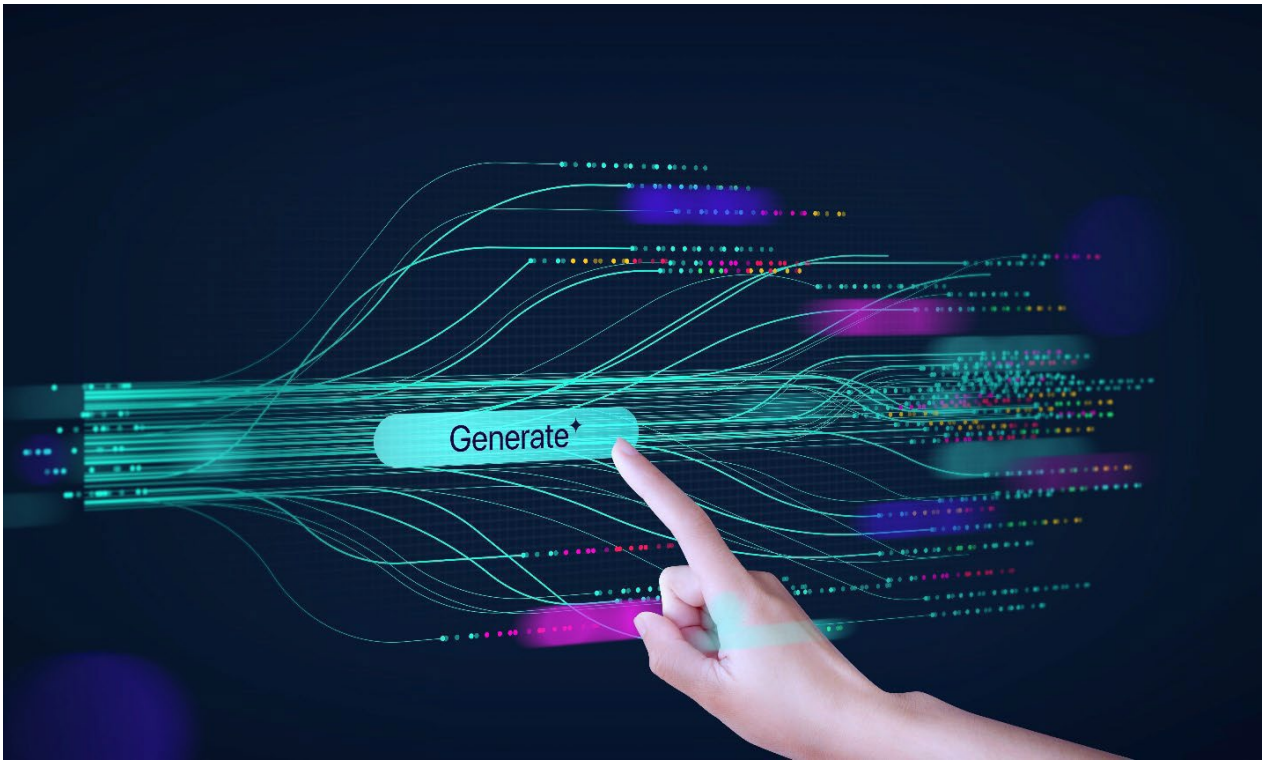
The Generative AI Innovation Revolution in Beverage Alcohol Part 2



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Editor's note:

This is the third article in NABCA's series exploring AI's impact on Beverage Alcohol. The previous two, AI in The Beverage Alcohol Marketplace – Simply the Basics and The Generative AI Revolution in Beverage Alcohol Part 1 have been well received. While the AI Revolution is just that, a revolution, beverage alcohol companies are working through balancing traditional practices with the rapidly changing business environment. It is possible that in a few weeks what is written about the best AI tools for today will be passe. However, the contributors to these pieces have also offered solid foundation practices and principles for keeping pace and advancing business protocols. Sources for The Generative AI Innovation Revolution in Beverage Alcohol Part 2 are again Amit Parulekar of Brown Forman, and Gabriel Sanchez, Director of Innovation and Artificial Intelligence, and Chad Rich, Vice President, IT, at Gallo. As in Part 1, this is Q & A format, and the same questions were not necessarily posed to each company. We ended the last article with thoughts

about ethics. We pick up here exploring shortcomings, tools, and a future look at Generative AI in beverage alcohol.

