

UNLEASHING THE POTENTIAL OF GENERATIVE AI FOR THE AUTO INDUSTRY

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The tremendous business potential of Generative AI (GenAI) for the automotive industry is evident when considering the importance of software as the structural backbone of future cars and auto companies.

Taking development of car software as one GenAI application area, we can outline the sheer power and discussions of GenAI: In-car software has already become the key differentiator for auto companies. With the advance of software-defined vehicles and an increased importance of ADAS functionalities and in-cabin infotainment, software will become even more of a focus in the coming years.

GenAI tools have learnt how to write code at a stunning accuracy and speed in recent months.¹ With the latest Alpha version plug-ins, GPT-4 is, for instance, able to perform complex data science analyses in the blink of an eye.

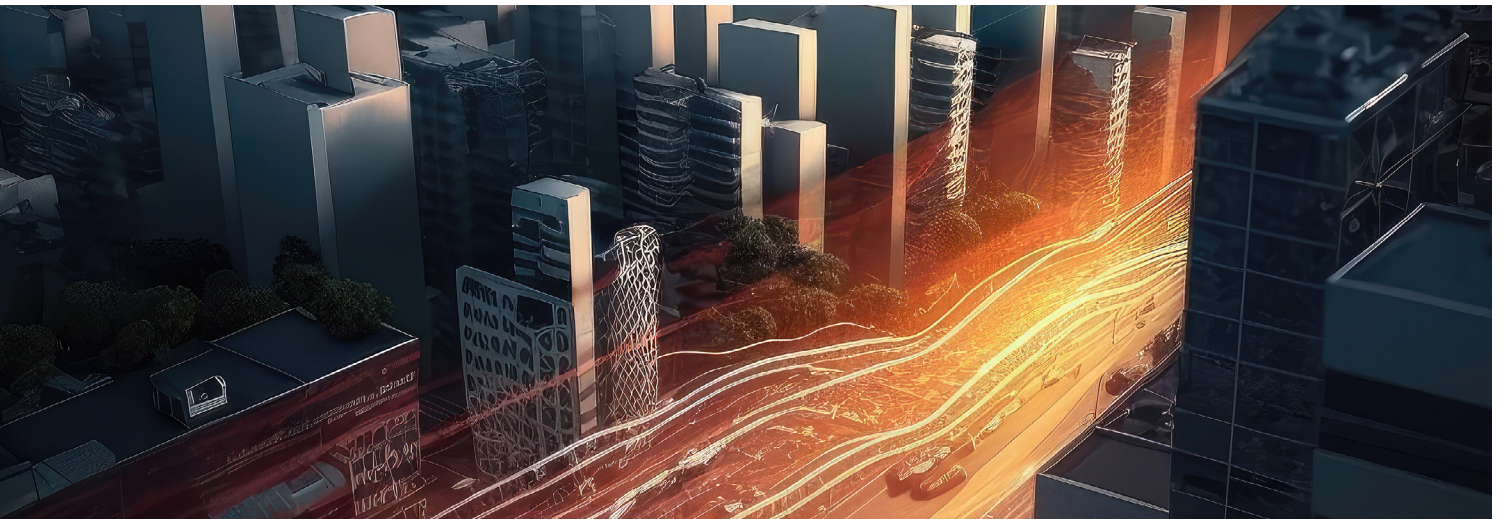
Thus, GenAI will be helpful to accelerate core code development and unit testing. However, it will not be a solve-all-issues technology given heavy safety, compliance, and complexity requirements. It is a highly multifaceted and sensitive task to develop the code for a NextGen car model, and any GenAI-created code, even triggered through ingenious prompt engineering, will certainly still be far from perfect. It will likely always need human oversight. Nevertheless, the ability to leverage GenAI in code creation could clearly become a competitive differentiator.

While much of the present hype for GenAI focuses on chatbots like ChatGPT and image generators like DALL-E or Midjourney, GenAI has the potential to be a more fundamental paradigm shift particularly in the automotive industry. But software development is only one of many areas where we see tremendous potential for GenAI in the automotive space: GenAI consists of algorithms and models which are trained on terabytes of different input data including text, images, speech, structured data, and signals. This enables GenAI to create fully original texts, images, audio and more, in seconds facilitating GenAI use cases along the entire automotive value chain.²

In the following, we contribute our BCG insights into the potential of GenAI for the automotive industry by highlighting what we consider impactful use cases across the value chain. We also discuss the barriers that prevent Auto Executives from realizing the benefits of GenAI, namely data security and regulatory concerns. We finally propose mitigation strategies to address these concerns and a comprehensive strategic framework which will allow auto executives to fully leverage the technology and advance towards a GenAI future in the automotive industry.

