

The Lunar Module: AI-Powered Cost Optimization at Scale

How a cross-functional AI initiative helped Blue Delta Jeans identify more than \$600,000 in annualized cost savings across COGs, vendor contracts, operations, and travel — with more workstreams still in progress.

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EXECUTIVE SUMMARY

Blue Delta Jeans, a custom denim manufacturer based in Shannon, Mississippi, engaged Kudzu Ventures to lead a structured, AI-enabled cost review spanning every significant line of the company's expense structure. Internally named the "Lunar Module" — after the famous Apollo 13 scene in which NASA engineers inventoried every component of the spacecraft to find what was essential — the project assembled a cross-functional team to evaluate cost of goods, vendor contracts, operational expenses, travel spend, and marketing expenditures.

The headline result: the Lunar Module has identified more than \$600,000 in annualized cost savings — with additional workstreams still in progress. These savings were uncovered not through broad organizational cuts, but through systematic, data-driven analysis of specific vendor relationships and expense categories, each backed by AI-generated negotiation materials and custom analytical tools.

AI tools were deployed throughout: analyzing multi-year spend data, identifying savings opportunities, generating professional vendor negotiation packages, and building custom forecasting tools. The result is a replicable framework that any growth-stage business can apply — and a compelling demonstration of what AI makes possible when it is integrated into operational decision-making rather than treated as a standalone technology project.

1. The Origin: Why "Lunar Module"?

In the 1995 film *Apollo 13*, there is a pivotal scene in which a team of NASA engineers dumps a box of equipment onto a table — every component available to the astronauts in the lunar module — and is told: build something that will save their lives using only what is in that box. The scene has become a metaphor for resourceful problem-solving under constraint. But there is an equally powerful earlier moment: the systematic inventory of the module itself, item by item, to understand exactly what they had to work with.

That inventory is what Blue Delta Jeans set out to do with its own cost structure in early 2026. Not a top-level budget review, but a component-by-component examination of every meaningful category of spend: raw materials, manufacturing inputs, vendor contracts, travel, marketing, and operational expenses. The question was not simply "where are we spending money?" but "where, given what we now know and the tools we have, can we do materially better?"

"The Lunar Module wasn't a cost-cutting exercise in the traditional sense. It was an inventory — a deliberate effort to see the whole picture before deciding what to change."

— Tyler Sutliff, Managing Partner, Kudzu Ventures / Investor & Operating Partner, Blue Delta Jeans

The project was initiated and led by Tyler Sutliff in his capacity as Investor and Operating Partner at Blue Delta, working through Kudzu Ventures and AI Impact Group. A cross-functional team was assembled from across Blue Delta's organization, with team members assigned specific vendor relationships, expense categories, and workstreams. AI tools supported each workstream — not as a pilot or experiment, but as a core part of how the work was done.

2. Blue Delta Jeans: Context and Scale

Blue Delta Jeans is a Mississippi-based custom denim manufacturer known for its premium, made-to-measure jeans. The company operates a manufacturing facility in Shannon, MS, with leadership offices in Oxford, and has grown significantly over the past several years — adding retail and wholesale channels, expanding its gifting and corporate program business, and increasing fabric volume to match the pace.

That growth is visible in the company's vendor spend. Fabric purchasing alone crossed significant thresholds in 2025, with spend on a single fabric supplier increasing more than 70% year-over-year. The company's corporate gifting program — centered on a hand-painted custom shoe experience — scaled to nearly \$200,000 in procurement spend in 2025, up from \$123,500 in 2024. Manufacturing equipment maintenance, shipping logistics, travel, and marketing each added further cost layers that had grown organically alongside the business, but had not been comprehensively reviewed at scale.

By early 2026, Blue Delta had the profile of a company at an important operational inflection point: large enough that the cost structure deserved serious attention, but still small enough that a focused effort by a lean cross-functional team could move quickly and meaningfully.