NABCA: Generative AI has numerous applications and capabilities. What are its potential shortcomings?

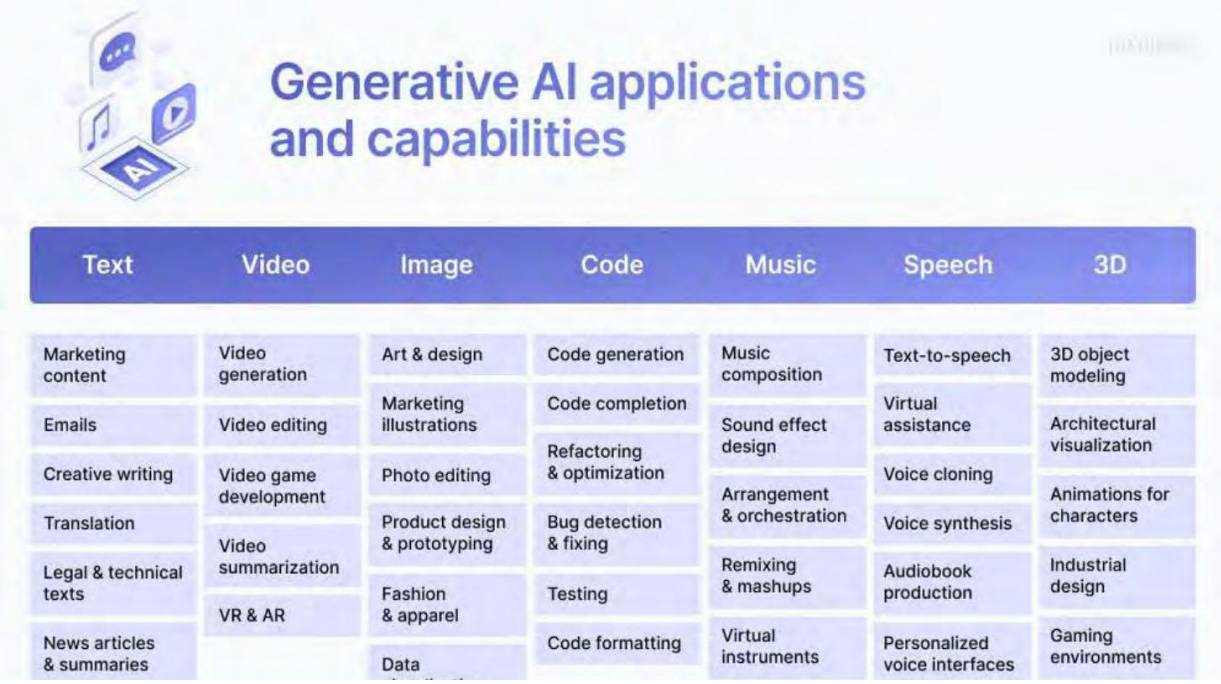

Fig 1. Generative AI applications and capabilities

B-F: While generative AI outputs are rarely identical to the inputs, they aren't always perfect or consistent. There are several issues that need to be addressed during implementation. It's important that your perception of this technology isn't based on exaggerated hype but instead grounded in reality. These are some of its shortcomings.

- ***Confabulation, or often referred to as hallucination in media*** -- This happens when a model generates false or incoherent outputs not supported by its training data. In large language models, this can lead to factual errors, continuation from false premises, or misinterpretation of user input. These issues can stem from data quality problems, the context of the input, and other factors.

- ***Outdated or misleading training data*** -- Generative AI can spread misinformation, often due to outdated or misleading training data, reflecting the "garbage in, garbage out" principle. While some chatbots reject inappropriate requests, these restrictions can sometimes be bypassed, and fake audiovisual content remains a significant issue. Not all misleading content is generated intentionally, which highlights the complexities of AI-generated information.

- ***Cost of implementation*** -- The costs include basic expenses for third-party web apps, user subscriptions, and API usage fees. The price per API call can add up quickly, making it essential to consider these factors when budgeting for LLM integration. For example, a chatbot can consume many tokens per day, which can exponentially increase costs as usage grows. Tokens are the units of text that the model processes, and each API call consumes a certain number of tokens, impacting the overall cost.