1. <https://www.science.org/content/article/ai-learns-write-computer-code-stunning-advance>

2. <https://www.bcg.com/capabilities/artificial-intelligence/generative-ai>



1 | Potential

In the last few months, news outlets and analysts around the globe have primarily focused on GenAI's impact on general productivity acceleration in supplementary chores or have centered the debate on GenAI's effects on the creative industries. We would classify such simple productivity improvement use cases, for example Generative AI tools that create automatic summaries of meeting notes, as non-core use cases that all businesses will likely adopt over time. They will be important to keep pace with other organizations. However, especially in the automotive industry, the most promising GenAI use cases have the potential to go beyond just that and permanently disrupt the very core of the automotive value chain.

A paradigm shift awaits us here in the \$5 trillion global automotive industry.³ We have identified more than 70 promising use cases across 10 clusters of the automotive value chain. These use cases cover upstream, downstream, and support functions, as well as general productivity and product improvements.

For upstream use, we see approximately 30 use cases with benefits for procurement, R&D, and operations.

To improve procurement efficiency, automakers can use GenAI to automate interaction with suppliers for class C purchases. For example, they could send individualized

supplier letters in case of quality deviations or shortages or use GenAI to predict supply chain risks. Procurement departments could also train a negotiation coach with past data to identify the best negotiation strategy for the respective situation.

In R&D, GenAI focuses on optimized designs and more efficient coding. GenAI can help designers to quickly generate CAD designs and variations of all parts and entire systems and to derive adequate materials. Especially the early-stage design phase has a lot to gain from GenAI. Imagine an auto designer using GenAI to create new designs for a specific part, like mirror caps. The AI would analyze brand-iconic designs and use that knowledge to generate variations that fit with the brand's heritage. These variations would not just be simply copies, but new designs that improve the part's look, function, and alignment with the brand's style. The best designs can then be used as early prototypes to gather customer feedback, helping to refine the design before creating CAD models and assessing the product from a packaging perspective. This innovative use of GenAI could revolutionize automotive design, making it more efficient, dynamic, and customer-centric. With GenAI, the industry could speed up R&D and production while incorporating the customer opinion early in the development process.

3. <https://www.bcg.com/publications/2023/profitting-in-the-future-of-automotive-industry>

GenAI with >70 use cases along full automotive value chain

	Procurement	R&D	Operations	Sales & Marketing	After Sales & Support
Upstream and downstream	Automated C supplier interaction	Generative CAD design (incl. options)	Code review/auditing	Multimodal robot instructions/cognitive automation	Personalized advert creation
	Logistics coord. w/ conversational assistant	Certification documentation support	Algorithm & code generation	Machine & PLC programming companion	Marketing content generation (Blogs, Social Media, etc.)
	Supply chain risk analysis & prediction	Dynamic 3D model assessment	Testing/training environment generation	Operator support (e.g., new product, maintenance)	Personalized digital communication
	Supplier identification & performance mgmt.	Adequate material identification	Code documentation	Real time operator support (e.g., product changes)	Personalized recommendations
	Inventory, price & supply chain optimization	Creative design assistant	Code completion	Intelligent factory planner	AI order status notification
	Contract screening & alerts	Visualizations based on products parameters	Easier AI/ML implementation	Equipment maintenance instructions	Proactive outreach (e.g., end-of-lease)
	SNR transparency	Automatic creation of clickable mockups	Test case generation	Social devices (dialog-based machine interaction)	Media/Sales briefs generation
	Automated negotiation simulator/trainer	Generative system design	Design for manufacturability (e.g., for 3D printing)	Working with data (text to SQL, data synthesis)	Newsletter generation
Exemplary impact		Early defect detection	Synthetic data generation	Workplace safety analysis & optimization	Optimized translation & sound creation
		Style/formatting transfer		Dynamic assembly robots	Real-time personalized product visualization
	Optimized supply routes (Real time)	15-40% lighter and 15-20% stronger designs	55% faster coding w/ less repetitive tasks	Optimized factory designs	>10x output speed for content creation

	Finance & IT	HR	Legal	General Productivity	Product
Support functions, general productivity and product	Dialog-based IT security analysis	Virtual training facilitator media	Summarize legal documents	Intelligent search	In-car virtual assistant
	Financial data, risk and trend analysis	Summarize applications & screen candidates	Review contracts & develop insights	Document/meeting summaries	Live racetrack coaching
	Invoice processing	Personalized coaching	Convert Legalese into plain English	Copilot for office tools (e.g., email reply, writing)	Interactive virtual friend for children
	Internal systems usage prompts	Virtual recruiter (e.g., job description)	Legal translation	Auto-generated knowledge management	Generative trip plans/POI recommendation
	Dialog-based fraud detection	Employee onboarding		Time/To-Do mgmt. & prioritization support	Generative ambient mood
	Create draft financial statements & budgets			Automated instructions generation	Virtual avatars (e.g., via holograms)
	Generate draft business cases			Automated search data/content analysis & decisions	EV engine sound generation
				Metadata generation	Interactive message profiles
Exemplary impact				Virtual assistant (e.g., to schedule meetings)	
	Improved IT security risk identification	70% training video cost reduction	Up to 3x speed concise text drafting	Instant and concise text summaries	Better user experience & revenue potential

Gen AI capability use | ■ Text ■ Audio ■ Graphical Media ■ Design ■ Code ■ Data ■ Interactive/immersive exp.

