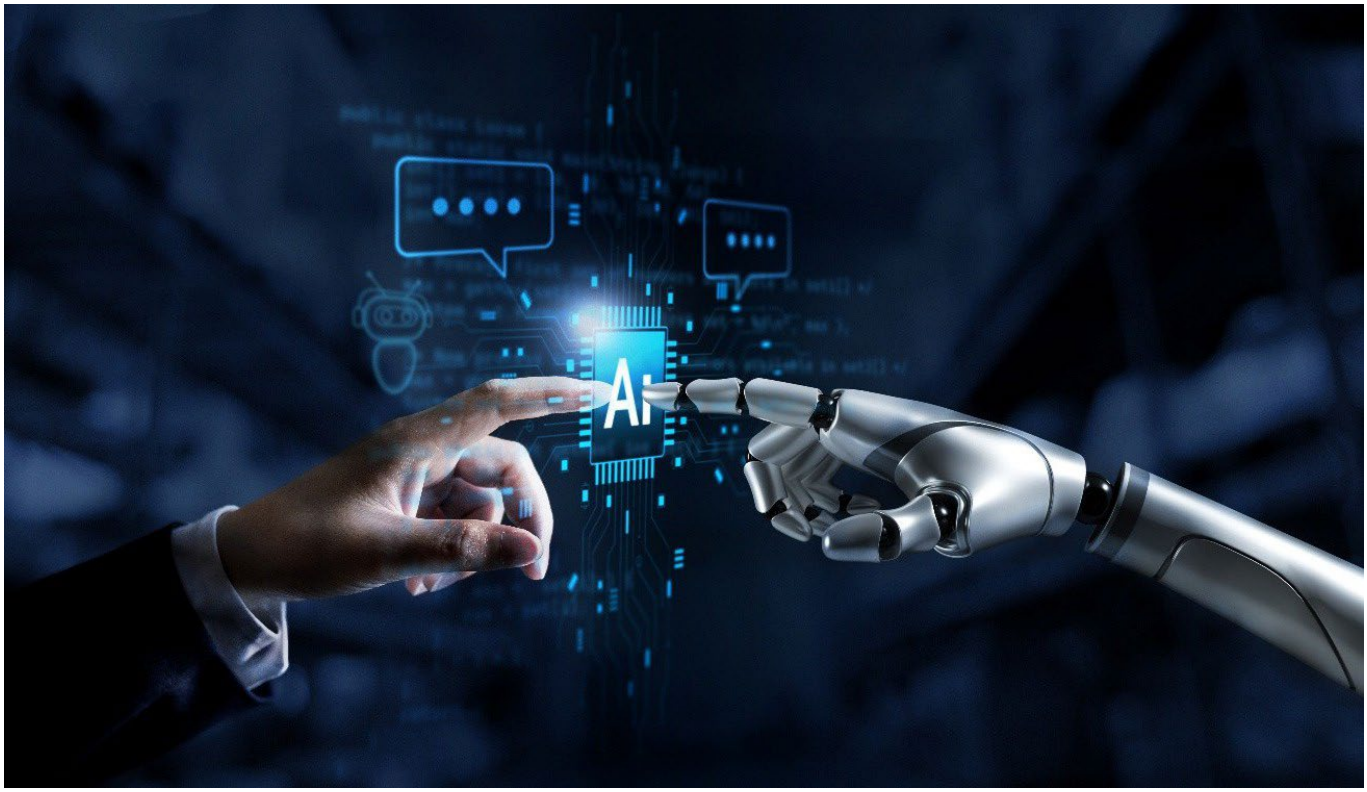
The Generative AI Innovation Revolution in Beverage Alcohol Part 1



Editor's note:

Hello readers. The success of the first article, AI in The Beverage Alcohol Marketplace – Simply the Basics has inspired a second set of articles; this one exploring Generative AI in Beverage Alcohol and society. Because there is so much to explore here, the follow-up will be in two parts. In addition to our expert contributor, Amit Parulekar of Brown-Forman for the first article, NABCA reached out to the IT authorities at Gallo for their comments. We will continue with the Q & A format and include their responses to questions asked. The same questions were not necessarily posed to each company.

