

Design-Stage Cost Insight Drives Speed and Savings for CNH



Company Details

Industry

Agricultural Equipment

Number of Employees

60,000

Revenue

\$25 billion

Website

<https://www.cnhindustrial.com/>

aPriori Products

aP Pro; aP Design;

aP Generate; aP Analytics

For time-sensitive product development cycles, reducing the number of loops between design, cost, sourcing, and manufacturing teams is critical to reducing time-to-market.

In this case study, we explore how CNH Industrial used aPriori to speed up its development process. Their experience shows how bringing detailed cost analysis capabilities into the design stage not only saves time but also opens up new opportunities for strategic cost management.

Who is CNH?

CNH Industrial is a world-class equipment and services provider that supports agriculture and construction work across the globe through respected brands such as Case and New Holland. A truly global operation, CNH employs 60,000+ people across 67 manufacturing plants and 56 research and development centers distributed across 180 countries.

Problem

Identify Cost Reduction Opportunities for a Time-Sensitive Product Design Cycle

CNH needed a solution that could help align designs to cost targets during the initial design phase before designs are finalized. Catching cost issues early would greatly reduce the risk of needing to circle back to redesign. The right technology would need to fit into a time-sensitive development cycle, providing detailed cost and manufacturability insights without slowing down designers' ability to iterate quickly.

The Problem

Identify Cost Reduction Opportunities for a Time-Sensitive Product Design Cycle

The Solution

Use Digital Manufacturing Simulation to Standardize Manufacturability and Cost Modeling

CNH Industrial's cultivation equipment group in North America selected aPriori as a promising solution to fulfill these needs (with the potential to be put to much broader use in CNH's global organization).

"Being part of the harvesting team, the window for testing is often narrow. When farmers are ready to harvest, the design needs to be in place. **Engineers need to put their best foot forward the first time**—because they may not get a second chance."

Solution

Leverage Digital Manufacturing Simulation to Open Up New Cost Management Possibilities

aPriori's rollout began with a small pilot project, where a team of three design engineers began leveraging the software to generate fast feedback on cost and manufacturability issues, catching cost issues early in the design process.

Design-stage digital manufacturing simulation with aPriori is far faster and less time-consuming than using traditional tools like spreadsheets to estimate costs.

"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."

CNH engineers also report that aPriori provides an excellent avenue for validating the work of new engineers with limited design experience while developing their skills by highlighting specific opportunities for cost optimization. In the past, design-stage cost management relied on rules of thumb and personal experience. With the digital factory as a virtual training ground, this knowledge can be retained, organized, and transferred to a new generation of engineers.

"Design engineers are touching the product first. That's where the opportunity is to **drive the greatest benefits.**"

Results

\$312,000 in Annual Savings Identified with the First Two Months

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. Design changes to a shank cultivator were able to save \$143,820 alone in annual costs. The identification of excess internal manufacturing costs for turnbuckle design led to a redesign and outsourcing that drove savings of \$97,659.

Their total within just a few months of adopting aPriori? \$312,000 in annual savings.

Accelerated cycle times for cost analysis can help speed up time-to-market, but they also open up many more strategic possibilities for bringing down costs. Because design engineers receive immediate feedback, they can explore alternatives early in a project, when there is still time to consider design alternatives, sourcing options, and make-buy economics.

“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.”

This highly successful pilot project has paved the way for the use of aPriori across more and more of CNH’s global operations since the software’s initial adoption in 2019. As of late 2022, nearly 900 users were making use of aPriori, a key part of CNH’s continuing pursuit of a world-class engineering vision. As the use of digital manufacturing simulation moves beyond small teams and spreads throughout this global organization, it provides added value in unifying cost modeling methodology between different plants, regions, and countries.

“I have responsibility for three plants in different countries across the globe, and each plant is different. They have different cost structures and different cultures. But **with the digital factory, we can easily configure our simulation** to reflect these different manufacturing facilities.”