Source: BCG analysis

As referenced above, one key use case is the generation of code. GPT 3.5 allegedly not only passed Google's coding interview for a level three engineering position, according to an internal Google document first published by CNBC.⁴ It also would have gotten a software developer position at Amazon⁵ based on its coding exam. These examples from recent months show: Code Generation has evolved its capabilities from smart autocompletion towards multi-file code generation/editing based on natural language input. Code Generation tools like Github Copilot, tabnine and Amazon CodeWhisperer are ready to be included in enterprise Software Development toolchains. However, productivity gains and quality improvements are not only coming from generating actual code: GenAI solutions for all other parts of the Software Development lifecycle are maturing from creation of user stories, legacy code restructuring, bug detection, documentation support and fixing, to generation of test cases. And even in more complex use cases, GenAI software development shows the potential to speed up the development of specific software parts by more than 50%.⁶ But technical use cases and increased productivity are not the only reason why BCG considers GenAI a game changer in the automotive industry: GenAI might actually be one key to augment existing software developers. Implementing GenAI with existing employees can be a win-win strategy for both sides: With GenAI, code is not only generated in half the time, thereby creating more output with the same number of employees – a win for the company. But it seems like employees are also more motivated when working with the technology: almost 90% of developers feel more productive with GenAI tools, according to GitHub analysis,⁶ and even more developers, 96%, felt faster with repetitive tasks.

Another use case affecting both R&D and operations is the generation of testing environments, e.g., for Advanced Driver Assistance Systems using virtual hardware / software in the loop testing (xIL). xIL refers to a method of testing and validating complex software systems on specially equipped test benches that receive data inputs from physical devices such as radars and cameras. This is particularly relevant in R&D as we move towards autonomous vehicles, e.g., in the increasingly critical area of testing environment generation. GenAI not only accelerates the creation of datasets for Machine Learning and provides perfectly labeled datasets but can also artificially extend existing datasets. GenAI model accuracy is expected to increase by 10% to 25%, e.g., by simulating

environmental conditions, while the costs of building and training such models might decrease by a stunning 90% due to less required real data.^{7,8}

For operations environments, we see use cases for GenAI in the planning phase to intelligently plan a new factory, to write equipment maintenance instructions, or to optimize the layout of running factories. GenAI can also support machinery operators with visual or textual information in case of product changes or required maintenance.

Downstream functions, such as sales & marketing and aftersales, can heavily leverage GenAI text capabilities. Overall, we see ~20 use cases in these clusters.

For example, marketers can use GenAI to generate content such as newsletters, blogs, and social media posts more effectively. Besides just linear acceleration of marketing content creation along today's processes, GenAI has the potential to exponentially enhance personalization. Hence, enabling marketers to not just target a demographic, but to directly connect with individual prospective customers. Imagine an advert showcasing a customer's favorite car model set against the backdrop of their preferred holiday destination. GenAI can tweak vehicle configurations based on user preferences and interests, making the adverts a meaningful engagement. The increased relevance of adverts to potential customers boosts engagement, increases the likelihood of conversions, and fosters longer-term customer loyalty. First campaigns from other industries like cruise ships have already created visible traction.⁹ There are cutting-edge tools already available in the market, such as Midjourney, Dall-E, and Adobe Firefly, that can ably support such hyper-personalization strategies. While this technology is not fully mature yet, given the rapid pace of advancements in AI, it won't be long before hyper-personalized marketing becomes the norm. With GenAI, the future of automotive advertising could be transformed from a one-size-fits-all approach to a truly bespoke customer journey where adverts cater to individual tastes and preferences.

In aftersales, OEMs can increase effectiveness and attractiveness of self-service customer support via 24/7 available chatbots and employ GenAI-assistants for call center agents.

4. <https://www.cnbc.com/2023/01/31/google-testing-chatgpt-like-chatbot-apprentice-bard-with-employees.html>

5. <https://www.businessinsider.com/chatgpt-amazon-job-interview-questions-answers-correctly-2023-1?IR=T>

6. <https://github.blog/2022-09-07-research-quantifying-github-copilots-impact-on-developer-productivity-and-happiness/>

7. <https://www.bifrost.ai/>

8. <https://datagen.tech/>

9. <https://www.virginvoyages.com/l/jenai>

Support functions, such as finance & IT, HR, and legal, will also mainly use text-based use cases.

