



MI DETROIT 2025

Smart Product Profitability: Voices of Value

DESIGN, SOURCING, COST, AND QUOTING USE CASES

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1

Design

Design is the pivotal point that has the greatest influence on cost. It has been said that 80% of a product's cost is baked in at this stage. aPriori provides a distinct advantage to this stage, early visibility and feedback into potential manufacturability issues and hidden cost drivers. Remediating them at this stage reduces design iterations and late-stage engineering change orders, optimizes the product, lowers costs, and accelerates time to market.

Four Design Use Cases

EAT•N



LIUGONG

**CNH
INDUSTRIAL**

Eaton Corporation

“Eaton’s vision is to take our traditional design processes from **months to minutes.**”

UYIOSA ABUSOMWAN, SENIOR GLOBAL TECHNOLOGY MANAGER OF DIGITAL DESIGN AND ENGINEERING AT EATON

Challenge

- Traditional, manual product development **design processes took months to complete**
- **Ensuring cost-effectiveness** and manufacturing specifications, and reducing time to market

Benefit

EATON ACCELERATES INNOVATION WITH GEN AI

80%

Minimized the weight of a liquid-to-air heat exchanger

65%

Lowered the design time for a high-speed gear

87%

Reduced the design time for an automated lighting fixture

Solution

HOW IT WORKS: EATON'S FIVE GENERATIVE AI PILLARS



Authoritative Source of Truth
for engineering data and models



Connected Infrastructures
data mapping to enable digital thread



Model-Based Engineering
use models to represent systems artifacts



Intelligent Automated Design
integrate models, AI and rules to guide design



Computing Infrastructure
cloud and HPC hybrid computing infrastructure

“We rely on modeling and simulation to optimize our generative AI capabilities. With aPriori, **we can model for manufacturability and cost**, and we’re also looking into sustainability.”



Dana Light Vehicle Drive Systems

Challenge

- Dana needed to **determine how they'd make or buy strategically** and where they'd buy from in the world
- They also needed to **ensure design for manufacturing knowledge in the product**, as well as foster a cost-conscious connection between product design and product cost for their engineers

Solution

- aPriori enabled Dana to consider both Value Analysis/Value Engineering (VAVE) and the Design for Manufacturing and "do it right the first time"
- The Dana product development team was then able to understand the method, process, and value of being able to quickly, automatically, and accurately assess both cost and manufacturability
- Approximately \$100 million dollars of Dana's spend was evaluated

Benefit

aPriori helps Dana identify make vs. buy opportunities, potential supplier regions, and more precise product costs.

"Dana hired one of your applied services guys for a year and basically pulled him into the organization and said, 'Show us how to do it.' So we kind of jump-started our ROI through Applied Services, as well as your success management team."

TERRY HAMMER, VICE PRESIDENT
ENGINEERING, DANA LIGHT VEHICLE DRIVE SYSTEMS

"Dana Corporation's Light Vehicle drive system team **achieved impressive results in its first year** working with aPriori"



8% SAVINGS OF A
\$100M SPEND

was identified, and 4% of it has already been achieved in less than a year

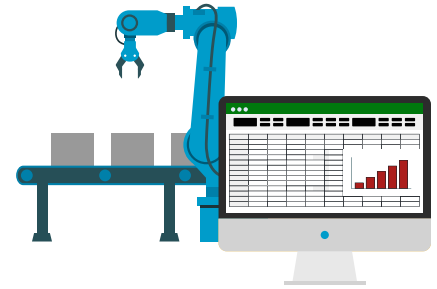


Scan to watch: How Dana Realized a 4% Savings on \$100M in the First Year



LiuGong

“aPriori supercharges LiuGong’s digital cost management by **removing silos** between product development, procurement, manufacturing, costing, and other project stakeholders.”



Challenge

- **Inaccurate design-stage cost estimates** cause overruns and delays
- **Lack of a process-based cost model** that could deliver real-time product expense feedback in the design phase, resulting in increased cost control issues

Solution

- Utilizing aPriori should costs to control and cut production expenses
- Creating the “LiuGong Master Digital Factory,” a cost model that estimates expenses for various production methods quickly
- Enabling LiuGong to assess the costs of alternatives in production, design, material, and more

Benefit



The platform’s integrated cost-sharing capabilities play a significant role in LiuGong’s supply chain and financial reviews, and have **reduced production costs by 40%.**

An MLC whitepaper finds that, despite the availability of analytics tools, **most manufacturers still rely on spreadsheets** for manufacturing data analysis.

