Reducing Cost of Goods Sold with Product Cost Management

An aPriori Whitepaper
EXECUTIVE SUMMARY

An organization's financial performance is tied directly to its product costs. The discrete manufacturing and product companies that best understand the true economic costs of their products are the companies that will out-perform their competitors. By capturing how much a product costs earlier in the development process, manufacturers are much better equipped to overcome many of the pressures on their businesses, from meeting customers' price requirements to achieving overall revenue and profit targets.

THE IMPORTANCE OF UNDERSTANDING THE TRUE ECONOMIC COST OF A PRODUCT

For most manufacturing firms, Cost of Goods Sold (COGS) represents the largest line item on the income statement. What is in COGS? Material, factory labor, direct overhead and often amortization of product specific tooling. How big is it? Typically between 70 and 90 percent of revenue. Therefore, by actively reducing COGS, organizations can significantly improve their bottom lines. Consider, for example, a manufacturing company with $500 million in annual revenue and 80 percent COGS. If the company were to reduce COGS by just 1 percent, they would gain $4 million in operating margin. With a typical manufacturing company's net margin being 5 percent or less, that 1 percent reduction in COGS translates into a sizable 16 percent increase in net income. Bottom Line: There are few other business actions that have as significant effect on the bottom line as reducing COGS.

With COGS having such a profound effect on financial results, it is not difficult to understand why precise cost assessments are so important. So, why do most manufacturing firms today continue to deliver new and existing products at a manufacturing cost over target? The answer is simple: The traditional methods and tools used to predict, manage, and reduce product cost cannot scale to serve modern products, manufacturing, and sourcing. Organizations need new capabilities to generate precise, repeatable and relevant product cost assessments.

![Figure 1. The impact of reducing Cost of Goods Sold](image-url)
REDUCING COST OF GOODS SOLD WITH THE aPRIORI PRODUCT COST MANAGEMENT PLATFORM

The aPriori Product Cost Management Platform is the first software solution to provide discrete manufacturers and product companies with real-time, predictive and precise product cost assessments throughout the entire product development and production process.

aPriori’s revolutionary cost management capabilities empower organizations to identify quantifiable savings in material, tooling, labor and overhead while evaluating alternative materials, product geometry, manufacturing process options and sourcing strategies. By generating cost assessments early in the product development process, aPriori customers drive significant costs out of their products prior to production, reducing Cost of Goods Sold by whole percentage points, which as discussed, has tremendous leverage on profit.

Through an innovative, patented understanding of how product design, materials and manufacturing processes translate into product costs, aPriori replaces traditional, inefficient cost-estimation techniques with precise and repeatable cost assessments that update in real-time as design, manufacturing, and sourcing cost drivers change. aPriori provides true cost visibility to everyone in the organization who impacts cost – designers, manufacturing engineers and planners, purchasing and sourcing professionals, cost managers, program management and executives.

Forward-thinking discrete manufacturing and product companies rely on aPriori to:

Generate Hard Savings in Product Costs
aPriori provides true return-on-investment by enabling organizations to identify quantifiable savings in material, tooling, labor and overhead (COGS, i.e. hard savings) while evaluating alternative designs, processes and sources. aPriori’s ability to make whole percent reductions to COGS translates into profit increases of 20 percent or more.
Increase Productivity and Time-to-market, while Reducing Change Costs

aPriori’s ability to generate cost assessments in seconds (rather than hours, days, or weeks) significantly speeds up the development process, because designers, manufacturing planners, and sourcing professionals never have to wait for cost information. aPriori eliminates the time-consuming task of providing hand calculated in house cost estimates, and frees up cost experts for higher-value tasks such as leading cost reduction initiatives. Finally, aPriori’s unique ability to generate cost from the first design in the CAD system, allows what-if alternative designs and engineering changes to occur very early in the design process, when they are exponentially less expensive to make. All of these benefits can lead to dramatic decreases in development costs (SG&A).

Provide Product Cost Knowledge Before it Matters

The most effective time to address product costs and understand the impact of potential decisions is early in the product development process — ideally at the conceptual design stage. The vast majority of costs are “designed into” a product, thus making it extremely difficult, if not impossible, to drive costs out during later phases of development and production.

However, typical cost estimation techniques used during early design have become increasingly inefficient and ineffective, taking hours to generate cost estimates that are based on stale historical data, and that become instantly out-of-date every time a design, manufacturing or procurement assumption changes. Competitive “quoting” has the same problem, but requires weeks rather than hours to get cost information. This means that it is effectively impossible to get cost information at the point at which design, manufacturing, and sourcing decisions are actually being made.

The aPriori Product Cost Management Platform provides real-time cost information to all functional groups that contribute to product costs. aPriori enables design, manufacturing, procurement and product/program management to interact with a single platform to assess and manage product costs — from concept through delivery.

Within seconds after the geometry on a 3-D model of a product is altered, aPriori updates its assessment to provide a precise product cost, allowing designers to investigate the cost impact of design changes much earlier in the development cycle when changes are exponentially less expensive.

In an in-house manufacturing environment, aPriori determines production-level product costs instantly using the actual design of the product and the company’s real-world manufacturing capabilities and routings. Likewise, aPriori’s cost assessments enable sourcing professionals to reduce the time and effort required to source a product. Instead of waiting days or weeks for an rough quote, extended supply chains powered by aPriori can deliver preliminary cost assessments in seconds and can facilitate formal estimates in a fraction of today’s time.
Make Cost a True Design Parameter

Traditionally, product costs are considered at the end of a project — usually when actual production costs have been determined and overall cost targets have been exceeded.

aPriori enables organizations to implement design-to-cost strategies during the product concept stage, rather than trying to satisfy cost constraints at the end of the design process. With aPriori, cost becomes another design parameter and designers consider “finance” along with “form, fit and function.” By including cost implications in design decisions, organizations can significantly reduce or even eliminate expensive changes late in the development process and the inevitable post-launch cost-reduction exercise.