For example, GenAI can support finance with invoice processing or dialog-based fraud detection. It can also create drafts for business cases or financial statements, which require review and finalization by finance employees. HR departments could leverage GenAI to improve job descriptions to use more inclusive language and create immersive experiences for their employees like personalized on the job coaching. In legal departments, we see the highest benefit in reviewing and summarizing legal documents and contracts and translating documents between languages or from Legalese to natural language, or vice versa.

Apart from function-specific use cases, we predict a rise in general productivity boosters, such as intelligent search functions, automated meeting transcriptions and summaries, and optimized knowledge management.

For product-specific use cases, the possibilities are endless and offer additional potential for monetization by carmakers or third parties.

Virtual assistants are already being planned and beta-tested by the first OEMs. GenAI-based virtual avatars or interactive virtual friends for children could be the next step. In the long term, even safety-relevant features such

as live racetrack coaches or generative route planning can become a reality and enhance the customer experience in the car.

More broadly, GenAI will have a big impact on OEMs' workforce beyond tech improving efficiency and the quality of work; especially for marketing, sales, customer service and finance functions; Take for instance sales reps: with GenAI providing foundational help for lead generation, follow-ups, logging customer interactions in CRM, a sales rep can focus on relationships with customers more fully. This will lead to a different job profile and a different type of employee skillset, and accordingly to different recruiting strategies and operating models. Our BCG research shows that 70% of value realization in AI primarily depends on people and processes versus only 10% on AI algorithms and 20% on the technological foundations, e.g., data and analytics platforms, data architecture, data assets, integration with core systems. Therefore, a people strategy to accompany the disruptive use cases is imperative from our point of view.

In short, large productivity gains in testing, design, personalized marketing, code development and on top of that a possible solution to the IT skilled worker shortage. GenAI tools will have a tremendous effect on the core of the automotive industry. With such clear business potential and productivity gains – Auto Executives who fail to grasp the GenAI opportunity risk falling behind.





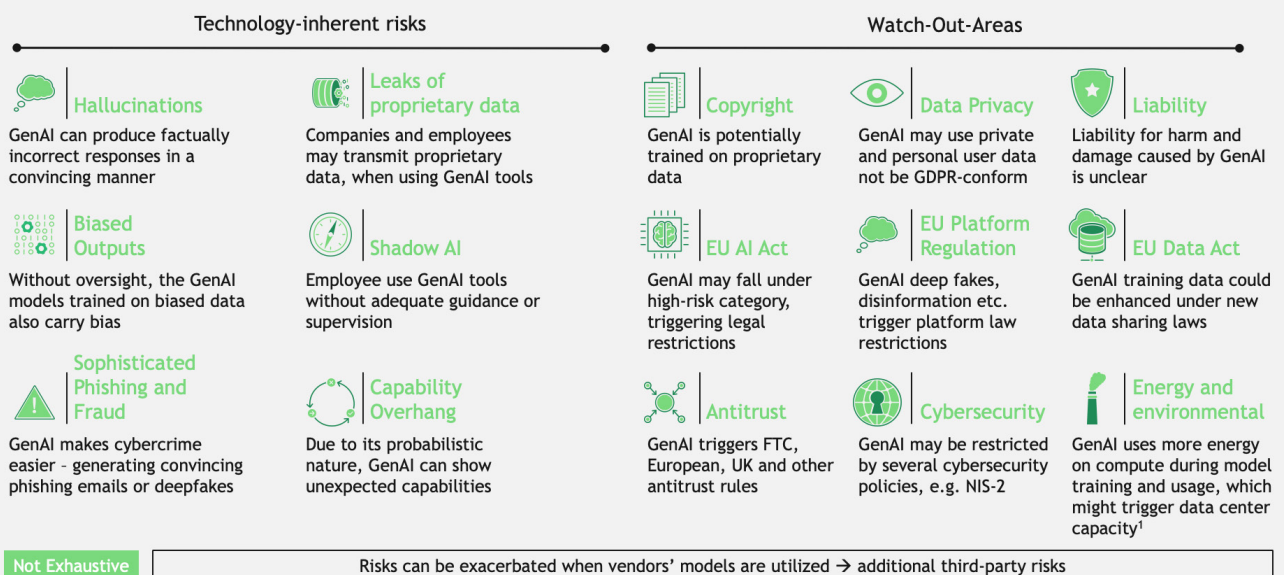
2 | Navigating data privacy and perceived looming GenAI regulatory restrictions

As headlines about GenAI have spread, so have serious questions around data security and proprietary information and even entire regulatory bans, like in the case of Italy

and ChatGPT.¹⁰ Policymakers and even AI developers around the world call for regulatory restrictions - like the looming EU AI Act.

Implement new policies and new risk taxonomy to mitigate risks of GenAI

Selected key risks, sorted by severity, velocity, and probability of occurrence



1. Potentially upcoming legislation might restrict energy use of data centers

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¹⁰ Italy has restored access by the end of April after OpenAI has successfully addressed or clarified the issues raised by Italian authorities.