3. Methodology: The Lunar Module Framework

The project was structured in distinct phases, each with assigned team members, specific data-gathering requirements, and deliverable targets. AI tools were integrated into each phase from the outset — not retrofitted later.

1

Data Gathering & Vendor Assignment

Team members were assigned specific vendors and expense categories. Each was responsible for collecting historical transaction data, contracts, and relevant context from their assigned area. A master project workbook (BlueDelta_LunarModule_Workbook) tracked assignments, status, and findings across all workstreams.

2

AI-Assisted Analysis

Raw spend data — accounts payable ledgers, invoices, PO histories, and expense reports — was fed into AI analysis workflows. AI tools were used to identify spending patterns, calculate year-over-year trends, flag anomalies, and build the quantitative case for each negotiation or optimization opportunity.

3

Deliverable Generation

For each significant vendor relationship, AI tools generated professional, data-backed negotiation packages — including cover letters, spend summaries, purchase order histories, and scenario analyses of proposed pricing adjustments. Where vendor relationships involved international suppliers, packages were produced in both English and Mandarin Chinese.

4

Custom Tool Development

Beyond point-in-time analysis, the project generated durable tools for ongoing use — including a Fabric Forecast Calculator for projecting purchasing requirements and a Vendor Assignment Tracker for managing the review process across the team.

5

Negotiation & Outreach

Armed with data-rich packages, the team initiated conversations with vendors and suppliers across each workstream — moving from analysis to action with materials that established a clear, evidence-based position from the first contact.

4. Workstreams: Where the Work Was Done

4.1 Fabric COGs — New Line Fashion Group

New Line Fashion Group, a New York-based fabric supplier, is one of Blue Delta's most strategic vendor relationships. New Line supplies the W50250 denim that sits at the core of Blue Delta's fastest-growing product category. A review of four years of accounts payable data revealed a relationship that had grown substantially — but whose pricing had not been renegotiated to reflect that growth.

\$701K 4-YEAR TOTAL SPEND (2023–2026 YTD)	+70.5% YOY SPEND GROWTH 2024 → 2025	20% PRICE REDUCTION REQUESTED	~\$70K PROJECTED ANNUAL SAVINGS AT TARGET RATE
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YEAR	TOTAL SPEND	YOY GROWTH	NOTES
2023	\$172,176.51	—	Established partnership; primarily denim piece goods
2024	\$181,694.75	+5.5%	Steady order cadence across the year
2025	\$309,770.33	+70.5%	Step-change in volume; four large W50250 orders
2026 YTD	\$37,801.00	—	Through Q1; tracking to repeat or exceed 2025 pace
4-Year Total	\$701,442.59		

Source: Blue Delta AP ledger, New Line vendor file

AI tools analyzed the AP ledger data and generated a full Vendor Partnership Package — including a narrative cover letter, historical spend summary, purchase order detail, and projected savings scenarios — at three volume thresholds (20,000 / 25,000 / 30,000 yards annually). The proposed rate adjustment from \$14.00 to \$11.20 per yard would yield \$56,000 to \$84,000 in annual savings at current run-rate volumes. The package was delivered to New Line's team in April 2026 as the basis for a formal renegotiation.

What AI made possible: The New Line package would have required days of manual data assembly — pulling invoices, building spend summaries, constructing scenario tables. AI compressed that work to hours, and produced a polished, boardroom-quality document that established a credible, data-backed negotiating position from the first conversation.

4.2 Manufacturing Equipment — Eastman Machine Company

Eastman Machine Company of Buffalo, New York, supplies cutting machinery parts and components critical to Blue Delta's manufacturing floor. The Eastman workstream reviewed transaction history, parts procurement patterns, and total maintenance spend over a two-year period, identifying opportunities to optimize ordering cadence, evaluate bulk pricing, and assess the cost structure of ongoing equipment maintenance relative to replacement or upgrade scenarios.