NABCA: Generative AI use is increasing, not just in beverage alcohol but also in other industries and among society. What's contributing to its rise?

Fig 1. ChatGPT's speed of adoption

B-F: With the advent of generative AI tools like ChatGPT, Microsoft Copilot, and Google Gemini, AI has become truly mainstream. Previously, building an AI model was limited to a small group of people with specialized skillsets. Now, anyone with a laptop, browser, and internet connection can access and build low-code or no-code AI applications. This democratization of AI technology has opened new possibilities for innovation and creativity, allowing more people to contribute to the development of AI solutions.

ChatGPT, released in November 2022, quickly became the fastest consumer app to reach 100 million monthly average users (Fig 1.). This milestone highlights the growing interest and accessibility of AI tools among the public. The rapid adoption of ChatGPT and similar tools demonstrates how AI is becoming an integral part of everyday life, enabling users to leverage advanced technology for various purposes, from personal assistance to professional tasks.

Due to their ease of use and general availability, these tools are seamlessly integrating into the daily routines of billions of people worldwide. For example, let's look at a typical day for someone we call Sarah. Sarah stared at her draft email, the words a jumbled mess of half-formed ideas. This pitch to her board of directors was crucial, but the words wouldn't flow. Then, she remembered Copilot. "Hey Copilot," she typed, pasting the draft. Seconds later, a polished, persuasive email appeared, transforming her clumsy sentences into compelling arguments. With a few tweaks, she hit send, joining the millions leveraging AI to amplify their work. Scenes like this are playing out countless times across the globe as these tools take the world by storm.

At first, generative AI might seem like a toy or novelty, but it holds significant potential in business applications. Being able to quickly generate content like Sarah did in various forms can increase efficiency, save time, and unlock new opportunities for organizations.

The main reasons for the meteoric rise of generative AI tools are their ease of access—anyone with a computer and internet connection can use them—natural language interactions without the need to learn a special language, and their fast and versatile responsiveness. Above all, these interactions are relatively inexpensive with a monthly subscription.

NABCA: What is Gallo's Definition of Generative AI?

GALLO: While traditional AI can make classifications or predictions based upon input data, Generative AI can create new content (text, images, audio, video) by learning patterns from such input data. This type of output had previously only been ascribed to humans, supposedly requiring human skill and cognition, but this has changed. Generative AI is trained on vast data sets to generate context-aware outputs. It uses deep learning - neural networks for GPT or diffusion models for images. Further, Generative AI can continuously learn and improve with more data and fine-tuning so that generated text/images/videos more closely match the users' intentions.

