

The Intricate Interplay of Supply Chain and AI Dependency in Beverage Alcohol Part II



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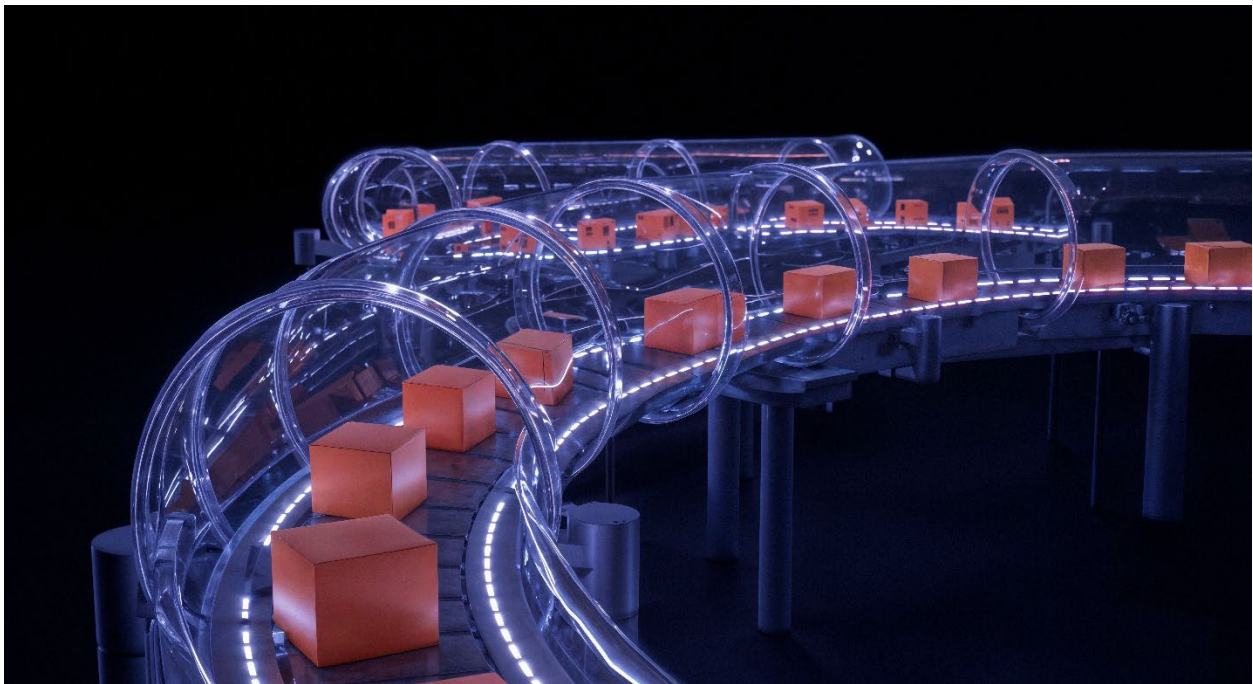
On the heels of the recently released, [“The Intricate Interplay of Supply Chain and AI Dependency in Beverage Alcohol Part I,”](#) comes the follow-up. For this article, respondents did not answer every question posed. As noted in part one, the supply chain is a fragile system. Without availability of the source of the raw material (grain), the people needed and the activities they do (transportation) as well as the information and resources involved in moving a product or service from supplier to customer, a breakdown can cause lost revenue, increased logistics costs, damaged brand reputation, and other issues that can threaten a business. [NABCA’s](#) Margaret Barchine continues the discussion with supplier member Heaven Hill Brands’ (HHB) George Wilson and Shreyas Shukla of Info-Tech Research Group’s (ITRG), a global IT firm and NABCA member.

NABCA: What are the pitfalls or challenges of AI in the supply chain? Are there measures you use to prevent these pitfalls or challenges you identified?

I-T-R-G: There are three crucial challenges with AI use:

- Data quality and availability remain the most common issue. Many organizations still rely on manual updates, spreadsheets, disconnected systems, or partner data. AI models can only learn from the data they are given, so poor data produces weak recommendations. One of the simplest preventive measures is establishing clear data ownership, standardizing data definitions, and improving basic data hygiene before deploying AI at scale. IBM identifies data quality and governance as top barriers to scaling AI; nearly 45% of business leaders cite concerns about data accuracy or bias as a leading obstacle.
- A second challenge is overestimating what AI can do, especially early in adoption. Organizations often assume AI will fully automate processes, when in reality most AI models are designed to support decision-making rather than replace it. To prevent this, organizations often adopt a human-in-the-loop approach, where AI highlights patterns or recommends actions, but people validate the decision. While AI systems outperform manual solutions for tasks like forecasting, effective “sensemaking” still requires interaction between humans and AI, not full automation.
- Finally, the lack of explainability is also a major challenge. If AI recommends adjusting a forecast or changing levels of safety stock planners need to understand why. This is one reason LLMs are gaining traction. They can explain changes using plain language to make outputs easy to interpret. John Galt’s recent announcement of its Atlas Planning Platform highlights new explainable-AI capabilities that combine advanced analytics with explainability features, “democratizing” access to insights so planners can act on AI-driven recommendations with confidence.