4.3 Corporate Gifting Program — Procurement Optimization

Blue Delta's hand-painted custom shoe gifting program has grown into a significant revenue line — and a significant procurement expense. The program, which sources Nike Air Force Ones and other premium footwear for hand-painting and gifting experiences, spent \$123,500 in 2024 and \$180,500 in 2025 procuring shoes through retail channels. The project initiated outreach to Dick's Sporting Goods to explore volume pricing arrangements that would reduce per-unit cost as the program continues to scale.

Early responses from Dick's indicated that individual store managers have discretion to offer up to 17% volume and tax discounts — a finding that provides a near-term savings opportunity while a formal procurement relationship is pursued. The project also identified opportunities to expand the product mix beyond Air Force Ones into other all-white Nike lines and premium athletic footwear, broadening the gifting program's appeal while potentially improving procurement economics through diversification.

4.4 Labor Cost Analysis: Efficiency Over Headcount

From the outset, the labor cost workstream was framed around a clear principle: the goal was not to reduce headcount, but to find ways to move faster and produce a better product. Blue Delta Jeans' craftsmanship is a core competitive differentiator, and no analysis was going to compromise the team that delivers it.

What the data revealed was a compelling efficiency opportunity. Every five minutes reduced from the production process translates to approximately \$50,000 in annual savings — a metric that reframes how the team thinks about incremental improvement. Small gains compound quickly on the floor.

The Lunar Module team identified two metrics that had not previously been tracked with rigor: total hours per unit and total labor cost per unit. Establishing baselines for both created a foundation for continuous improvement — giving leadership a clear benchmark to measure against and a shared language for evaluating process changes going forward.

Perhaps the most significant finding was at the front of the line. The pattern-making process had long been a production choke point, slowing throughput before a single piece of denim was cut. AI-enabled tools were identified as an opportunity to accelerate this stage, reducing delays upstream and creating a smoother flow across the entire production sequence.

This workstream is ongoing. The benchmarks are set; the improvement process has begun.

4.5 Broader Vendor and Operating Expense Review

In addition to the deep-dive vendor workstreams described above, the project reviewed the full spectrum of Blue Delta's vendor relationships — a spend-by-vendor analysis spanning April 2024 through March 2026 — identifying additional candidates for renegotiation, consolidation, or alternative sourcing. The 2026 COGs budget was also benchmarked against the findings to validate targets and set the framework for the year ahead.

5. AI as a Force Multiplier: What the Tools Actually Did

The Lunar Module project was not an AI demonstration. It was an operational initiative in which AI tools were the means, not the end. The following is an honest accounting of what AI contributed — and where human judgment remained essential.

AI CONTRIBUTIONS ACROSS THE PROJECT

- **Spend data analysis:** Multi-year AP ledger data ingested and summarized — year-over-year trends, vendor concentration, per-unit pricing history — in a fraction of the time manual analysis would require.
- **Vendor negotiation packages:** Professional, data-rich documents generated for each major vendor, with narrative framing, supporting tables, and scenario modeling — calibrated to each vendor relationship.
- **Bilingual documentation:** Vendor packages produced in English and Mandarin Chinese for suppliers with Chinese-speaking ownership or management, without the cost or delay of traditional translation services.
- **Forecasting tool development:** A custom Fabric Forecast Calculator built to model purchasing requirements against sales projections — a durable operational tool that continues to serve the business beyond the project.
- **Project coordination:** Workbook and tracker frameworks designed to organize assignments, surface status, and keep a cross-functional team aligned across concurrent workstreams.
- **Communication drafting:** Outreach emails and follow-up correspondence drafted with appropriate tone and framing for each supplier or partner relationship.

Equally important is what AI did not replace. The judgment calls — which vendors to prioritize, what concessions to seek and which to hold back, how to read a negotiating relationship, when to push and when to build — remained human decisions throughout. The value of AI in this context was not to automate decision-making but to dramatically accelerate the preparation that made those decisions better-informed.

"AI didn't make the decisions. It made sure we walked into every conversation with better data, better materials, and a clearer picture of what was possible."