In addition to the issues already mentioned, there are limitations tied to the data on which the model was trained, potential security vulnerabilities, and long-term dependence on third-party service providers.

Implementing generative AI presents challenges, but they can be overcome. With the right combination of model training, data quality, governance, and well-defined guardrails, organizations can unlock their potential while minimizing the risks.

NABCA: Can you address Deep Fakes and AI? How do you deal with this? How can it impact an organization's reputation?

GALLO: Deep Fakes, malicious videos, or images which have been digitally altered so that they appear to be someone/something else, can often be used to spread misinformation and can negatively impact the reputation of any individual or commercial brand. These are becoming more sophisticated and prevalent. Any tool can be used in ways that can harm society as well as help it, so we need to be on guard against bad actors who misuse Generative AI. Today, companies such as Microsoft, Adobe, and DARPA are developing deep fake detection algorithms and AI systems which are particularly good at detecting synthetic content in real time. We

can also embed watermarks into AI generated content to verify its digital provenance and authenticity. In many places, policy-making bodies are enacting laws against malicious deep fakes. A critical piece of dealing with misuse is education. At Gallo, we provide important training modules so that employees understand how Generative AI tools can be used and that they should be vigilant about misuse. A tool is simply a tool and, ultimately, it is humans at different stages along a process that bear responsibilities to ask themselves whether the technology is being used for the good of the individual, team, and organization to actively manage the risks that deep fakes pose.

B-F: Generative AI has advanced at an incredible pace in a noticeably brief time, making it possible to create highly realistic manipulated videos, audio, and images. As deepfakes become more sophisticated, we're also seeing a widening 'risk window' — a gap where the realism of synthetic content is outpacing our ability to detect it. This creates serious security and ethical concerns, along with significant business risks such as reputational damage and financial loss.

In the distilled spirits industry, this issue is especially relevant across the entire value chain—from brand protection and counterfeit prevention to age verification and regulatory compliance. In a landscape where trust is fragile and authenticity is critical; it's becoming increasingly difficult for both businesses and consumers to know who or what they can trust. While rejecting every customer might eliminate fraud, that's clearly not a practical or sustainable approach.

Businesses can potentially invest in advanced verification technologies, secure packaging, and AI-driven fraud detection to stay ahead of these evolving threats. That said, we also need to be cautious about falling into the trap of "techno solutionism" — the idea that every problem can be solved with more technology. Current AI tools designed to detect fake or AI-generated content can still produce false positives, wrongly flagging real content as fake. These tools are sometimes overhyped and lack transparency in how they work.

In short, Deepfakes are more than just a technical challenge or an industry-specific concern—they're a growing societal challenge. Tackling them effectively will require coordinated efforts among industries, regulators, and technology providers alike.

NABCA: Please define quantum computing from your perspective and share how this will impact Generative AI.

GALLO: In traditional computing, we use bits (each represented by a 1 or a 0) to perform calculations. This binary language represents all data and instructions. These bits are combined into larger groups (called bytes) to encode complex information through sequences that a computer can interpret and process.

Quantum computing takes a vastly different approach to this, using quantum bits (qubits) rather than traditional bits. Unlike bits, qubits can exist in multiple states simultaneously, meaning that a qubit can be a 0 and a 1 at the same time due to two key properties: superposition and entanglement. In superposition, a qubit can be a 0 or a 1 or both (simultaneously), allowing it to process a vast number of possibilities. Entanglement describes the ability for qubits to be correlated with each other, enabling them to share information instantly, and perform complex computations more efficiently.

Advancements in quantum computing could accelerate AI developments by accelerating computations and enabling more sophisticated models. Faster machine learning, improved data processing, and more accurate pattern recognition could enable Generative AI breakthroughs that are currently unimaginable. I understand that this sounds like science fiction but, a mere 10 years ago, today's AI was squarely in the realm of science fiction.

NABCA: What are we giving up on in humanity, if we become too dependent on Generative AI?