At BCG, we have identified robust solutions to handle these two largest perceived barriers to entry into GenAI implementation:

Solutions to the most pressing concerns of legal and IT Departments

Tackling Data Security concerns

The biggest push-back for executives today often comes from their own legal and IT/Cybersecurity departments with concerns of legal and IT colleagues about data security and data leaks. These concerns are well founded and publicized. Recent high-profile data leaks in the last few weeks include divulged chat histories from ChatGPT¹¹ and an accidental upload of highly-sensitive source data from Samsung¹².

Data security vendor Cyberhaven claims that an estimated 3.1% of workers with ChatGPT access have already pasted confidential company data into the AI tool, with a strong upward trend¹³. This has led companies such as JP Morgan, Verizon, and Amazon to restrict or curtail access to GenAI tools¹⁴.

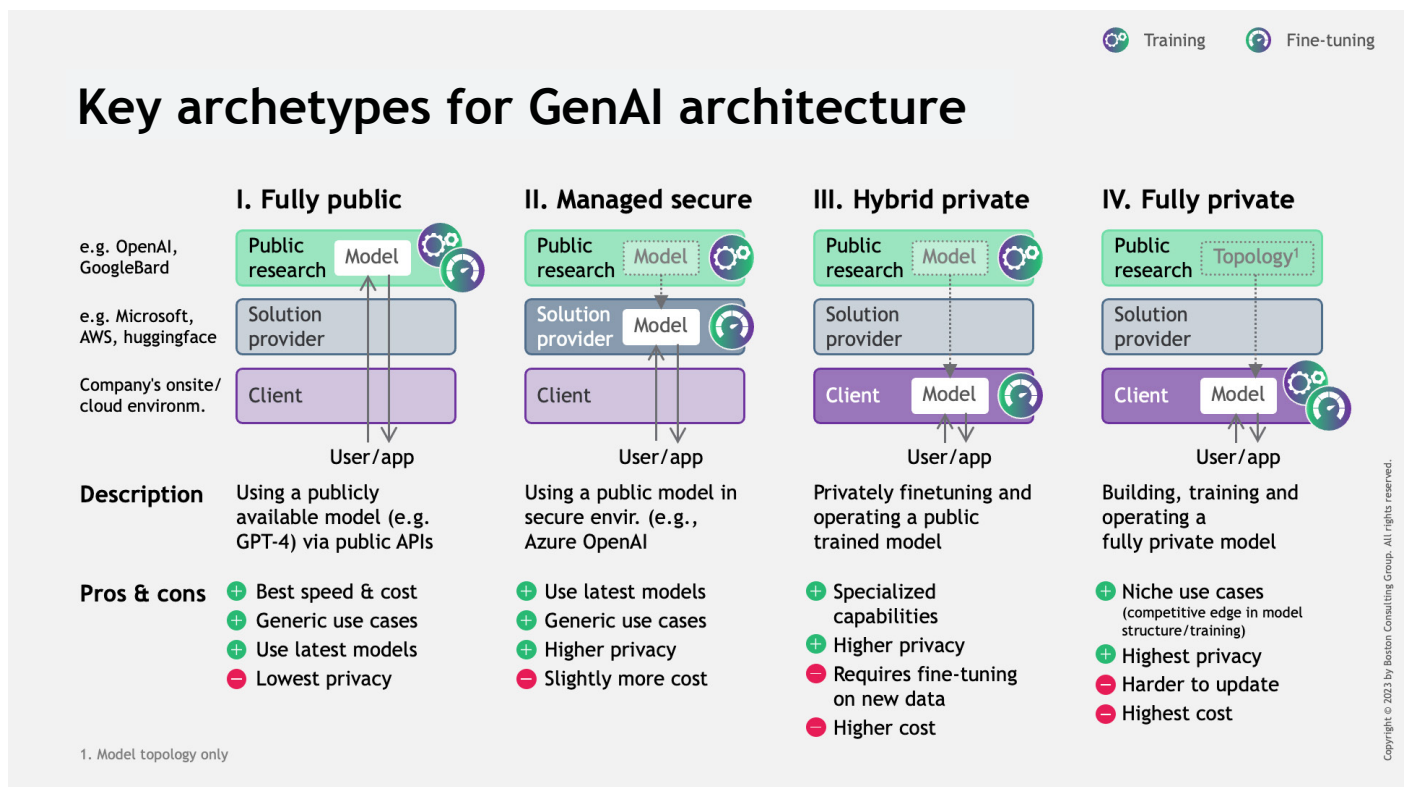
Some of these data leakage issues can be navigated through tailored employee training. Clear processes and guardrails are necessary to guide employees.

In addition, adaptations and enhancements to the enterprise architecture are also needed to properly leverage and scale GenAI use cases and to keep data as safe as possible, without relying on employee compliance only.