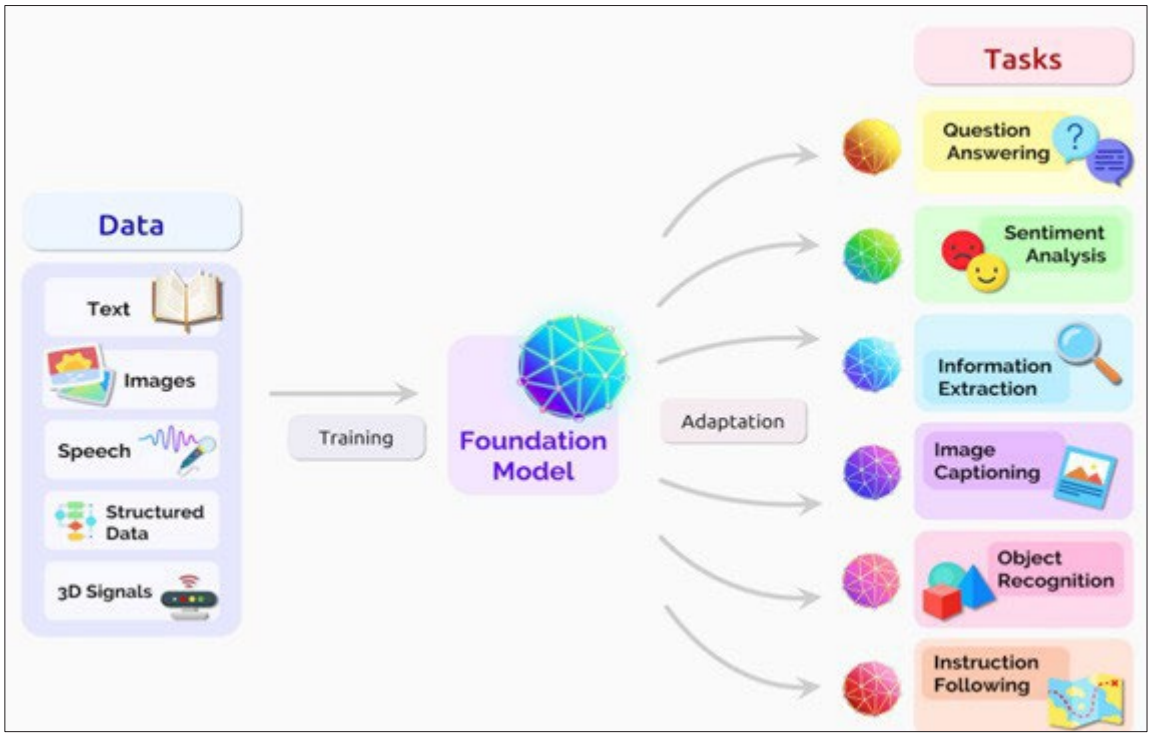
NABCA: What role does Natural Language Processing (NLP) play in Generative AI?

GALLO: Natural Language Processing is the foundation of Generative AI, enabling machines to understand, generate, and manipulate human language in meaningful ways by combining linguistics, machine learning, and deep learning. Tokenization, one aspect of NLP, breaks text into smaller units (words, sub words, characters) for easier processing. Another aspect is normalization, which converts text into standard formats and, typically, removes special characters. Further, syntax analysis or parsing identifies grammatical structure to help the machine better understand meaning and interact with humans more naturally.

NABCA: How have generative AI tools evolved since their inception, and what are some of the key advancements that have been made?

B-F: Although generative AI tools began as language models in 2022, they have rapidly evolved to become multi-modal over the past few years. This evolution means that working with generative AI now involves interacting with one or more of its modalities. A modality refers to the type of input the model can process and the type of output it can generate.

Generative AI can now handle various types of data, including text, images, audio, and video (Fig 2.). For example, a single AI model might be capable of generating coherent text, creating realistic images, producing audio clips, and even generating video content. This multi-modal capability significantly expands the potential applications of generative AI, allowing it to be used in diverse fields such as content creation, information extraction, sentiment analysis, insights generation, etc.



*** Fig 2. Multi-modal evolution of Generative AI**

By leveraging these different modalities, Generative AI can provide more comprehensive and versatile solutions. For instance, a business might use AI to generate marketing copy, design promotional images, and create engaging video advertisements, all from a single platform. This integration of multiple data types and output enhances the efficiency and creativity of AI-driven projects.

In summary, the shift from single modality to multi-modality in Generative AI tools has opened new possibilities for innovation and application, making AI a more powerful and adaptable tool. Due to this evolution and its intrinsic ability to generate and process content in various ways, Generative AI has permeated various industries, revolutionizing creativity, productivity, and problem-solving and the alcohol industry is no exception.

NABCA: What strategies can companies adopt to successfully implement Generative AI?

B-F: Generative AI holds tremendous potential for organizations. The identified shortcomings and ethical issues can be addressed by implementing a specific set of guardrails and technical practices, both during the system's deployment and on an ongoing basis. There are various measures that organizations can put in place. At B-F, we typically categorize these into four areas: people, process, technology, and partners.