GALLO: I may be in the minority when I say that Generative AI will not limit human creativity, it will dramatically enhance it - allowing humans to explore new ideas faster and collaborate in novel ways. At Gallo, we are finding that Generative AI is supercharging our brainstorming and ideation sessions. This means that rather than spend N hours on the initial stages of creativity, we can use AI to help ideate, faster, so that humans can jump into the "meatier" parts of creating or fine tuning a hypothesis. Generative AI can give us several jumping off points which, previously, would have taken time for us to arrive to – this can expand our capacity for innovation and artistic expression.

At Gallo, we see Generative AI as a creative partner and not a replacement for creativity. In my observation, the most compelling work still comes from the unique vision, emotions, and decisions of human creators. As a co-creator, Generative AI can help teams edit and refine human-generated work and iterate faster than ever before. One well known example is DeepMind's drug discovery application, which uses creativity in scientific problem solving. Rather than taking years for a hypothetical drug to go through traditional trial-and-error methods, the integration of AI algorithms can analyze vast datasets to predict promising drug candidates and their interactions with humans. Similarly, the alcohol beverage industry is starting to use AI to analyze soil chemistry, grape genetics, and blending ratios in a fraction of the time when compared to traditional methods.

I see the future of creativity as a human-AI partnership, where AI enhances human ingenuity via intentional use – humans letting AI do the heavy lifting while humans drive meaning, originality, and depth.

B-F: One of the biggest mistakes we can make with generative AI is treating it as a mere shortcut for content creation, blindly copying, and pasting its outputs without applying any human judgment. That approach is a fast track to mediocrity. Generative AI is far more than just a smarter search engine; it's a powerful catalyst for deeper thinking and better decision-making.

In my own work, I use AI not to get immediate answers, but to sharpen the questions I'm asking. I begin by framing a challenge or opportunity with rich context, then assign AI a specific role—whether it's a strategist, an analyst, or even a skeptic. From there, I flip the dynamic entirely: I ask the AI to interview me. It then probes with layered questions, often going three, four, or five levels deep. Its primary job is to extract insights from my thinking, not to replace it.

This method transforms AI from a passive tool into an active partner in strategic exploration. It forces me to be clearer in my thoughts, challenges my assumptions, and helps me uncover blind spots I might have missed. The true power of generative AI doesn't lie in the content it produces, but in how it helps us think better. Thus, when humans use AI as a thinking partner, not just a tool, they can do more than just save time—they can make better decisions and reach new levels of creativity.

NABCA: Of all the Generative AI tools available which are more suited for the beverage alcohol space? What top three ways do you use AI to generate what you need?

B-F: To reiterate, Generative AI goes far beyond drafting documents or fixing grammar. Thanks to its multi-modal capabilities, it can synthesize and generate a wide range of data types. According to a McKinsey report, its adoption could boost productivity by 20–25% through task automation and enhanced decision-making. Like traditional AI, Generative AI has applications across nearly every aspect of the spirits industry—from grain to glass. With hundreds of potential use cases spanning production, quality control, marketing, and customer engagement, the possibilities are vast. While technology is evolving quickly, many beverage alcohol companies are already piloting or deploying solutions—and some are seeing actual results. With so many opportunities, it's tough to narrow it down, but a few use cases that come to mind include:

- ***Productive enhancement and workflow automation***-- Just like our Part 1 archetype Sarah, I am a daily user of Generative AI. Employees in the alcohol industry can use AI to enhance their productivity. Although not a game changer, tools such as Copilot and Gemini and others, which are embedded in the productivity suite, can help streamline mundane tasks and boost workplace productivity. When you have a productive workforce, they're able to focus their energy on high-value activities instead of getting bogged down in day-to-day tasks. Taking this a step further, AI-driven workflow automation can significantly enhance employee productivity by offloading repetitive, manual tasks and allowing workers to focus on higher-value activities.
- ***Insights generation and actions*** -- Generative AI is becoming increasingly adept at extracting valuable insights from vast amounts of organizations' knowledge sources. By analyzing and synthesizing information from diverse sources, it can identify patterns, trends, and key takeaways that might be overlooked by humans. This capability allows businesses to make more informed decisions, optimize strategies, and uncover opportunities for growth. Whether it's market research, customer feedback, or operational

data, Generative AI can transform raw data into actionable insights. Also, with the rise of AI Agents, Generative AI is being used to create chatbots and based on being able to take actions based on specific goals using certain tools.

