aPriori

Solar Turbines Uses aPriori Manufacturing Cost Models to Facilitate Fact-Based Supplier Negotiation

CASE STUDY

Solar Turbines' successful use of aPriori manufacturing cost models in fact-based supplier negotiations continues to lead to more collaborative and transparent supplier discussions. In addition to pinpointing direct savings, Solar Turbines' cost professionals note that aPriori has helped improve supplier enthusiasm for negotiations.

THE CHALLENGE

Find a Tool Capable of Supporting Fact-Based Negotiations with Suppliers

Solar Turbines' costing team fields cost modeling requests from anywhere across the company's global supply chain. This task includes storing and organizing all the data inputs and parameters necessary to creating, validating, and completing manufacturing cost models in the most efficient manner possible.

Solar Turbines' cost team needed a tool to generate robust manufacturing cost models and power a strategic move to fact-based supplier negotiations. They selected aPriori as a tool that could not only use digital manufacturing simulation to model product costs but provide the data management tools necessary to create an organizational repository for tracking and validating key cost data.

THE SOLUTION

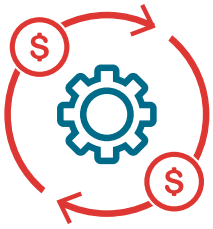
Using aPriori to Develop Carefully Validated Manufacturing Cost Models

Solar Turbines uses aPriori to record key inputs and outputs throughout the cost modeling process. Iterative validation ensures that both model inputs and final manufacturing cost models accord with the understanding of the associated technical engineer.

This careful validation process helps keep inputs and modeling parameters consistent with the ground-level reality of how a product is manufactured (and, crucially, how it could be optimally manufactured). Unknown cost variables are also carefully documented for discussion with suppliers to help understand their effect on the final price.

Solar® Turbines
A Caterpillar Company

Based in San Diego, Solar Turbines is a wholly owned subsidiary of Caterpillar Inc. Solar Turbines manufacturers the leading global product family of mid-sized industrial gas turbines. Over 16,000 of these units are deployed across over 100 countries, where they have accumulated over 3 billion operating hours. Solar Turbine products are used in a wide array of applications including production, processing, and pipeline transmission of oil/gas and heat/power generation for process manufacturing facilities, hospitals, and universities.



Simply by identifying a more cost-effective materials source, per unit costs could be reduced by 15%.

This process gives Solar Turbines confidence to use their outputs as the basis for fact-based negotiation with suppliers. **With a robust, validated manufacturing cost model in hand, they have the ability to frame supplier negotiations around eliminating waste, not pushing down a supplier's profit margin.**

Solar Turbines uses aPriori to generate manufacturing cost models for both optimal manufacturing routings (reflecting the cost at which a product can be made regardless of supplier capabilities) and supplier-specific costs (reflecting Solar Turbines' best understanding of a specific supplier's routing capabilities).

These outputs help inform different types of analyses. If selecting a new supplier, Solar Turbines has the capability to compare quoted prices to the cost for an optimal routing. In cases where the company is happy with an existing supplier, supplier-specific manufacturing cost models can be used to negotiate the best possible price given a supplier's existing capabilities.

aPriori is also used to conduct batch analyses. Batch pricing models generate price points for different batch sizes depending on production volume. This information allows Solar Turbines to compare tiered pricing (based on volume discounts) to operational requirements like desired inventory levels.

THE RESULTS

Digital Manufacturing Simulation Identifies Substantial Inefficiencies in Supplier Quotes

In one representative case, Solar Turbines used aPriori to generate a manufacturing cost model for welding a component. The model suggested a welding time of 17.5 hours (including both cycle time and set up time). Their supplier, however, offered a bid of 48 hours for the same component.

Leveraging their detailed manufacturing cost model, Solar Turbines' team was able to initiate a productive conversation on this divergence. The supplier re-examined the actual manufacturing process and pinpointed hours of unnecessary weld-grinding time that was driving the difference with aPriori's manufacturing cost model. **This time was eliminated, and the price for the part was ultimately reduced by about $450 per unit.**

In another illustrative fact-based negotiation, Solar Turbines used aPriori to model manufacturing costs for a part with a cost structure heavily driven by materials (30% of the total part cost). Working with the supplier, they determined that excess cost was rooted in supply chain waste: the supplier was paying 50% more for materials than the price available to Solar Turbines. **Simply by identifying a more cost-effective materials source, per unit costs could be reduced by 15%.**

aPriori manufacturing cost models provide suppliers with new insight on their own manufacturing processes.

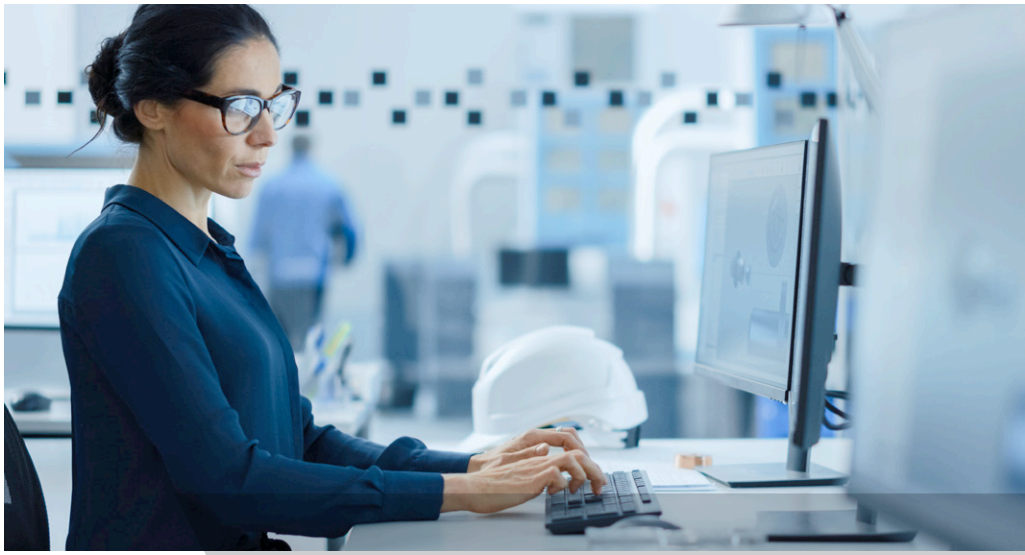
This same aPriori manufacturing cost model also showed that the supplier was using a materials nesting rate averaged across all its customers. Solar Turbines' part, however, could be produced much more efficiently. The supplier also agreed to modify its nesting rate assumption in the bid to further reduce costs.

NEXT STEPS

Collaborative Supplier Negotiations for Mutually Beneficial Savings

Solar Turbines' successful use of aPriori manufacturing cost models in fact-based supplier negotiations continues to lead to more collaborative and transparent supplier discussions. In addition to pinpointing direct savings, Solar Turbines' cost professionals note that aPriori has helped improve supplier enthusiasm for negotiations.

In many cases, aPriori manufacturing cost models provide suppliers with new insight on their own manufacturing processes. **Because aPriori incorporates industry standard profit margins and geography-specific digital factories, suppliers can work to collaboratively reduce costs without hurting their own bottom line.**



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