- **People** - The success of generative AI adoption largely hinges on the people within the organization. Ensuring that the workforce is well-trained and comfortable with the new technology is crucial. This involves educating them on how to use AI tools effectively and addressing any concerns or resistance to adoption. We have established regular office hours to introduce new tools and educate our workforce on their potential capabilities and limitations. Additionally, we have a dedicated team

of AI implementers or data scientists to help manage and optimize AI applications to meet the organization's specific needs. When using Generative AI, always fact-check the work for accuracy.

- **Process** - Integrating generative AI into existing workflows requires a thorough evaluation of current processes. Organizations need to identify areas where AI can add the most value and potentially streamline operations. This might involve redesigning workflows to incorporate AI-driven tools, insights and automating repetitive tasks through AI agents. Also, establishing AI governance to assess the risk and best practices for AI usage may help maintain consistency and ensure that AI is used responsibly and aligned with the organization's policy.
- **Technology** - The technological infrastructure and data must be capable of supporting and scaling generative AI applications. This includes having the necessary hardware, software, and data storage solutions. Organizations should assess their current technology stack and determine if upgrades or new investments are needed. Ensuring data quality and security is also paramount, as AI systems rely heavily on accurate and secure data to function effectively.
- **Partners**_- Several technology vendors are introducing AI into their products. By leveraging these existing vendors, companies can identify gaps and areas for improvement. Once these gaps are recognized, organizations can seek relevant external partners to address them. External partners can provide valuable expertise and resources for AI adoption. This might include collaborating with AI vendors, consultants, or academic institutions. These partnerships can help organizations stay updated on the latest AI advancements and best practices. Additionally, leveraging the experience of partners can accelerate the implementation process and mitigate potential risks.

To address these factors, several organizations including B-F have established an AI Center of Excellence (COE) to carry out these functions. The AI COE serves as a central hub for AI initiatives, promoting best practices, governance, education, development, and ensuring that AI adoption aligns with the organization's strategic objectives.

NABCA: What are parts of Generative AI that the beverage alcohol marketplace can embrace?

GALLO: Gallo has always embraced new and emerging technologies as key tools for improving efficiency, productivity, and competitiveness in the global marketplace. By adopting innovative solutions, such as Generative AI, Gallo can streamline operations, better access data, improve product quality, and optimize consumer joy. We have implemented a variety of Generative AI use cases and projects across the organization to prove out AI applications.

Gallo believes that Generative AI has already proven very helpful with the following:

- **Technical assistance**—Debugging code and reducing development time.
- **Data analysis and reporting**—Processing large data sets and providing visualizations.
- **Creative content**—Evaluating content for completeness, accuracy, and alignment to our brand standards

Gallo is also exploring areas where Generative AI has shown limitations but holds promise in enhancing foundational capabilities:

- **Poor data quality**—Data isn't digitized, clean, and consistent.
- **Process gaps**—Lack of standard process documentation.
- **True innovation**—Models can't originate groundbreaking ideas without human element.

NABCA: What are the potential pitfalls (technical or otherwise) of Generative AI for beverage alcohol businesses?

GALLO: New technologies typically bring a variety of pitfalls that new users/ adopters need to be aware of.

First, let's discuss some of the potential technical pitfalls. Hallucinations refers to instances where a Generative AI model generates incorrect, misleading, or false information that appears plausible. Since Large Language Models (LLMs) are probabilistic systems trained to predict the next most likely word (rather than fully verified truth), ambiguous queries can lead to hallucinations. Retrieval-Augmented-Generation (RAG) is one way to minimize hallucinations. RAG pulls data from trusted sources before generating a response. Another way to safeguard responses is to implement fact-checking mechanisms such as involving humans not only during the process but also at the end - before any sensitive information can make it to a Gallo user. In all our projects, we typically work with a small group of beta testers to provide valuable input and be a part of our continuous monitoring and feedback loops.

At Gallo, we value our data privacy and Internet Protocols and need to keep them, well, private. Generative AI tools, if used without appropriate training, controls, and protocols can put our proprietary information at risk. If not properly trained or monitored, Generative AI may produce inaccuracies and hallucinations, which underscores the importance of human reviews of such content.