Figure 3. Include “Finance” with the traditional “Form, Fit and Function” factors and make cost a true design parameter

Provide Visibility to All that Impact and Manage Product Cost

Traditionally, those in the organization who have the most cost knowledge are the ones who have the least ability to impact product costs. Cost experts are individuals or small groups scattered throughout an organization’s manufacturing and procurement functions. While they possess a wealth of cost knowledge and have direct access to cost information, they are not directly responsible for critical decisions that actually impact product cost.

The functions that ultimately have the most impact and control over product costs are design engineering, manufacturing engineering and procurement. Ironically, these functions typically lack sufficient access to the cost information and expertise needed to produce product cost assessments.
The enterprise systems employed by manufacturers today — including MCAD, PLM, MRP, ERM, CRM and SCM — are not designed to generate, assess and manage an organization’s product cost record.

The aPriori Product Cost Management Platform ends the product costing paradox by providing cost visibility to all cost stakeholders continuously from concept design through manufacturing, production and launch. aPriori becomes a broadcast medium for cost management experts, allowing them to combine their organization-specific knowledge and costing methods with aPriori’s Product Cost Management platform so that all people who impact cost can benefit.

Create a System of Record for Product Cost

The enterprise systems employed by manufacturers today — including MCAD, PLM, MRP, ERM, CRM and SCM — are not designed to generate, assess and manage an organization’s product cost record. While these systems have their place in manufacturing, none have the ability to generate cost information prior to product release and therefore have little impact on reducing Cost of Goods Sold.

Although a manufacturer may have the cost for the current version of a product in other systems of record, as soon as the product’s design is modified, historical cost information becomes immediately irrelevant. In the case of completely new component designs, no historical cost information exists. As a result, cost information for most design projects today is inaccurate, incorrect, outdated and/or non-existent. With portfolio analysis resulting in strategic “Go / No-Go” decisions, accurate and available product cost knowledge is critical.

The same holds true for engineering change management — a necessary, yet expensive component of product development. While many enterprise systems responsible for managing the change approval process will manage a cost value for a product (if one has been provided from a separate source), none are designed to actually generate cost information. As a result, employees across the organization today are approving design changes without the ability to understand how the proposed changes will truly impact the
cost of the product. This significant limitation (at best) leads to delays while cost information is being obtained or (worse) forces the approver of the change to make tenuous assumptions about the change’s effect on cost.

SUMMARY
As discrete manufacturing companies experience increasing price pressure from customers, rising supplier costs, overseas competition, and income growth pressure from investors, they are forced to scrutinize product margins and Cost of Goods Sold with renewed vigor. The ability to directly reduce COGS presents the opportunity to significantly impact a company’s bottom line.

While credited with bringing productivity improvements to the discrete manufacturing industry, MCAD, PLM and ERP systems primarily deliver only “soft” savings in time to market, productivity and process improvements, and other operational efficiencies. In today’s business climate, companies can no longer settle for the promise of only soft savings and must demand quantifiable, verifiable and predictable ROI in the form of hard savings. Realizing hard savings is only possible if discrete manufacturing companies can satisfy today’s demand for a direct and measurable reduction of COGS.

The undisputed reality of product delivery is that as much as 70 to 80 percent of the total product cost is a direct result of the design decisions made in the first 10 to 15 percent of the product development process. aPriori’s strategy is simple — enable discrete manufacturing companies to identify and assess product costs from the conceptual design stage through production. With real-time, predictive and precise cost assessments throughout the product design and delivery process, organizations can significantly reduce COGS by continuously assessing and managing costs early enough in the development process to affect the critical decisions that impact and control product costs.

CASE STUDIES
Learn more about the aPriori Product Cost Management Platform and how leading manufacturing organizations are reducing product costs through real-time, predictive and precise cost estimates. Download an aPriori customer case study at www.apriori.com.

ABOUT APRIORI
aPriori Product Cost Management software and services generate hard-dollar savings for discrete manufacturing organizations. Using aPriori’s real-time product cost assessments, employees in sourcing, manufacturing and design engineering make more informed decisions that drive costs out of products both pre- and post-production. With aPriori, manufacturers launch products at target costs, maximize savings in re-work projects and never overpay for outsourced parts.

To learn more about aPriori or to view a demonstration of the aPriori Product Cost Management Platform, visit www.apriori.com or call 978.371.2006.
REDUCING COST OF GOODS SOLD WITH PRODUCT COST MANAGEMENT

DOLLARS & SENSE
Product Cost Management Knowledge Series
Compliments of aPriori

- Creating a Profit-Centric Business Culture
- The Anatomy of Product Cost
- Improving the Quality of Product Cost
- Reducing Cost of Goods Sold with Product Cost Management
- New Product Introductions (NPI) and Target Costs
- What Will My Design Cost to Produce?
- Are You Overpaying for Your Outsourced Parts?
- Controlling the Cost of Tooling in Your Manufacturing Environment
- Implementing an Effective Product Cost Management Program

Learn more by watching the aPriori Business Value Video Series to see how a modern Product Cost Management platform can help your company…

- Launch Products at or Below Target Cost
- Maximize Cost Savings on Redesign Projects
- Avoid Overpaying for Outsource Parts
- Increase the Speed & Accuracy of RFQ Responses

At the aPriori corporate website: apriori.com/value_series