BCG has therefore also developed both, a set of no-regrets-moves for internal compliance processes and a set of technical implementation archetypes, including those which will in the best case by design provide data security and allow corporates to manage risks while continuing to explore benefits of GenAI and stay ahead of competition.

Key concerns:

- 1 Data exposure** – the GenAI tool landscape is evolving at rapid speed and news and social media coverage on the expected benefits lure employees into experimenting with the tools, even on sensitive business topics. For example, risking entering a sensitive strategy document looking for wording improvement. That strategy might be revealed to



11. <https://openai.com/blog/march-20-chatgpt-outage>

12. <https://economist.co.kr/article/view/ecn202303300057?s=31>

13. <https://www.cyberhaven.com/blog/4-2-of-workers-have-pasted-company-data-into-chatgpt/>

14. <https://aibusiness.com/verticals/some-big-companies-banning-staff-use-of-chatgpt>

other users as the Terms & Conditions (T&Cs) of GenAI often include using user inputs to further train the models.¹⁵

Employees ought to be provided with clear guidelines, if and how to use GenAI tools, otherwise they will revert to using unsecure chatbots and programs that expose the entire enterprise to risk. There needs to be a secure method to access GenAI tools requiring prior critical validation of the vendor's T&Cs against the improper flow of data.

2 Enhanced fraud – GenAI is leading to more advanced and convincing phishing tactics. Even with a state-of-the-art cybersecurity tool suite, the most common cause of data breaches is human error. As ransomware, phishing messages, identity theft, and other cybercrimes use GenAI to increase their sophistication, executives must proactively prepare their organization to react through increased protocols & training. Beyond playing defense, Executives can seek to leverage GenAI itself to boost cybercrime detection, for example, by exploring tools which use GenAI to highlight vulnerabilities & anomalies and to devise new defense techniques.

3 Overreliance on faulty AI outcomes – output from GenAI models might appear correct, but mechanisms for validation need to be in place. Executives must be aware of the possibility for errors and incorrect results from GenAI – even when it appears to be correct (often referred to as “hallucination”). For example, generated code might be working correctly, but lacking the robust, enterprise-level security. Hence executives must mandate double checking on all GenAI outputs – either with algorithmic tests where possible or with keeping a “human-in-the-loop”. BCG recommends setting a comprehensive GenAI set of guardrails for employees to understand its proper usage (e.g., cannot use GenAI tool to perform automatic decision making, must indicate when GenAI has been used to author text).

However, as said above, relying on employee compliance only is not enough to keep company data safe. The correct technical integration of GenAI is a critical security factor, which can alleviate some of the concerns of legal and IT departments.

Technical solutions to the security question

At BCG Platinion, we have developed key archetypes to implement GenAI securely according to clients' security needs.

Companies can choose GenAI architectures through a variety of archetypes – from integrated fully public (e.g., using the public ChatGPT API), to a managed

secure solution provider (e.g., Microsoft Azure OpenAI Service), to a hybrid-private model finetuned on private data, or even a fully private model.

Each of these options comes with a variety of trade-offs on cost, specificity, and data exposure.

When speed and adaptability is of essence, a generic public trained model is sufficient, and the level data exposure is acceptable. A fully public implementation allows for operative implementations within a few days. An example would be using an API of a GenAI that optimizes job descriptions for inclusive language and reduction of bias.

For most use cases, a managed secure architecture balances providing sufficient data privacy without exorbitant development cost and securing access to latest updates from public GenAI models. An example would be using a managed secure instance of GPT to summarize sensitive documents or a secure environment for generative coding.

However, for niche use cases that justify the investment of typically up to tens of millions of Euros or more, hybrid or fully private models are the way to go. An example for using a hybrid model would be finetuning the image generation model Stable Diffusion with OEM images and CAD data, to be able to create a variety of marketing illustrations in different weather and geographic conditions. An example for building and training a fully private model would be natural-language supply chain optimization and impact resolution.

In addition to these archetypes, BCG experts always recommend companies to simultaneously explore a range of advanced data privacy techniques (e.g., beyond anonymizing & encrypting data, differential privacy, homomorphic encryption).

The question of the right architecture also depends on the different forms of data retrieval and provisioning to the GenAI models. Fine-tuning is most looked at here, but there are also more lightweight options of utilizing proprietary data, the simplest one being prompt engineering. With prompt engineering, relevant enterprise data is fed as context directly into the prompt. An example for this would be: an employee wants to create a response to a supplier that is most suitable in style and tone. The employee feeds a conversation history with that supplier as well as the supplier segment into the prompt. In addition to eliminating the need for fine-tuning, this method also provides the benefit of having the GenAI model working on real-time input given via the prompt and it offers the possibility to switch the underlying model with ease.