H-H-B: The pitfalls I can identify relate to data quality, legacy system integration limitations, the need for human oversight, and the limited availability of individuals with AI expertise. At Heaven Hill, we try to mitigate these risks by prioritizing data governance and master data cleanup, with several initiatives currently underway. We take a pragmatic approach to integrating AI with existing systems and ensure human oversight remains central to all decision-making. In parallel, we focus on upskilling internal teams and partnering with trusted technology providers to responsibly deploy AI that delivers measurable value.



[AI Generated Image from Freepick.com](https://www.freepick.com)

NABCA: What role do hallucinations play in AI and the beverage alcohol supply chain?

I-T-R-G: Hallucinations matter more when using LLMs, rather than with traditional machine learning. Machine learning models used in applications like forecasting, optimization, or risk scoring do not hallucinate. If the output is wrong, it is usually due to data issues or model design, not hallucination.

On the other hand, LLMs can sometimes provide an answer even when the underlying data is incomplete, ambiguous, or missing. LLMs will fill gaps by generating content that sounds correct but is not grounded in actual data or logic.

In beverage and alcohol production, allocations, compliance reporting, and inventory decisions have downstream regulatory and commercial impacts. If users rely on LLMs to understand, “Why did my forecast change?” or “What drove this stock-out?” AI should only summarize information pulled from verified sources. If AI deviates from that, it risks producing misleading explanations.

Organizations are managing this risk using various methods such as using clear guardrails while engineering prompts, and retrieval augmented generation (RAG). RAG forces the LLM to retrieve relevant information from approved sources and generate a response based strictly on that evidence. This dramatically reduces hallucinations because the model cannot fabricate data that does not exist in the retrieval step. RAG pipelines have been shown to cut hallucination rates by 26.9% in general RAG tasks and improve precision in supply chain-relevant domains.

Hallucinations often become a risk only when conversational tools are allowed to speak beyond the data. Experts warn of hallucination risks in generative tools for consumer insights, product development, and supply chain optimization, stressing the need for vetted data sources and human oversight to avoid decisions based on fabricated outputs. However, the solution is not to avoid these tools, but to use them with structure, governance, and clearly defined boundaries.

NABCA: Does ethics play a role in your company’s AI initiatives? If yes, how does it?

I-T-R-G: Ethics absolutely should play a central role in how companies adopt AI, especially in regulated sectors. However, I often see that the speed of AI adoption outpaces ethical governance.

Individual users or teams experiment with generative AI tools outside approved environments, use them with unofficial datasets, or use them to interpret models

they do not fully understand. Shadow AI unintentionally introduces risks like data leakage, IP exposure, regulatory non-compliance, hallucinations, and embedded bias.

Another challenge is that some organizations deploy AI features embedded in software platforms without full visibility into underlying logic, making it hard to validate recommendations or defend decisions during audits, especially in areas like supplier risk scoring or inventory optimization.

These risks are becoming easier to manage as more companies adopt retrieval-augmented and context-augmented approaches to ground AI in verified data. In a well-governed environment, teams should know what data the AI is using, what logic sits behind recommendations, and whether outputs reflect operational and regulatory realities. This, however, does not happen on its own.

H-H-B: Ethics plays a critical role in how AI is used, particularly when it comes to data integrity and trust. In a highly competitive landscape, strong data protection and secure enterprise platforms are essential for beverage alcohol companies to safeguard regulatory compliance, traceability, and operational technology (OT) security.

NABCA: How can AI help beverage alcohol companies become more efficient with supply chain efforts?

H-H-B: Better forecasting, reduced downtime, faster reporting, and improved logistics visibility are some ways that quickly come to mind.



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NABCA: How do you envision beverage alcohol companies using AI for supply chains in the future?

I-T-R-G: In the **near term** (1-1.5 years), AI use will continue to reflect decision support where LLMs continue to sit on top of existing planning, inventory, and logistics data to help planners ask better questions and get faster answers. Teams will use AI to explain forecast changes, summarize risks, evaluate scenarios, and prioritize actions without replacing established planning processes.

Over the **near-to-long term** (2-3 years), we expect AI to begin playing a stronger role in coordination across the supply chain. Organizations will use AI to align signals across suppliers, distributors, and their operations teams, reducing the latency between what is happening and how teams respond. AI will proactively surface recommendations, risk alerts, and trade-offs rather than waiting for user instruction. Human oversight will remain central, but decisions will be quicker and more accurate.

In the **longer term** (3-5 years), we expect AI to move toward semi-autonomous execution with clear human accountability. This may include automated adjustments such as inventory rebalancing, replenishment tuning, or production scheduling within approved constraints. Fully autonomous, or “dark factories” remain unlikely in this time period, given the steep capital expenditure required in production-side assets to make this happen, not to forget regulatory oversight as another constraining factor.