Source: Manufacturing Leadership Council
<https://manufacturingleadershipcouncil.com/wp-content/uploads/2024/06/M2030-Project-Survey-Results-DEL.pdf>

CNH Industrial

Challenge

- **Redesigns due to inability to catch costs** early in design
- **Design-stage cost management** relied on rules of thumb and personal experience
- **Identify cost reduction opportunities** for a time-sensitive product design cycle

“It’s very easy to make sourcing comparisons within aPriori. Should we source it from the US? India? China? Once we get the design loaded, we can do a lot of ‘what-ifs’ that we never had time for in the past.”

Solution

- aPriori provided a means for validating new (limited design experience) engineers’ work
- Feedback and insights help less experienced design engineers hone their skills by highlighting specific opportunities for cost optimization

“Design engineers are touching the product first. That’s where the opportunity is to drive the greatest benefits.”

Benefit



Within the first two months of adopting aPriori across a single small harvester design team, CNH engineers identified substantial savings opportunities across a number of components.

Total Potential Annual Savings	
Turnbuckle	\$97,659
Wing Rollers	\$24,320
Tine Channels	\$19,893
Shank Cultivator	\$143,820
Hub & Spindle	\$27,640
TOTAL \$312,332	

“There are other tools that I used to do this manually, but they take a lot of time, **aPriori allows me to dramatically cut the cycle time** for making cost comparisons.”

2

Sourcing

In today's ever-changing global supply chain, it can be challenging to stay one step ahead of a disruption, whether it's a pandemic, global conflict, looming tariffs, or a host of issues. Add in rising costs for materials, labor, and energy, and it's understandable why many manufacturers struggle to get products to market quickly and profitably. But what if you had a solution that could provide you with up-to-date supplier data across many regions throughout the world in a matter of minutes? How would you negotiate with suppliers more efficiently if you had a tool that could provide more precise pricing quickly? You get all of these benefits and more with aPriori, enabling you to build a more agile supply chain.

Four Sourcing Use Cases



TE Connectivity

“Our team’s first objective is cost modeling, and the second is procurement process improvement and leveraging our internal manufacturing teams to **bring solutions to our supply base** where they might be lacking.”

SYLWIA LAMBERT, DIRECTOR OF COE PROCUREMENT –
COST ANALYTICS, TE CONNECTIVITY

“aPriori provides you with very clear talking points to use when communicating with your supplier. In our case, it was, ‘Okay, you’re clearly two times higher than the U.S. rate. What numbers are you using in your calculation?’”

Challenge

- **Inability to analyze and mitigate** increased supplier costs in periods of volatility
- **Increased production costs by 30%** in a three-year period due to higher complex manufacturing process expenses
- **2X higher labor and manufacturing costs** in the supplier’s country of operation than the national average

Solution

- By leveraging aPriori, TE Connectivity can anticipate cost drivers and generate precise “should costs” for a deeper understanding of a supplier’s overall cost structure
- Get a holistic view of supplier performance and capabilities, gaining the ability to identify suitable providers and succeed in supply chain risk management

Benefit



TE Connectivity’s Procurement Cost Analytics (PCA) team negotiating with the supplier and reducing raw material costs by 15%, thus leveling out an energy cost increase



Gained a stronger position to negotiate with the supplier and reduce the costs associated with labor and manufacturing



Scan to watch: TE Connectivity’s Supplier Strategies for Managing Cost Risks



Thompson Aero Seating

“We had no effective, repeatable manner for performing should cost analysis on detailed parts and assemblies. This skillset and capability needed to be adopted to ensure **innovation remained a core competency** for Thompson Aero Seating.”

PAUL MULHOLLAND, BUSINESS SYSTEMS ENGINEER,
THOMPSON AERO SEATING

“aPriori trained our team to use its bulk costing and out-of-the-box reporting capabilities for streamlined and accelerated outlier analysis. We can quickly identify parts among our 50 most expensive components with the largest savings potential without alienating our suppliers.”

Challenge

- **Identifying the true should cost** of the top 50 most expensive machined parts
- **Difficulty purchasing components** at optimal supplier prices relative to volume and batch size because they lacked a true cost estimate
- **Other challenges: Increasing and more competitive markets;** inability to make data-driven decisions; and incomplete cost estimations on RFP bids

Solution

- Automated bulk-cost analysis to uncover cost outliers early for increased savings
- Bulk costing that factors in expenses, including real-world labor, material, direct overhead, and indirect costs, for 87 global regions for more precise estimates

Benefit



Better cost data and breakdowns to drive more productive, collaborative supplier negotiations