¹⁵ ChatGPT has changed its policy on 1st of March to not include customer prompt data from APIs for model training unless company opts-in ([link](#)). However, terms & conditions vary by GenAI tool provider

However, the downside of this method is that providing context via prompt engineering is potentially driving operating costs because GenAI model usage is priced on prompt tokens, typically with a limit in the number of tokens that can be included in a prompt. Hence, if required e.g. the context information is repetitive and/or exceeding the maximum size of a prompt, it needs to be fed into the model beforehand. For this, the two major choices are vectorization/embeddings and direct model fine-tuning.

Vectorization is a technique that takes input data and transforms this data into embeddings, stored in a (typically vector) database, which the GenAI model is accessing when being prompted to seek concrete answers. This is typically used for basic knowledge type of data, which GenAI models accurately cite in their answers. Direct model fine-tuning, on the other hand, is closer to how GenAI is pre-trained, is typically done with an unlabeled set of data with less emphasis on concrete facts, but rather adding to the general reasoning capabilities of the models in a specific domain context.

In addition to the described choices on use case architecture and on data retrieval and provisioning, BCG also has a strong perspective on the additionally required tech and operations components to control GenAI models, such as FMOPs/AgentOps (controlling the lifecycle of foundational models and so called GenAI agents), prompt engineering/documentation and data/API integration.

In summary, companies need a clear GenAI platform architecture, providing re-usable components, the orchestration of individual use cases, and the required governance mechanisms to manage the full lifecycle.

Navigating looming regulation without stifling innovation – and even leveraging it for business opportunities

As fast and promising as GenAI has emerged, as quickly have regulators around the world demanded legal restrictions on the technology, culminating in a temporary nation-wide ban of ChatGPT in Italy, EU lawmakers reconsidering provisions in their AI Act and calling for a global AI summit, the G7 endorsing a joint action plan for responsible AI¹⁶, and even the Biden Administration calling for sharper rules and inviting the CEOs of GenAI leading companies to a roundtable in Washington D.C.¹⁷

Globally, the EU and China are currently furthest ahead in comprehensive AI regulation, with the EU AI Act in its final Trilogue negotiation stages and expected to be finalized in

late fall and the EU Data Act already finalized in June.¹⁸ Chinese regulators have even beaten Europeans and have released their GenAI regulations in early July.¹⁹

Concerns among regulators are manifold: Data privacy laws are on top of mind, such as GDPR, given the potentially sensitive personal data that users put into the technology. In addition, copyright laws may apply, given that GenAI tools train on proprietary data. Some regulators even debate the distribution of disinformation, hate speech, and biased or discriminatory outcomes as a reason to restrict the technology, bringing the EU's platform regulation Digital Services Act into play. Antitrust laws may apply, too, not to mention liability laws – who is liable for an accident caused by a GenAI tool?

Because the technology is evolving faster than ever and regulation will always lag behind, regulatory uncertainty around GenAI will prevail for some time.

Consequently, global GenAI regulation, importantly the ever looming question of a ban of certain tools, especially in the EU, can be an uncertain field to navigate for Executives at this stage – especially as the technology will evolve so much faster than any policy, but political pressure to act is high.

However, with a holistic and agile framework, the regulatory risk, while still very complex, is manageable. In fact, if approached strategically, the upcoming regulation, especially in Europe, can actually offer proper guardrails to manage both technology inherent and systemic risks alike and even function as an innovation catalyst in the case of GenAI. This is especially true for first movers, who start implementing it today, and for the mobility space.

At BCG we have developed clear immediate steps for Automotive Executives to navigate the upcoming regulation, use it to their advantage and push GenAI innovation in their companies. In addition, we have developed a much more holistic Responsible AI framework to implement AI responsibly and without stifling innovation.

The forthcoming EU AI Act will likely put heavy requirements on GenAI tools and products, such as required pre-launch algorithm audits by a regulatory body, additional continuous risk monitoring and documentation for companies using GenAI products, not to mention large requirements for data governance. Non-Compliance can result in even larger fines than GDPR of up to 7% of total worldwide annual turnover. At the same time, EU regulators have learnt from GDPR: the text of the AI Act, albeit still under heavy negotiation, gives many signs to

16. https://g7digital-tech-2023.go.jp/en/topics/topics_20230430.html

17. <https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/04/fact-sheet-biden-harris-administration-announces-new-actions-to-promote-responsible-ai-innovation-that-protects-americans-rights-and-safety/>

18. The EU regulation will come into effect prospectively in 2024/25. The equivalent Chinese rules, which will likely also apply to companies with Chinese investments in Europe and elsewhere in the world, are developing much faster and also extent to data flows.

19. <https://fpf.org/blog/unveiling-chinas-generative-ai-regulation/>

operationalize its implementation. However, there will be many gray-area cases especially in automotive and it will take years to fully automate the complex framework smoothly.