The next five years indicate an elevation in the quality and speed of decision-making, and not replacement of people as the primary outcome of evolving AI capabilities.

H-H-B:

- AI will help companies forecast much further into the future with greater accuracy, allowing us to plan grain, packaging, and production needs years ahead with more confidence.
- It will make bottling operations more efficient by adjusting schedules in real time, identifying potential bottlenecks, and improving how labor and equipment are used.
- AI will enhance materials and packaging planning by anticipating demand shifts and helping avoid both shortages and excess inventory.
- Logistics will also benefit as AI predicts delays earlier, recommends more efficient shipping routes, and supports better transportation planning overall.
- It will offer broader visibility across the entire supply chain, giving planners the information they need to react faster and make smarter decisions.

Ultimately, AI will become a strategic partner that boosts efficiency, reduces risk, and helps beverage alcohol companies navigate increasingly complex supply chain demands.

NABCA: How have you integrated new AI technologies with your existing legacy systems?

I-T-R-G: We are seeing evidence of some repeating patterns when organizations integrate AI with their legacy systems:

- Companies introduce AI by connecting AI to data warehouses, planning tools, or reporting environments because these systems are already designed to consolidate data and support analysis. This allows AI to add value without touching core systems like ERP, or MES, that are designed to reliably process transactions.
- Companies use APIs, data feeds, and microservices to pull data from legacy systems into AI models. This avoids the risk and cost of altering the underlying system and allows teams to test AI capabilities without committing to major system changes.
- The most important integration work often happens outside the AI itself. Companies invest in cleaning and consolidating data, so AI models do not have to work around gaps, inconsistencies, or outdated definitions.

Given the current state of AI, I believe companies are doing the right thing by integrating AI at the edges of legacy systems instead of starting with their core platforms.

H-H-B: Businesses today, beverage alcohol or otherwise, use the Microsoft software suite, which includes Teams and Outlook. Heaven Hill has gone through the process of integrating them into its other software for business operations. Legacy information is critical for continuity of business operations and finding a system you trust to continue to prosper is important.

NABCA: How do you measure the return on investment (ROI) of your AI initiatives?

I-T-R-G: Most organizations measure the ROI of AI through a mix of hard metrics, soft productivity gains, and risk reduction. The most mature companies focus on

improvements that can be tied directly to financial or operational impact, and they assess them over time instead of expecting a single breakthrough moment.

Hard operational metrics are measurable outcomes tied to cost, service, or working capital. Common examples include:

- Improvements in forecast accuracy
- Reduction in safety stock or excess inventory
- Lower transportation costs
- Improved service levels
- Reduction in downtime

Soft productivity gains often get overlooked because they don't fit into a single hard metric. Common examples include:

- Reduced time spent preparing reports
- Faster planning cycles
- Fewer manual interventions
- Higher analyst capacity without increasing headcount

Risk reduction and early-signal detection help organizations anticipate and manage risks that emerge gradually through small signals that are easy to miss until they become disruptive. Common examples include:

- Earlier detection of supplier issues
- Reduced volatility in procurement lead times
- Better compliance reporting and audit readiness

Overall, ROI in AI is measured by how much it improves decision-making, reduces avoidable cost, removes friction, and strengthens resilience. Companies that treat AI as an ongoing capability rather than a one-off project typically see the most returns.

H-H-B: Measuring ROI on AI initiatives starts with establishing clear baseline metrics—such as cost, service levels, inventory turns, or cycle time—so improvements can be quantified. ROI should capture both hard financial benefits, including cost reduction and productivity gains, as well as service improvements like on time-in full (OTIF) that protect revenue and customer relationships. Adoption

should also be tracked to ensure the tools are being used effectively and driving sustained value. Currently, we are trying to determine the metrics for measuring Heaven Hill's ROI. In the short term, however, we can measure labor efficiency, which is also a good output for ROI.

NABCA: How specific or concise do you need to be when asking AI for feedback in supply chain use?

I-T-R-G: Typically, the quality of the AI's response is directly tied more to the clarity of the question than how verbose or concise it is. Vague prompts produce vague answers. At minimum, you need to tell the AI what data to use, what problem you are trying to solve, and what constraints matter.

For example, asking an AI system, "Why is demand up?" is too vague. But specifying, "Summarize drivers of week-over-week demand changes for SKUs in the bourbon category, using verified sales and shipment data only," gives AI the prerequisite context, scope, and data boundaries it needs to produce a far more reliable answer.

This is also why retrieval-augmented and context-augmented approaches have a material impact on the quality of AI outputs. These methods force AI to use approved datasets, business rules, and operational constraints.

A prompt will never be perfect. The focus instead should be on engineering purposeful, specific prompts. This makes the output more accurate and easier to trust.

H-H-B: Generative AI needs clear, specific context for reliable responses. If you are too vague or too specific, it will not deliver the results you are expecting. It pays to be patient and rework your AI request when requiring feedback for supply chain use.

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