ROI achieved on total investment within six months



Scan to watch: Finding 68% Cost Savings with aPriori Bulk Costing



Signify

Challenge

- **Expand procurement capabilities** for generating should cost analyses on products purchased from external vendors
- **Get an automated approach to cost estimation** to meet should cost analysis increase goal by 8x, optimizing costs for their diverse product portfolio

Solution

- Manufacturing simulation in a digital factory in an uploaded 3D CAD file for fast, detailed should cost models that can be configured to reflect varied cost structures of real-life suppliers
- A should cost analysis in a matter of clicks, resulting in a should cost summary report, a more detailed cost breakdown, and granular cost and manufacturability analysis within aPriori

Benefit



Transparency for controlled cost, the ability to challenge a bid, and a competitive edge



Automated process for generating should cost of Signify's large portfolio of products



Should cost modeling capabilities earlier in the product development process, during the R&D phase



10,000+

In the past, our team could analyze about 1,000 parts per year. Now, this number is 10,000+.

"Automation unlocks the potential to do a lot more should cost calculations—and that means the ability to challenge more bids. In the past, we were doing Excel on demand: non-robust, non-standardized models, with everyone using their own method. Now we use automation in aPriori to enable a **single, standardized methodology that is faster than ever.**"

Alstom

Challenge

- **RFQs, especially new ones**, resulted in potential delays as suppliers took up to three weeks to return a quote
- **Rushed RFQ processes** limited Alstom's flexibility to garner multiple quotes for maximized savings, forcing them to accept the first bid returned because they couldn't afford to wait for other bids to come in
- **Pressure on the Design to Cost** team to support an urgent timeline while ensuring the most cost-effective option possible

Solution

- Alstom uses aPriori Digital Manufacturing Simulation to model manufacturing costs for 20,000+ parts annually
- aPriori's digital manufacturing simulation technology enables the Design to Cost team to generate a high volume of manufacturing cost models across a number of sub-systems

Benefit



Near instant quotes without sacrificing accuracy



Alstom's suppliers collaborating in the Zero RFQ process report efficiency savings in resources when responding to RFQs, stronger relationships, and enhanced win forecasting



More efficient collaboration with suppliers to configure aPriori's digital factories to reflect each supplier's cost structure



40%

Alstom's team estimates that the Zero RFQ process is driving a **40% savings on recurring costs.**

"Sometimes it's not possible to wait for all the offers to come in. The team needs to order parts. There's no time for negotiation or to check the results given by the suppliers."



Scan to watch: Alstom saves 40% on supplier costs



3

Cost Engineering

Manufacturers understand that creating a cost-conscious culture throughout product development and the organization is paramount to remaining a competitive force. However, costs are not always readily identifiable or easy to remediate. Then there's the issue of having many parts and products to cost. With fewer cost engineers and more projects, it can be daunting to accomplish this task expediently and precisely, especially if they are utilizing a manual spreadsheet. aPriori provides manufacturers with automated, AI-powered cost engineering software. Quickly generate accurate estimates through advanced cost models and use three levels of automation to boost profitability.

Four Cost Engineering Use Cases



GE APPLIANCES



LEADING MEDICAL
MANUFACTURER

Carrier

“We are building up on our success, and we’re really excited about some of the **new technologies aPriori is coming out with** from an aP Workspace perspective, as well as aP Analytics, ‘cause we’ve really expanded for supply chain to now go in and set those targets for us to really know what we need to go on after.”

TRISTAN ABEND, VALUE ENGINEERING MANAGER, CARRIER

Challenge

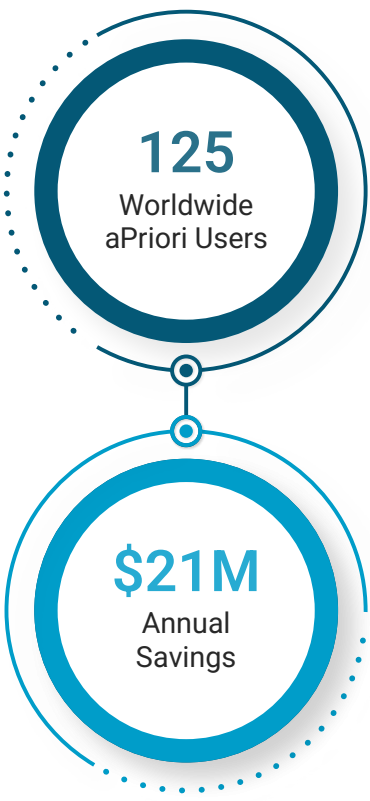
- **Difficulty analyzing and optimizing costs** for a diverse range of products that require different manufacturing processes
- **How to optimize product cost and value** through both improved supplier negotiation and more cost-effective design

