

CYIENT

# Optimizing Cost Reduction Strategies through Should-Cost Analysis



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## ABSTRACT

Today, companies face intense global competition and challenges of rising operational costs, economic uncertainties, and sudden changes in commodity prices. Cost reduction and cost reduction strategies are essential to enhance competitiveness and stay financially sustainable. It is, therefore, necessary for companies to adopt new practices in place of the traditional approach of focusing singularly on cost negotiations.

## INTRODUCTION

In an era of heightened global competition and economic uncertainties, organizations are increasingly compelled to explore innovative strategies for optimizing operational efficiency and maximizing profitability. Traditional cost-cutting measures often focus on reducing expenses after they have been incurred. In contrast, should-cost analysis is a forward-looking methodology that involves a detailed examination of the components that make up the cost of a product or service.

The primary objective of this white paper is to take should-cost services across diverse applications, ranging from the initial design

phase to seizing lucrative opportunities, ultimately driving the entire process until our customer sees realized benefits in production.

Our overarching goal is to explore impactful applications of should-cost analysis services and their extensions for effective cost-reduction strategies through this paper. In today's highly competitive business world, should-cost analysis stands out as a powerful tool with its proactive approach, helping businesses understand and control costs, enabling them to improve work, and empowering businesses to elevate operational efficiency and optimize profitability.



## Key Applications

- Value analysis & Value Engineering - **Profitability and NPI Programs**
- Advanced Manufacturing - **Operational Excellence**
- Supply Chain Management - **Cost Transparency and Supplier Negotiation**
- New Strategic Decisions - **Management**





## WHAT IS SHOULD COST?

Should cost is the optimal cost that should be incurred in the manufacturing of a product/part. These costs are based on individual components and processes involved in production. They broadly include material cost, process cost, SGA, and applicable profit margins.



Estimating the cost of a product involves considering industry best practices specific to a geographic region.

The should-cost analysis report provides organizations with a detailed and realistic understanding of the cost structure of a product or service. Serving as a foundational reference point, it furnishes a benchmark figure that businesses can strategically target. This knowledge empowers businesses to

make informed decisions, adeptly negotiate terms with suppliers, pinpoint areas ripe for cost reduction, and enhance overall cost management for strategic cost optimization. Should-cost analysis facilitates a nuanced approach to financial stewardship and operational efficiency.

## IMPORTANCE OF COST REDUCTION STRATEGIES FOR INDUSTRY

While should-cost analysis offers valuable insights and direction, it alone does not furnish a comprehensive solution. The cost estimates generated lack specificity to individual suppliers or businesses or a product. This is because the assumptions made to arrive at the should cost are based on generalized industry practices. Therefore, a strategic approach is essential

to realize organization-specific should cost insights. Cost reduction strategies are crucial in pursuing economic resilience and sustained competitiveness. In most cases, the opportunities are specific to the product/industry/business/market/global political implications, etc. So, we need to understand the opportunities where we can derive.

## CASE STUDY

### NPI Program for Product Price Reduction

The New Business Jet program is an aerospace new product introduction (NPI) program for business jets with low demand. The target price set for bidding is low for specific business reasons, and the program has less time to bring design into production. Several assumptions are made in defining the program requirements, particularly when comparing them to high-volume (15X) legacy program designs.

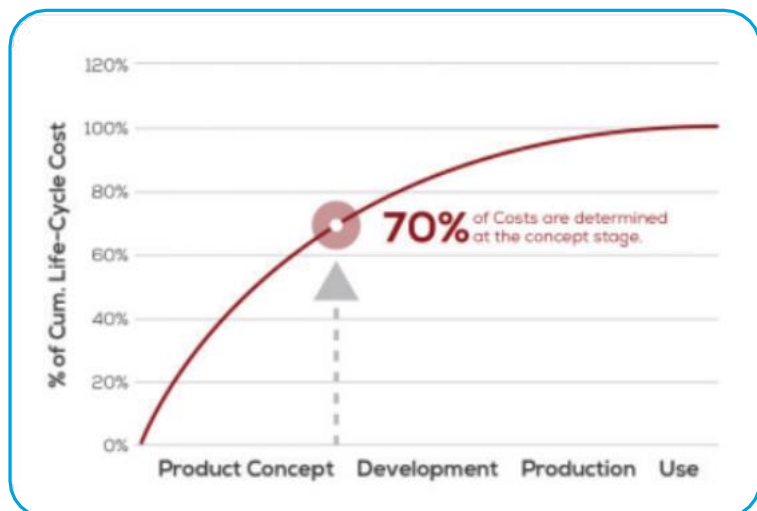
The business strategy needed an optimal design that could maximize parts production from low-cost country suppliers and avoid future constraints related to requalification. The goal was to meet the target cost, make this program profitable, and include a cost reduction team and strategies to adopt best practices from past experience.