- ***Brand marketing*** -- In brand marketing, Generative AI offers a huge opportunity. The beverage alcohol industry can leverage its multimodal capabilities by integrating diverse data sources—such as sales data, consumer preferences, market trends, and product imagery on shelves—to gain a holistic view of the market. This approach can enhance efficiency, personalize customer experiences, and drive innovation in areas like inventory management, targeted marketing, and new product development. Additionally, Generative AI can streamline the creation of branding collateral, enabling rapid development of campaign visuals, packaging concepts, and promotional content tailored to specific audiences.

NABCA: Knowing that technology evolves rapidly, where do you see Generative AI in the next 6 months? How about in a year?

GALLO: With the current Administration's Stargate announcement and its billion-dollar investment in Generative AI, what does this infrastructure mean and how it will impact the job market in creating or changing new jobs?

The Stargate Project, a collaboration between OpenAI, SoftBank, Oracle, and MGX, only underscores the tremendous advancements expected in Generative AI over the coming year. The construction of massive data centers in Texas and elsewhere aims to create ~100,000 construction, energy, and IT jobs. I won't try to predict what developments are coming over the next 6 or 12 months (no one can do this) other than to say that the change will (likely) be greater than anyone can anticipate. Prior to 3 months ago, no one could have predicted DeepSeek and the impact it would have on global Generative AI work. Truthfully, DeepSeek was a Western-born inevitability, whether it came out of China, Silicon Valley, South Africa, or anywhere else with highly focused, nuanced-thinking tech communities looking to build on the foundations put in place by the likes of OpenAI and Google.

As with any new and emerging technology (the internet, electricity, the wheel, writing, agriculture, fire), the ways that people move and function in their daily lives with respect to its use and adoption can change dramatically. Generative AI will be no different, affecting changes in how people produce, consume, and see the world.

At a prior company we implemented an AI/ML model to read, in 12.5 seconds and with greater accuracy, the number of cancer scans which would normally take a human doctor 10-15 hours to read. This didn't mean that we needed fewer doctors. It meant that each of my doctors could now spend those 10-15 hours with patients, collaborating with other doctors, or doing research – higher level, more strategic activities that (at least for now) a machine is unable to do.

Whether it is in alcohol and beverage, financial services, engineering, marketing, or in the public sector, Generative AI will push people to do fewer mundane and repetitive tasks and more of the problem-solving and long-term strategic planning. In my opinion, this will put some pressure on a subset of our workforce to invest in continuous learning and acquire AI-related skills to leverage modern technologies for their own future. This doesn't mean that everyone needs to be able to write in Python or Java, but many will at least need to learn adjacent skills and become proficient at working alongside AI tools to thrive in this evolving landscape.

B-F: In the next six months to a year, the next major wave in artificial intelligence will be driven by agentic AI—a term rooted in the Latin word agere, meaning "to do" or "to act." While generative AI has made impressive strides in responding to queries and generating content using Large Language Models (LLMs), agentic AI represents a significant leap forward. These systems are designed not just to produce output, but to understand complex goals, take initiative, pursue persistent objectives, and adapt dynamically to real-world feedback using a set of tools.

Alongside this evolution, AI-driven automation continues to gain traction. Unlike traditional rule-based automation, these systems learn from data over time, adjust to new scenarios, and make decisions with minimal human input. This enables organizations to streamline repetitive workflows, reduce operational costs, and improve overall efficiency.

As momentum builds in both agentic AI and AI-driven automation, many organizations are ramping up their investments and actively exploring practical applications. Despite existing challenges, the pace of innovation shows no signs of slowing. This reflects a growing belief in AI's potential to fundamentally reshape how businesses operate and how individuals interact with technology.

However, successful integration requires more than just adopting the latest tools—it demands a strategic approach. Identifying high value use cases where autonomy can deliver real impact is essential. The distilled spirits industry, for example, can draw valuable lessons from early adopters in the consumer-packaged goods (CPG) sector. Most importantly, it's critical to maintain a balanced perspective: AI is here to augment human capabilities, not replace them. The most transformative outcomes will come from human-AI collaboration, where machines manage complex or repetitive tasks, freeing people to focus on creative, strategic, and empathetic work.

