earnings before interest and taxes) targets that are actionable and traceable.

The automotive industry desperately needs this bottom-line focus to help achieve the agility and efficiency required to sustain a competitive advantage within a transforming sector. Many players are feeling the pressure of higher product cost, investments for EV scaling, and at the same time, lower barriers of entry to the playing field in general. Therefore, new sources of value creation are required—by augmenting new direct sales approaches but also by accelerating highly complex internal processes like supply chain management or end-to-end value and capacity planning.

Furthermore, there are several automotive-specific challenges that reinforce the need for leadership, people, and process engagement in (Gen)AI initiatives. First, many OEMs are working with legacy systems, making human-in-the-loop engagement critical to ensure that use cases and algorithms are applied correctly and effectively. Second, legal and privacy concerns surrounding the use of vehicle data are significant, with multiple OEMs in the U.S. facing lawsuits related to vehicle-data privacy breaches, which must be carefully managed and mitigated. Finally, the complexity of automotive ecosystems, involving numerous stakeholders such as suppliers, dealers, consumers, and finance organizations, adds another layer of difficulty in transitioning from pilots to scaled value. These factors highlight the need for a coordinated, strategic approach to fully leverage (Gen)AI's potential while navigating industry-specific challenges.

From our work on more than 350 (Gen)AI projects for clients, we have learned that the key is to target EBIT gains from the outset, not just focus on an implementation program that companies hope will mature into a value creator. BCG has identified a “(Gen)AI stairway” with four stages that organizations must move through smoothly to get from (Gen)AI illusion to economic impact. (See Exhibit 1.)

Exhibit 1 | The GenAI Staircase to Success



Source: BCG analysis.

Stage 1: ILLUSIONIST

In this stage, companies across all industries embark on the (Gen)AI journey, attracted by promised efficiency gains from tools like ChatGPT, Microsoft Copilot, or customized chatbots. We have seen examples of more than 100 use cases where organizations were running pilots in many departments but without a clear definition of user needs and without considering technological synergies across functions.

Unfortunately, such isolated deployments fail to generate tangible value because they lack a strategic plan for employee training and enterprise-wide scaling, leaving the impression that (Gen)AI benefits are just an illusion.

Stage 2: THEORIST

Scaling beyond a few limited tools is necessary, given that meaningful value can come only from meaningful scale. But we find that most companies that try to scale (Gen)AI throughout the enterprise struggle with low user adoption. Often, employees feel excluded and do not receive sufficient training; as a result, they fail to incorporate the tool effectively into their workflow and the (Gen)AI value remains out of reach.

Stage 3: SHOWMAN

As companies struggle with the complexities of (Gen)AI deployment, some realize that success requires more than just implementing tools. Leading organizations adopt the 10/20/70 principle, referring to how companies should apportion time and resources, recognizing that, while algorithms (10% of the effort) and technology (20%) are essential to a (Gen)AI implementation, people and process changes (70%) require the most attention. Companies that invest in training and change management can typically achieve an adoption rate of about 60% across the enterprise in our estimation, compared with 30% for those that do not invest in these areas.

Organizations that have successfully undertaken holistic process and workflow changes report efficiency gains of up to 50%. But celebrating at this stage is premature. Our follow-up with these clients reveals that, within a few months, the initial gains tend to dissipate as employees' new free time becomes occupied with backlog tasks or other emerging priorities. So, while this stage is a significant milestone, it is not enough to drive lasting value.

Stage 4: MONEY MAKER

The final, essential step to achieving measurable value from (Gen)AI is to establish clear links between efficiency gains and the P&L statement and diligently execute an EBIT-focused transformation. Companies have a variety of challenges to address with (Gen)AI, and there are numerous potential strategies to convert efficiency gains to actual profit.

BMW stands out as an exemplary case for achieving EBIT impact, highlighting the importance of establishing and applying levers beyond technology. (Gen)AI use cases developed in collaboration with BCG streamlined BMW's procurement processes by automating workflows and optimizing supplier interactions, reducing costs, and enhancing decision-making. Examples of these applications include the automatic draft generation of RFPs and tenders, as well as automatic offer evaluation support via (Gen)AI, which improved both speed and accuracy in procurement operations. This comprehensive approach, spanning marketing and operations, not only improved efficiency but also created new revenue streams, driving substantial EBIT improvements. Additionally, a first Proof of Concept at BMW was created to develop hyper-personalized marketing using (Gen)AI, further increasing customer engagement. BMW rigorously tracks cost savings and revenue gains from the automation processes, ensuring that the value generated is tied back to measurable financial performance.