### Challenges

- Creating a new design concept and less complex special processes to reach multiple suppliers in low-cost countries.
- Standardizing the hardware from legacy programs to take volume benefits
- Integrating design features to reduce parts count
- Meeting size and weight design limitations, while minimizing costs
- Accelerated program development timeline, set at one third of the standard practice.

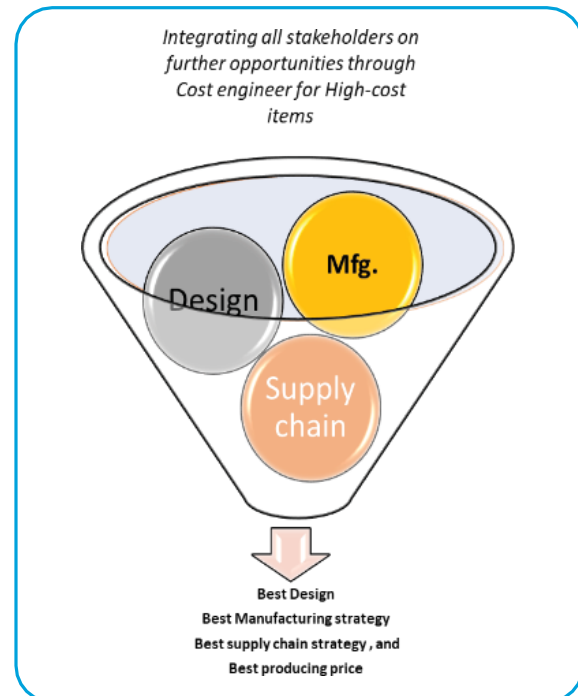
### Market study

According to market analysis, approximately 70% -75% of a product's cost is attributed to considerations made during its conceptual design stage. Once a design is qualified for a given product, there is limited scope for further cost reduction. To achieve optimal cost efficiency for a product, it is imperative to strategically address costs during the design stage itself.