NABCA: What regulations (guidelines or policies) need to be considered with Generative AI and beverage alcohol companies?

GALLO: The Alcohol and Tobacco Tax and Trade Bureau (TTB) regulates the production, distribution, labeling, advertising, and taxation of alcoholic beverages in the U.S. to ensure compliance with federal laws. This also includes label approvals, formula approvals, and excise tax requirements to maintain industry integrity and consumer protection. As Generative AI is used more frequently, we have guidelines and policies in place to ensure that these regulations are met, and we are currently training our models toward such compliance. That said, from my perspective, I believe we will see a variety of state and federal regulations, specific to AI use (independent of industry), in the coming months and years.

At Gallo, compliance extends beyond alcohol beverage specific laws. Responsible businesses must adhere to all applicable legal, regulatory, and ethical standards governing their operations, including but not limited to data privacy, consumer protection, employment law, environmental regulations, intellectual property rights, and more.

Furthermore, as we integrate Generative AI into our business, we are committed to upholding legal and ethical guidelines related to Generative AI - now and in the future. We strive to ensure that our use of Generative AI aligns with industry's best practices and regulatory expectations, reinforcing our dedication to integrity and trust in all aspects of Gallo's business.

NABCA: What are ethical considerations for beverage alcohol and other companies while using Generative AI?

B-F: Aside from the potential shortcomings in performance and effectiveness, generative AI has multiple ethical implications. Every organization that uses Generative AI must identify these challenges to minimize the harm that Generative AI can cause.

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- **Privacy** – Generative AI models need vast amounts of training data, and this might include sensitive information about individuals, including personal identifiable information (PII). As individuals in the organizations start using Generative AI, these models could start consuming personal information which could lead to organizations personal-data leakage.
- **Transparency and Explainability** – Generative AI systems are built on neural networks and can be black-box, which means it's difficult for humans to determine why the model made a certain decision or response. Also the organizations that build the foundational models may refuse to divulge the source of the data that the model was trained on. The lack of transparency can sometimes lead to erosion of trust and users might have a hard time trusting the output of the model.
- **Bias and Discrimination** – Along the lines of data used to train the datasets, the data itself might deprioritize certain groups of people. So if the model is trained on biased data, it will produce biased results.

- **Safety and Security** – Protecting its assets and data should be of paramount importance for the organization. Bad actors can potentially exploit these vulnerabilities of Generative AI. These can lead to sensitive data-leakage, damage to data, or more.

As an organization, you don't have to take a deep philosophical look at the ethics of AI, but you're still responsible for ensuring that AI solutions meet the general principles of ethics to protect and maintain the integrity of your data assets.

GALLO: Generally, the ethics of Generative AI revolves around the accuracy, bias, accountability, and transparency of this emerging technology. For this reason, we have established an AI Center of Excellence (COE) as well as a Governance Committee to oversee and manage the use of AI at Gallo. The use of AI in the beverage and alcohol business can be strikingly different from its use in big tech, the start-up world, or any other industry, so we need to be mindful of AI applications (and guardrails) that make the most sense for Gallo, our employees, customers, and consumers.

Our 6 AI Principles are:

- Data Privacy and Security
- Reliability and Safety
- Transparency
- Data Driven Objectivity
- Accountability
- Inclusiveness

Broadly speaking, and consistent with our other business policies, our AI ethical considerations emphasize alignment with responsible drinking initiatives and avoiding the promotion of overconsumption. It is also important to clearly articulate a tool's purpose and limitations to ensure that models are understandable to stakeholders and users for the best results. Biases are ever present in the world of AI, so we regularly audit algorithms, addressing outlier responses as we see them to limit/eliminate discrimination in outcomes. We have designed processes for reporting issues and raising concerns to make our systems most accountable to our users. Finally, it is important to Gallo that we design systems that are accessible and usable by individuals of different abilities.

Thank you, Amit, Gabriel and Chad. Readers, please return for Part 2 of the Generative AI and Alcohol discussion with these NABCA Industry members.

Acknowledgements

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