Having said that, first movers who start today to prepare for the upcoming restrictions, e.g., by updating their data governance and their internal processes through a holistic Responsible AI framework²⁰, will have a two-fold advantage: firstly, they will be able to establish legally watertight GenAI processes right from the start and avoid legal lockdown and many of the technology inherent risks at once. Secondly, they will inadvertently coin some of the upcoming auditing processes to their own advantage. A definite competitive advantage!²¹

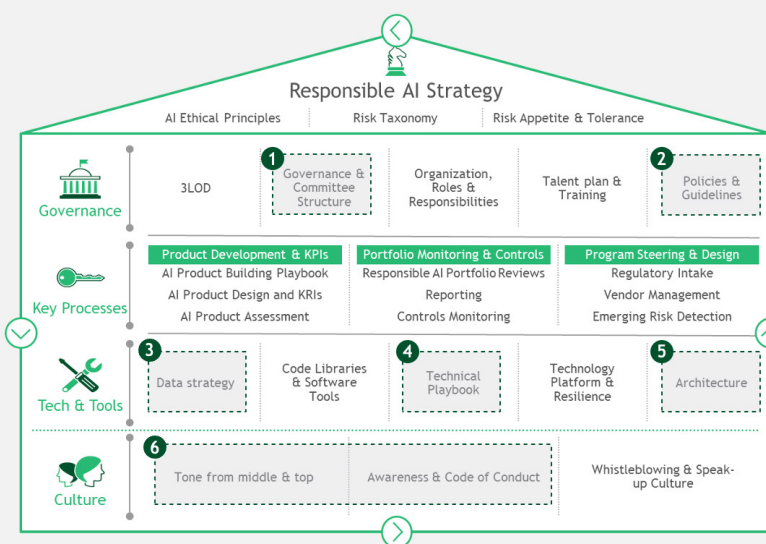
But what is more, the AI Act in combination with the EU Data Act may even open up new business opportunities for GenAI users by unleashing access to large data sets, especially in the mobility space²². These large mobility data sets can propel fine-tuning of GenAI tools even further and give an additional push to use cases in the automotive industry. OEMs should determine today which data sets they need to further push GenAI development and then to use the new legislation to get access. Again, by setting up clear people and process responsibilities, automotive companies avoid a setback in GenAI implementation and

even reap the opportunities from regulatory frameworks to augment GenAI returns from the start.

What is more, as the technology is constantly evolving, many more questions will arise that are not answered by regulation alone or just tangential. Consider for example questions around employee expectations and employee rights, potentially even strong positions by workers unions on processes and implementation of the technology. Cultural and ethical debates will occur, when teams start to consist more and more of a combination of human and artificial intelligence. Companies will have to reconsider their risk tolerance and will need to define clear ethical principles. Executives who prepare for this now, will become significantly more successful with GenAI. Our recent BCG study, done in collaboration with MIT Sloan Management Review, has shown that organizations which successfully integrate Responsible AI practices into the full AI product lifecycle, realize meaningful benefits.²³ In fact, the chance of realizing benefits nearly triples from 14% to 41%, when companies become leaders in Responsible AI.

In summary, while it is definitely challenging to navigate the upcoming regulation and the inherent risks of the technology, BCG can offer a clear and holistic framework to navigate the near future challenges of GenAI and set Executives up for a rapid start and a long-term sustainable future with GenAI at the same time.

BCG's Responsible AI (RAI) approach can help address risks of AI generally and risks of Generative AI specifically to drive business results and accomplish regulatory readiness



Generative AI-specific mitigations

- 1 Agile, risk-tiered case reviews which anticipate upcoming regulation, e.g. EU AI Act
- 2 Clear guidelines captured in enforceable policies
- 3 Implement data strategy to create value-adding data governance
- 4 Design patterns and technical best practices in form of easy-to-apply modules and guidance
- 5 Architectural controls that support exploration in a controlled manner
- 6 Cultural embodiment of safe experimentation reinforced

20. <https://www.bcg.com/capabilities/artificial-intelligence/responsible-ai>

21. <https://www.bcg.com/publications/2023/why-ai-regulation-is-an-opportunity-for-ceos>

22. Also see BCG's paper on the Data Act and Mobility: <https://www.bcg.com/publications/2023/eu-data-act-boon-or-bane-for-the-automotive-industry>

23. Elizabeth M. Renieris, David Kiron, and Steven Mills, "To Be a Responsible AI Leader, Focus on Being Responsible," MIT Sloan Management

Key Take Aways

- 1** GenAI has the potential to disrupt the auto industry at the core of its value chain. BCG has 70+ use cases to get you started and get ahead of competitors.
- 2** Security by Design can alleviate data security concerns from IT and legal departments.
- 3** Regulation can be a business opportunity, especially for first movers. Use policy frameworks to prevent legal lockdown and increase GenAI momentum by accessing valuable data sets to your advantage.



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