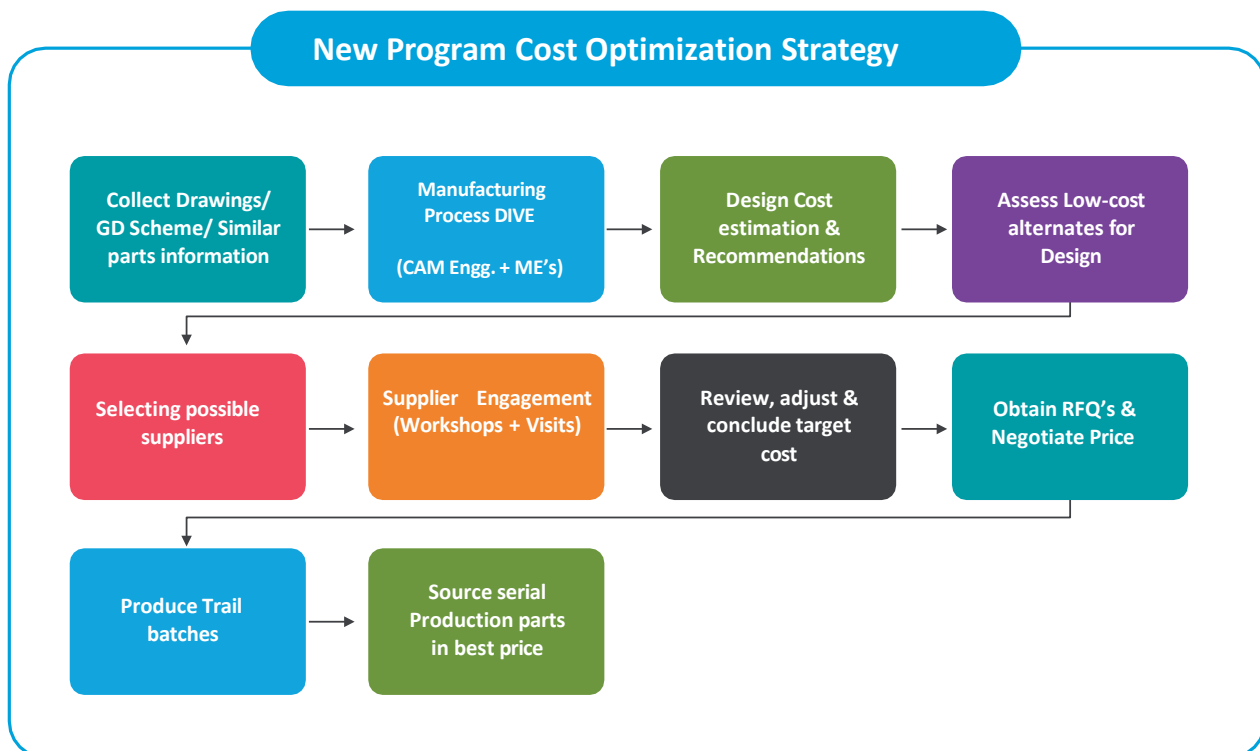


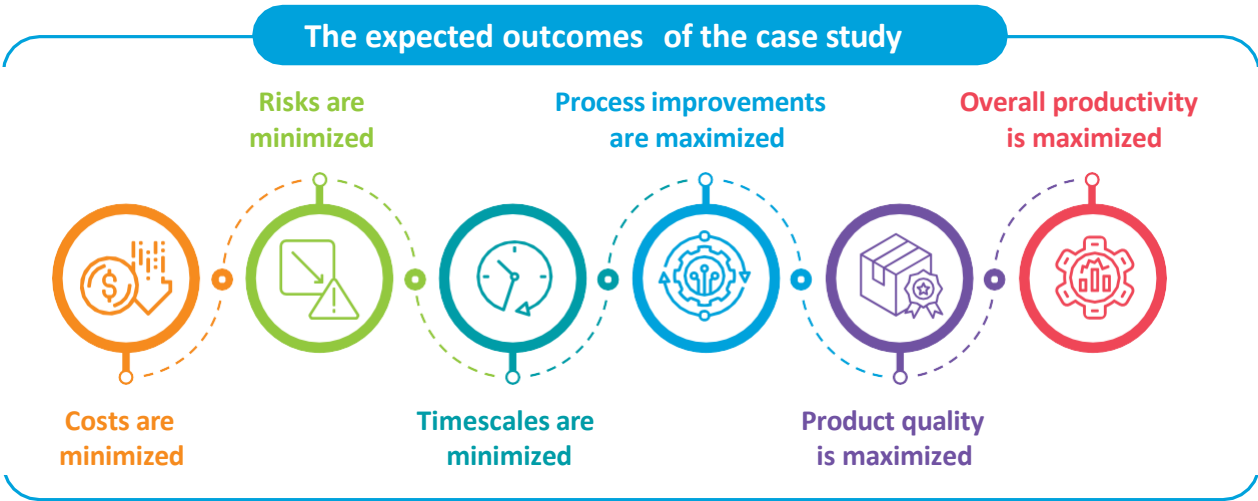
## Comprehensive solution from the cost reduction team

Given that the program is focused on machining parts and involves the integration of various parts and creating complex machining features, the cost reduction strategy we recommended was to engage both cost engineers and CAM engineers in the early stages to assess design options and identify potential manufacturing issues in production. It is essential to integrate the service within the core team, encompassing design, manufacturing, and supply chain, to develop a design optimized for manufacturing before finalization. Additionally, the cost engineer should collaborate regularly with the program manager to track and compare design costs with target costs, ensuring the incorporation of cost-saving measures reduction ideas from legacy programs into the new design.