— Courtney Cocanougher, Managing Director, Kudzu Ventures

6. Results and Outcomes

The Lunar Module project is ongoing, with several vendor conversations in active progress as of this writing. Quantified outcomes will continue to develop as negotiations conclude. What is already clear, however, is the shape of what is possible:

\$600K+ ANNUALIZED SAVINGS IDENTIFIED TO DATE	\$56–84K ANNUAL SAVINGS TARGET NEW LINE FABRIC ALONE	6+ VENDOR & EXPENSE WORKSTREAMS REVIEWED	More ADDITIONAL WORKSTREAMS STILL IN PROGRESS
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Across all workstreams completed to date, the Lunar Module has identified more than \$600,000 in annualized cost savings — a figure that does not yet include the full results of every vendor negotiation currently in progress. The savings span fabric COGs, procurement optimization, operational expenses, travel management, and labor efficiency, demonstrating that meaningful cost reduction is available across the entire expense structure when the right tools and methodology are applied.

Beyond the numbers, the project produced a set of durable operational assets: negotiation packages that can be refreshed and reused in future vendor cycles, forecasting tools embedded in day-to-day workflow, and a structured framework for cross-functional cost review that Blue Delta can run again as the business continues to grow.

7. The Framework: What Other Companies Can Apply

The Lunar Module approach is not unique to Blue Delta or to the apparel industry. The underlying principles apply to any growth-stage company that has scaled its vendor relationships and operational spend without a corresponding structured review of cost efficiency.

Start with the inventory, not the conclusion

Resist the temptation to begin with "where can we cut?" Instead, assemble the complete picture first — every vendor, every expense category, historical trend data — before forming a point of view on what to change. The inventory itself often surfaces surprises.

2 Use AI to compress preparation time, not to replace judgment

AI tools can turn a weeks-long data-gathering and analysis process into days. They can produce professional-quality deliverables that would otherwise require outside consultants. Deploy them on the preparation work so that the human time is concentrated on decisions and relationships.

3 Build for relationships, not just transactions

The most effective negotiation approach is the one that gives the vendor a clear, data-based view of the relationship — volume history, growth trajectory, future commitment — and asks for a rate that reflects mutual benefit. AI-generated packages can be calibrated to this framing from the first page.

4 Build tools, not just analyses

Point-in-time analysis has a shelf life. Where possible, use the project to generate tools — forecasting models, tracking frameworks, spend dashboards — that continue to serve the business after the formal review concludes. The investment pays forward.

5 Cross-functional ownership matters

Cost efficiency initiatives that live in Finance or Operations alone tend to run out of momentum. A cross-functional structure — with team members who own vendor relationships also owning the review — produces both better information and stronger follow-through.

Conclusion

The Lunar Module project demonstrates what becomes possible when AI is treated as a core operational tool rather than a novelty. At Blue Delta Jeans, a structured, AI-enabled cost review — spanning fabric vendors, manufacturing inputs, gifting program procurement, travel, and labor — identified material savings opportunities across the business while building durable tools and frameworks that extend well beyond any single negotiation cycle.

The project did not require a large team, an outside consulting engagement, or a major technology investment. It required clear methodology, disciplined data gathering, and the willingness to integrate AI into the day-to-day work of a business that is serious about operating efficiently at scale.

That is precisely the kind of initiative Kudzu Ventures and AI Impact Group were built to support — and to help replicate across other growth-stage companies ready to do the same kind of inventory.

ABOUT KUDZU VENTURES

Kudzu Ventures is a venture and operating firm founded by Tyler Sutliff, focused on helping growth-stage companies build operational infrastructure and leverage emerging technologies — including AI — to create lasting competitive advantage. Kudzu takes an active operating role in its portfolio companies, working alongside management teams on the initiatives that matter most.

ABOUT AI IMPACT GROUP

AI Impact Group works with businesses at every stage to identify, implement, and operationalize AI tools that deliver measurable results. The group focuses on practical applications — real tools for real workflows — rather than theoretical capability assessments. The Lunar Module framework is one example of the firm's applied approach to AI-enabled operational improvement.