Solution

- Use 80+ digital factories to simulate manufacturing and generate should cost models for Carrier designs
- Developed several in-house manufacturing cost models to reflect some of Carrier’s unique designs and production requirements
- Carrier’s cost engineering group works directly with engineers and sourcing to identify cost drivers and value-driven improvement potential
- Built detailed, highly accurate models of suppliers’ costs for rotor manufacturing based on Carrier’s precise tolerance requirements

Benefit

Exceeded goal of 8X throughput by 2X



Scan to watch: How Carrier saves tens of millions with aPriori



GE Appliances

Challenge

- **Difficulty in embedding new technology** throughout design engineering, product cost engineering, sourcing, and procurement
- **Needed to source 3 billion components** for its diversified, complex product portfolio
- **Manual tools were ineffective** in the monumental cost estimation task

Solution

- aPriori's automation-driven platform for a streamlined, detailed cost breakdown analysis
- Four-step change management process to implement it (prepare; create a vision and change plan; implement the change; embed changes into company culture and practices)

Benefit



Ability to cost more parts quickly and accurately, leading to increased productivity and time savings



Consistent annual growth in its return on investment (ROI)

“As we looked at embedding aPriori should cost into our organization, I chose to approach it with a framework of change management because what we are working to do is to make lasting change in our organization. **With aPriori, we are truly changing the methodology people use to design and source their parts.**”

JILL SNYDER, COST ENGINEERING
DIRECTOR, GE APPLIANCES



Scan to watch: How GE Appliances Embedded Should Cost Into Their Organization

aPriori

Case Study

GE APPLIANCES:
EMBEDDING
SHOULD COST
INTO YOUR
ORGANIZATION



KONE

Challenge

- **KONE's highly customizable solutions** created unique design and cost modeling challenges, including the inability to adopt a systematic approach to the process
- **Manually performing a new cost analysis** for each new custom design proved to strain resources

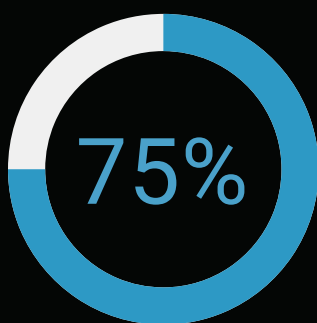
Solution

- aPriori's should cost modeling solution employed to keep pace with KONE's agile design process
- Data from the digital factory's manufacturing simulation rapidly analyzes the design's cost and manufacturability
- aPriori's single source of truth for cost benchmarking, helping to standardize should cost methodology
- aPriori's detailed design feedback facilitates junior engineers' continued skills development

Benefit

- 📈 The ability to perform a far greater volume of should cost analyses (45% more than before)

"Prior to aPriori, we were mostly dependent on manual templates and individual contributions. That meant junior members were always waiting for a subject matter expert. These senior experts were busy, and didn't have time to teach along the way. We felt that wasn't real teamwork. **aPriori both reduces dependency on individual subject matter experts and enables more streamlined knowledge sharing.**"



**Shorter Lead Times for
Cost Analysis with aPriori**



Leading Medical Manufacturer

“When we reached a certain level of customization and intricacy in the manufacturing process, we realized that we did not have the necessary expertise elsewhere in the business. We were essentially at our limits. We didn't have much confidence in approaching certain suppliers and saying, ‘Hey, you know you need to come down in price,’ but we didn’t really know how much.”

Challenge

- **Managing costs** for outsourced production
- **Lacked detailed cost breakdowns** for supplier negotiations
- **Faced inconsistencies** with DTV technology
- **Applied excessive pressure on suppliers** without fully understanding the actual costs of PCB design and circuit board fabrication

Solution

- Optimizing manufacturing efficiency with matrix costing
- Boosting costing accuracy for multiple customized parts
- Enhancing negotiation power
- Mitigating skill and knowledge gaps

Benefit



ROI remained consistent across different product categories and spend levels, covering several components and manufacturing processes



Ability to employ aPiori to support broader change management efforts across its procurement and supply chain departments



25X

An annual return on investment (ROI) of up to 25 times their investment in aPiori.

“We were able to find a tool, aPiori, that matched the complexity with which we designed our products. Some of the previous tools are more of a ‘blunt-force’ instrument, and **aPiori is more like a ‘scalpel’ that allows us to get in there regarding cost estimation.**”

4

Quoting

Time is money. If your quoting methods are creating a lag of days or weeks to respond to a Request for Quote (RFQ), it's akin to leaving money on the table. Not only are you missing out on more profitable business wins, but you could be underquoting or overquoting. Both can compromise the ability to win business and make money. Imagine if you had an automated quoting system that could increase your win rates significantly and reduce quoting times from weeks or days to seconds? You can with aPriori.