## New Program Cost Optimization Strategy

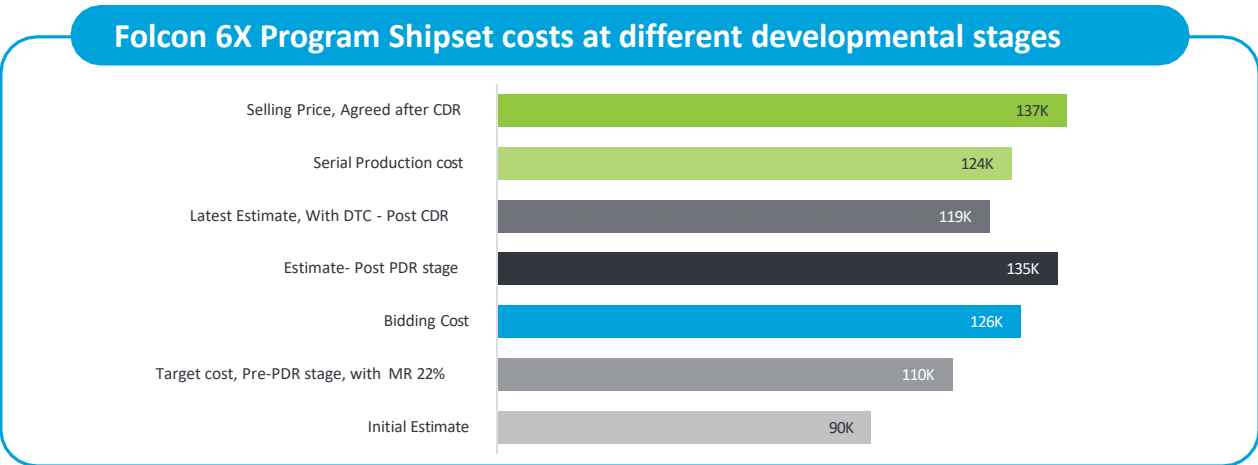




**Program cost results**

The initial estimates were formulated during the conceptual design stage based on broad assumptions. Throughout the program development phase, numerous changes were made, including alterations to the specifications provided by the customer. By leveraging comprehensive cost data and recommendations derived from cost reduction strategies used in legacy programs, every aspect was meticulously

tracked. This dataset empowered the program manager to persuasively convey the revised sale price for changes in design specifications, an improved cost-to-function ratio with design to cost alternatives, and successful adherence to target costs on a part-by-part basis within the assembly, ultimately leading to the program’s profitability within the planned timeframe for bringing the program into production using CAM data.



The above bar chart illustrates the bidding costs, which initially stood at \$126K for this program’s shipset parts. Subsequent to the preliminary design review (PDR) and several customer specification adjustments, the estimated price escalated to \$135K. However, after thorough assessment of all cost reduction

opportunities, the price diminished to \$118K following the critical design review (CDR). The actual production costs arrived at \$124K, which is within 5% of the estimated cost. Also, the customer was convinced by evidence showing the cost impact of specification changes, thereby agreeing upon a sale price of \$137K.



## FOCUSED AREAS OF COST REDUCTION & EXAMPLES

Here are a few instances of areas where a should cost tool can be utilized to establish benchmark figures, identify opportunities against the baseline strategy, and develop an initial business case with ROI to consider the opportunity.

### Operational excellence



- Implementing lean manufacturing or lean management principles to minimize waste and improve overall efficiency.
- Adopting new technologies and atomization to minimize process steps.
- Striving for continuous improvement and conducting workshops to identify and streamline inefficient processes to reduce operational bottlenecks.

### Creating strategic decisions



- Make vs. Buy decisions.
- Diversifying business operations to reduce dependency on monopoly.
- Leveraging global outsourcing for cost-effective labor (HCC to LCC work transitions).
- Risk mitigation in advance considering impact on commodity prices and supplier financial conditions.

### Supply chain optimization



- Exploring alternative and cost-effective sourcing options such as EOQs.
- Supplier benchmarking against should cost
- Optimize logistics and explore sustainable sourcing and packaging for cost savings. Negotiate better terms with suppliers and implement Long-Term Agreements (LTAs) to create a Win-Win situation for both the buyer and the supplier.

### On VAVE



- Should cost and identifying GAPs.
- Scope for standardization of parts/products.
- Identifying low-cost alternatives for material/process/hardware.
- Analyze the functionality of each component or feature to determine if it's necessary. Eliminate features that don't add significant value to the Product

## APPLICABILITY

Cost reduction strategies can be applied across diverse industries, but specific strategies and their effectiveness will depend on the nature of the business, market conditions, and regulatory environment. It is crucial for organizations to conduct a thorough analysis of their unique challenges and opportunities to tailor cost reduction strategies for maximum impact.

## CONCLUSION

Should-cost analysis is a dynamic approach for organizations looking to improve their cost reduction strategies and a key driver for sustainable success. The case study and key cost reduction focus areas serve as a comprehensive guide for industry leaders, decision-makers, and professionals seeking to enhance their understanding of the importance of cost-reduction strategies.

## ABOUT THE AUTHOR



**Phani Kavuri** has over 17 years of experience in manufacturing, costing, and product development within the manufacturing industry and in engineering service organizations. He specializes in cost management through value engineering and value analysis, and NPI programs.

He has contributed 8+ years to UTC Aerospace, with 5.7 years of onsite experience. His expertise extends to costing various products across industries, ranging from automobiles and electrical products to consumer electronics, HVAC systems, and the aero domain.

Phani holds a B Tech in mechanical engineering from JNTU university.



## ABOUT CYIENT

Cyient (Estd: 1991, NSE: CYIENT) partners with over 300 customers, including 40% of the top 100 global innovators of 2023, to deliver intelligent engineering and technology solutions for creating a digital, autonomous, and sustainable future. As a company, Cyient is committed to designing a culturally inclusive, socially responsible, and environmentally sustainable Tomorrow Together with our stakeholders.

For more information, please visit [www.cyient.com](http://www.cyient.com)



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