For any (Gen)AI strategy, organizations need to establish at an early stage how efficiency gains will affect the P&L and then follow up with a structured end-to-end transformation. Companies should create a (Gen)AI transformation office to safeguard value through target setting, tracking, enablement, and accountability enforcement. This allows the business to truly complete its (Gen)AI journey and achieve the status of (Gen)AI money maker without getting stuck along the way.



Putting It All Together

The stairway concept of (Gen)AI adoption emphasizes that the initial step is the only one strictly focusing on technology.

Many companies have begun to move beyond the pure tech phase but find themselves stuck between the second and third steps. Their experience has been one of experimentation, and while partial steps might help bring intangible improvements, such as increasing working satisfaction for employees, these actions ultimately lack significant EBIT impact. We call this “creative (Gen)AI chaos.”

The key to escaping the chaos and bring structure to the implementation is to define EBIT impact targets from the beginning. The magic of targets comes from imposing a structure and discipline that help maintain focus and guide the project to a successful result.

In one example of this structured approach, a North American automotive client focused on improving marketing efficiency by utilizing AI to better target high-propensity and in-market vehicle buyers. From the outset, the use case was not only technically sound but also backed by a strong business case. The company identified both cost savings through insourcing the capability—previously reliant on external tools—and performance improvements through more precise targeting. Additionally, it implemented new processes to ensure consistent use of the AI tool across the organization and established a tracking mechanism to measure cost savings and performance gains. This clear focus on both technology and business outcomes illustrates how defining specific targets from the beginning can lead to measurable, sustainable impact.

In general, a full implementation of (Gen)AI in an automotive firm can result in significant EBIT impact arising from both overall efficiency improvements as well as top-line growth. Typically, companies can expect up to 50% efficiency gains in various processes, with faster automation and streamlined workflows. Additionally, top-line growth can typically increase by 1% to 2% through (Gen)AI applications such as hyper-personalized marketing or optimized pricing strategies, further contributing to the firm's overall financial performance.

Three key value creation levers can increase the bottom line (see Exhibit 2):

1 Revenue: Automotive companies can boost revenue in various ways, including by augmenting their salesforce, call centers, and dealers to identify and approach qualified leads with a highly personalized offer at certain points of their ownership or leasing life cycle. Additionally, smart-feature bundling and the introduction of smart-pricing mechanisms will play a significant role.

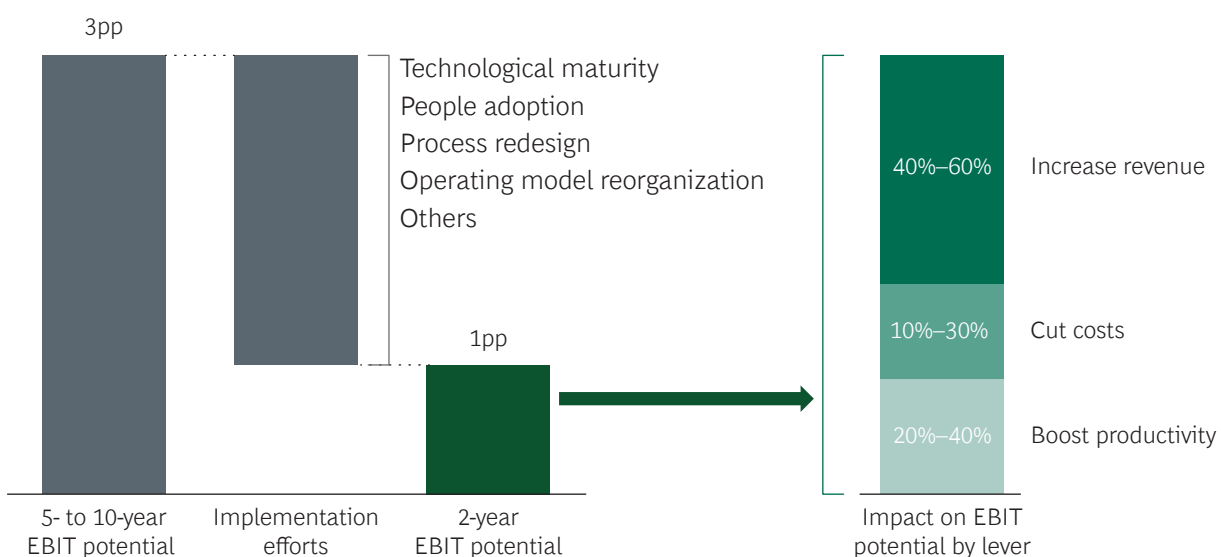
An example of GenAI’s revenue-driving potential is seen in East Asia, where automotive companies are focusing on enhancing in-vehicle experiences. This includes advanced voice and gesture recognition systems that tailor cabin features—such as climate control, seat adjustments, and navigation—to specific passengers based on their location within the car and profile, whether adult or child. By optimizing both comfort and safety, these enhancements improve customer satisfaction and engagement, establishing a differentiated brand presence. These GenAI-driven innovations not only support revenue growth but also bolster EBIT by fostering greater brand loyalty and reducing customer acquisition costs.