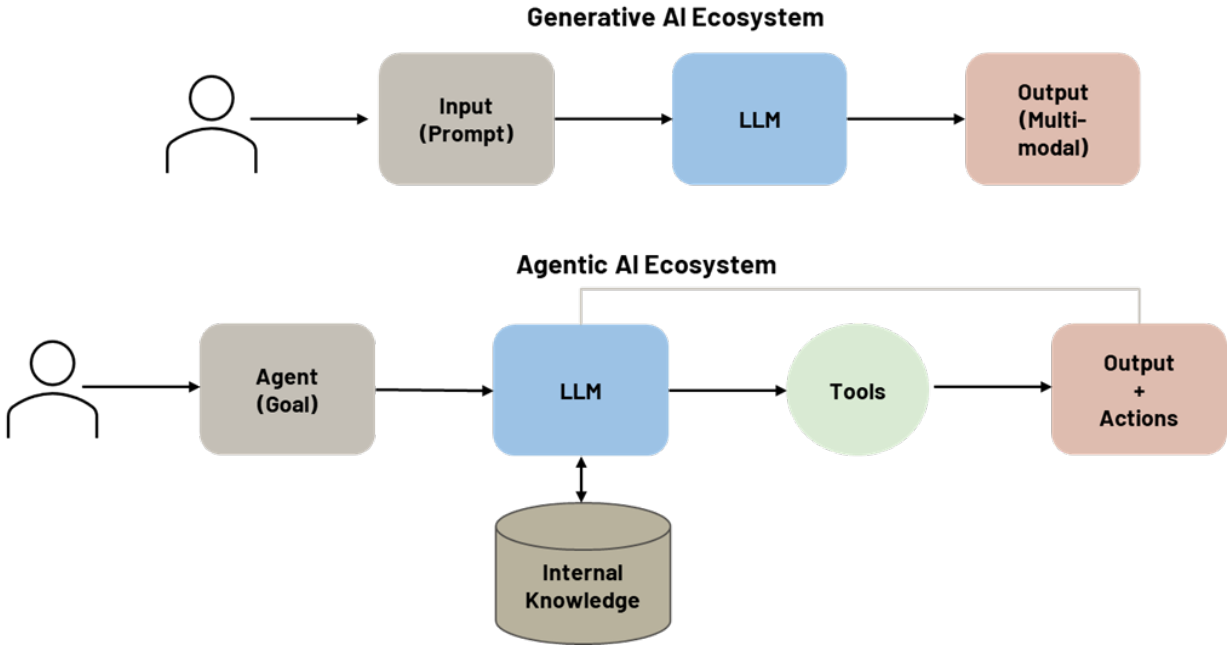

*Fig 2. Evolution of Generative AI Ecosystem (From Generation to Agentic AI)

NABCA: What, if any, concluding thoughts do you have for the beverage alcohol industry to consider regarding Generative AI?

GALLO: The future of the beverage alcohol industry is one of greater innovation, personalization, and efficiency. These new and emerging technologies are the most transformative developments since wide use of the internet, over 35 years ago, and may be the most impactful in human history. Generative AI will elevate every aspect of Gallo's business, enhancing craftmanship, deepening consumer connections, and unlocking creative possibilities, blending Gallo's nearly one hundred years of tradition with technology to help shape a more dynamic and vibrant industry.

B-F: Like traditional AI, Generative AI has applications across nearly every aspect of the spirits industry—from grain to glass. But rather than diving in headfirst, there's much the distilled spirits industry can learn from the consumer-packaged goods (CPG) sector, which is already a few steps ahead in its AI journey. Connect with other industry leaders and learn from their experiences—there are plenty of stories of success, failure, and lessons learned. Keep in mind that what works for one company may not necessarily work for another, as each organization is at a different stage in its transformation. The key is to start small: choose a strategy that fits your organization, and ensure your workforce is trained and ready to embrace the change. Beyond technology, the other half of the equation is effective change management. Consider adopting some of the strategies outlined in Part I in this article series.

Acknowledgements

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*Figure 2 provided by Amit Parulekar

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