Learn more about **how CNH’s harvesting group began leveraging aPriori** in this presentation recorded during an aPriori Insights Conference:

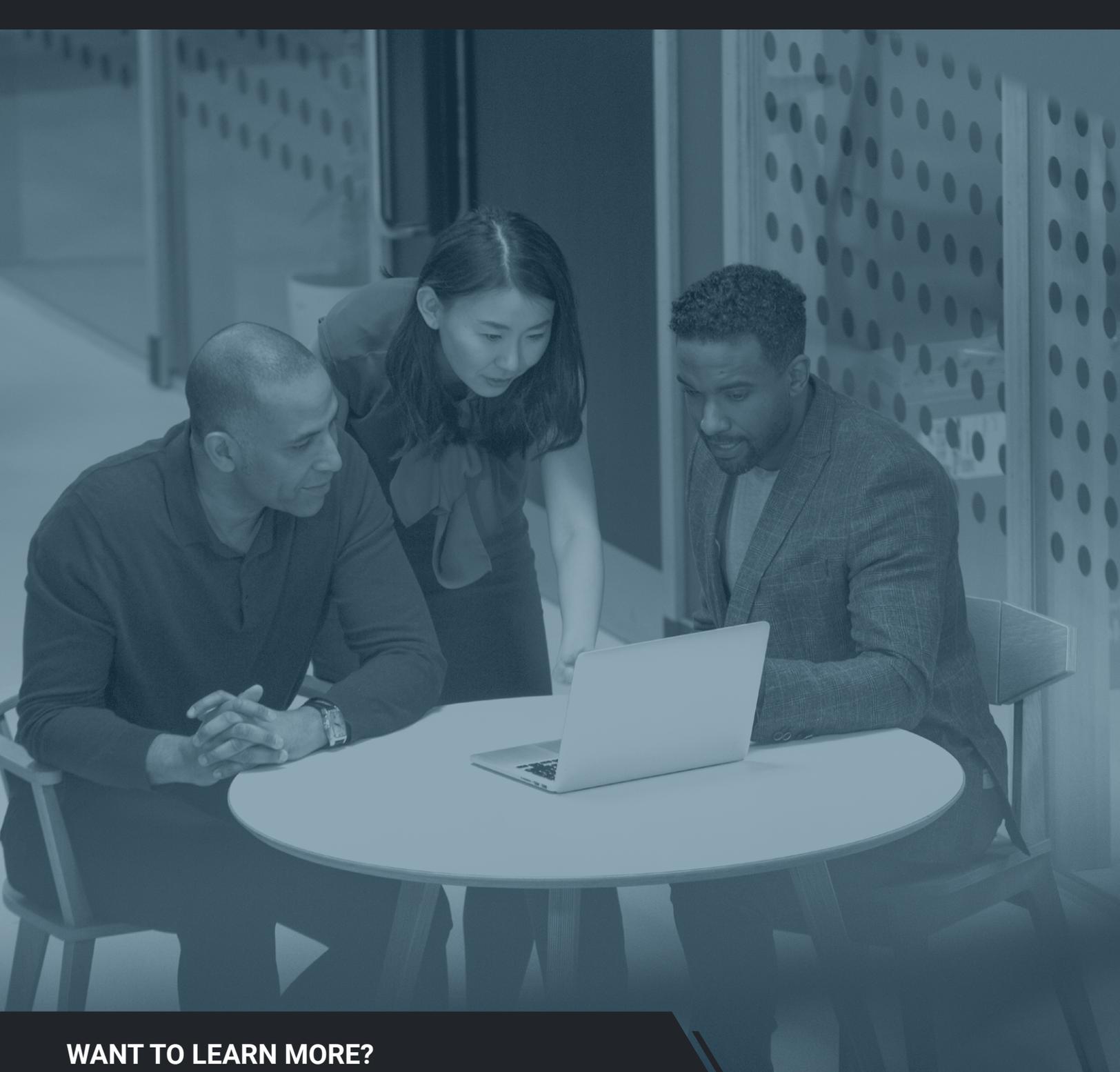
Expanded use of aPriori extends beyond designers; sourcing teams can also leverage the manufacturing data gleaned from aPriori to bring down costs for purchased parts. CNH leverages granular data on the should cost of parts to initiate constructive conversations with suppliers. While a given supplier cannot always match the optimal price identified in aPriori, a detailed estimate provides a robust foundation for conducting fact-based negotiations that center on why a given supplier’s costs are higher—and how they can be brought down.

[Learn more about how aPriori can help model should costs in our guide here.](#)

“With the manufacturing data gleaned from aPriori, we **leverage the 3D model by directly importing it**, where it provides all kinds of information. A design engineer can see the split between the costs of different design decisions. And a cost engineer can easily provide details into which drivers are contributing to overall cost.”

Hear more about how about the relationship between CNH and aPriori in [this podcast episode](#) between aPriori’s Leah Archibald and former design engineer and now cost reduction leader for CNH, Jegan Dhanapal.





WANT TO LEARN MORE?

[CLICK HERE](#) to learn more about aPriori manufacturing simulation software for industrial equipment.

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