2 Expenditures: Spending can be reduced, for instance, by using (Gen)AI to minimize external service costs, particularly in software development or marketing creation. For example, a leading automotive company we worked with utilized (Gen)AI to automate key aspects of software development, reducing reliance on third-party service providers. By streamlining internal development processes and cutting supplier costs for software development tasks, the company significantly reduced outsourcing expenses and achieved substantial cost savings. Beyond external cost, (Gen)AI can also help streamline internal administration or knowledge management to accelerate decision making. Speed and cost are often two sides of the same coin.

3 Productivity: Automating software testing and coding with (Gen)AI has helped a leading automotive company reduce manual effort and accelerate development. This enabled faster project completion and allowed engineers to focus on more strategic tasks, significantly boosting overall productivity. Another example is the automation of the tendering processes, enabling fast drafting and reviewing of key documents. This in turn helps to reinvest time within the procurement organization to focus on longer-tail suppliers or deeper assessment of critical supply-chain events to identify additional savings.

Exhibit 2 | How GenAI Contributes to the Bottom Line

Illustrative: Initial estimates from ongoing research; highly dependent on industry and company context



Source: BCG analysis.

Organizations can achieve the full potential of (Gen)AI only by establishing a proper value realization mechanism. They should start by setting top-down targets based on an assessment of (Gen)AI's potential to improve the three value areas. In addition, implementing a rigorous process to prioritize high-potential (Gen)AI use cases and establish accountability is essential. Companies can validate progress and achievements from the bottom up, for example, by conducting workshops to identify value packages. Furthermore, a proper change-management program will be required because the transformation will significantly affect organizational culture. The final step is to establish a transformation office to help execute the implementation roadmap, proactively manage roadblocks, establish governance structures, and track the progress and impact of specific value packages and the overall program.

We have seen (Gen)AI transformations yield a 1% to 2% increase in revenue and an 8% to 12% cost reduction compared with the baseline. Companies can potentially achieve an ROI of 10 to 15 times in less than three years. For example, BCG worked with a client to achieve an EBIT impact of over 10% by evaluating more than 50 (Gen)AI value packages. In another case, we helped identify (Gen)AI use cases that a client is putting into practice to capture up to €1 billion in potential EBIT impact by 2028.

When it comes to implementing (Gen)AI, possibly the most significant technology advancement of our generation, leaders need to be realistic in the face of excessive hype and expectations. (Gen)AI is destined to affect all companies in all industries, but only those that can implement it with a focus on process, people, and organizational culture—not just on the technology—will emerge with real success in terms of greater profitability. A successful transformation begins with identifying achievable EBIT goals and establishing measures such as a (Gen)AI transformation office to hold key people accountable. To avoid premature celebrations, leaders must stay focused on bottom-line impact—starting with taking the right steps at the outset of the (Gen)AI journey.

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