Four Quoting Use Cases

flex®

Soucy

WOODWARD

Flex

“aPriori gives us really accurate models because it works directly with real part geometry, not just someone’s subjective experience. We now have a **complete digital history of every quote** we’ve ever done since adopting aPriori in 2018. Before, this information was stored in different databases, ad hoc Excel sheets – it was a mess.”

Challenge

- **Find a technology that could provide** a unified approach to cost modeling across its global operations
- **Secure a solution** that spoke the language of design engineers, supply chain professionals, and quoting teams worldwide

Solution

- Manufacturing simulation in a digital factory configured to match its unique capabilities and cost structure
- Accurate cost models that work directly with real parts geometry and can easily be customized for new RFQs
- Incorporate digital factories earlier in the design process to drive further capabilities for providing value-added cost and manufacturability feedback to customers on their designs

Benefit

Accelerated quoting process and more consistent, accurate quotes

Time it Takes Flex to Generate a Bill of Material (BOM)

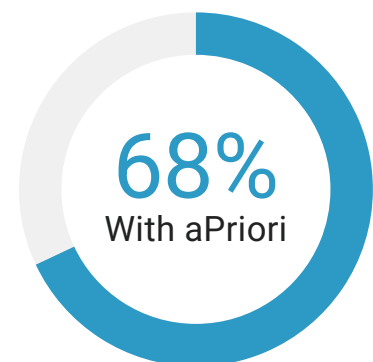
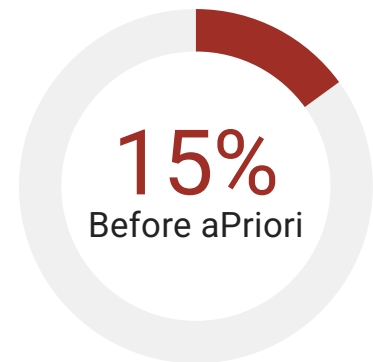


3 DAYS
Before aPriori



30 SECONDS
With aPriori

Flex's Quoting Win Rate



Soucy

“Waiting nine-plus days for product costing? In the world of manufacturing, that’s about seven days too many, and after one of our customers actually told us that our time to market was too long, we knew if **we wanted to stay competitive, we needed to make a change.**”

Challenge

- **Quoting process** was slow
- **Cost and manufacturability issues** found during the quoting process contributed to delays since they’d have to repeat the initial quoting process

Solution

- Work directly with 3D CAD files
- More accurate cost models for a variety of manufacturing processes
- Granular data needed to secure buy-in from suppliers

Benefit

- Saved up to 3150 hours quoting in the first year of using aPriori
- Streamlined quoting process leads to faster time to market
- Design engineers have more time to iterate and identify opportunities for further value engineering
- Simulation-driven recommendations help customers save money, enhancing value-added as a supplier

“In the past, it took as long as three weeks to get a price for a part in the tractor division. And if the calculation is even a little off, it can have a big impact. Using aPriori, our tractor division’s turnaround cost analysis is even less than the power sports division—**just half a day!**”



8 HOURS

Quoting Time Before aPriori



1 HOUR

Quoting Time With aPriori



Scan to watch:
How Soucy Uses
aPriori to Run Rapid
Cost Analysis



Woodward

"I had a machine shop with thirty machinists. Five of them were working on the quoting desk. After introducing aPriori, the quoting team lead told me 'I don't need four of them anymore. I only need one for three hours per week.' We put the other four back on the machine shop floor where they directly add value to the company."

Challenge

- **Labor shortages** due to retirements and other departures
- **With 75% of machinists in the US at age 45 or older**, a new approach to manufacturing would be needed to stay competitive over the long term

Solution

- aPriori's digital factory is configured to reflect the cost structure of different suppliers across the country and globe
- Digital factory data facilitates supplier negotiations centered on high-level cost drivers such as overhead, profit margin, and labor
- The cost of thousands of components that would be inefficient to negotiate one by one can be reduced in one fell swoop

Benefit

- Negotiate key cost drivers earlier in product development
- Select a supplier even before design is finalized
- More collaborative supplier relationships
- Fewer labor demands/staff required for the quoting process

"We have tried to make this collaboration as simple as we possibly can with our suppliers. We are modeling parts that reflect their open capacity and requesting bids for parts that make sense. With aPriori, we can even provide them with the tool list and suggested routing. **And our suppliers are loving it!**"



Timeline for Quoting
Parts Before aPriori



Timeline for Quoting
Parts With aPriori





āPriori

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