How Did We Go From One Black Swan to a Gaggle?

Transformation and Transparency in the Supply Chain

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- Product Cost Management Action Plan
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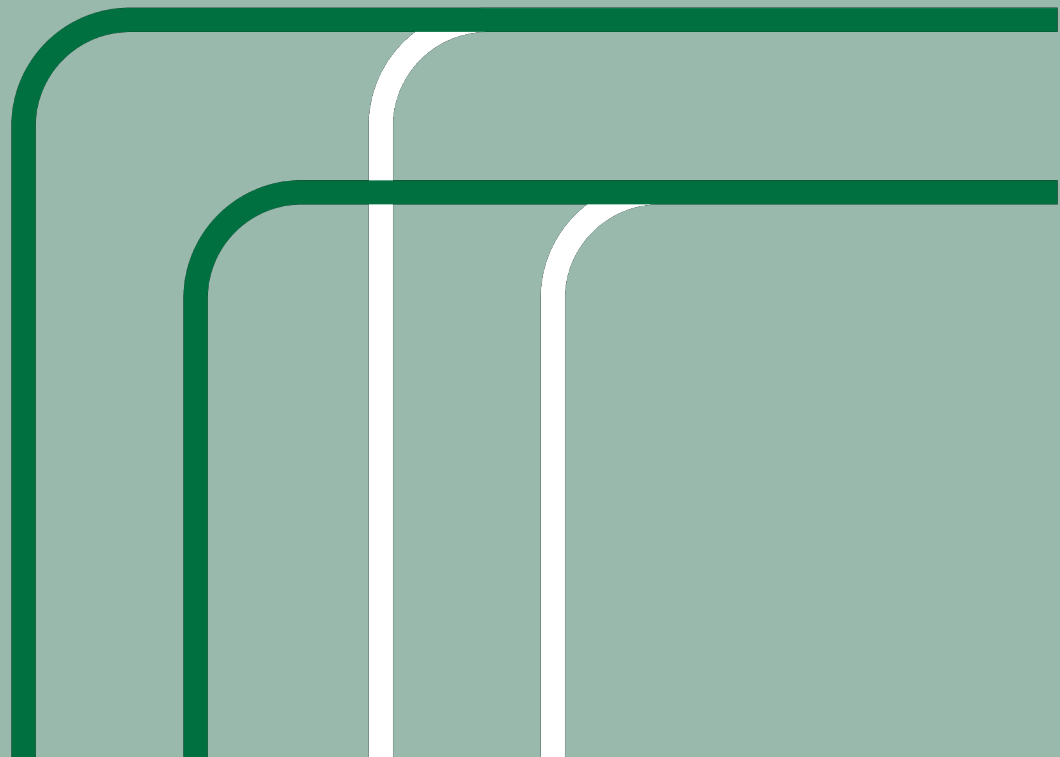
Product Cost Management



Polling Question

What accounting standards are used in the United States?

A. Generally Accepted Accounting Principles
B. International Financial Reporting Standards
C. Chinese Generally Accepted Accounting Principles
D. Generally Accepted Accounting Standards

Product Cost Management (PCM / Cost Engineering)

Overview

What is it?

Product Cost Management is a discipline focused on **analyzing**, **estimating**, **managing**, and **optimizing costs** associated with designing, developing, manufacturing, and delivering a product. **It aims to ensure that products are delivered at the right cost without sacrificing quality, functionality, or time-to-market**.

Why is it important?

PCM drives **profitability and competitiveness**, helps organizations **estimate and control costs**, **supports supplier negotiations**, **enables informed decision-making** during design processes, and **reduces risks of cost overages**.

How is it used?

Cost Modelling Software, Scenario Modelling, Should-Cost Analysis, Benchmarking, and more.

Product Cost Management

History

1. **It became cheaper to outsource to low-cost countries**
   - >> Lower labor and operational costs – Mexico's labor cost is ~$3.50/hr[8]
   - >> Utilizing offshore engineering talent to consolidate manufacturing on fewer platforms[10]
2. **Regulations, Trade Agreements, and taxes pushed manufacturers away from the US**
   - >> USMCA and Mexico's IMMEX program[9]
3. **Perceived strategic business decisions**
   - >> Driving up profitability and stock prices in the short term[10]

Product Cost Management

History

- BMW had a clear vision - establish a World Class Cost Engineering function as an independent, cross-functional center of competence to drive profitability and product/process optimization.

Transformation Highlights

- From sporadic, late-stage value analysis → Proactive early-phase cost influence
- From supplier-specific focus → Best Practice-based, supplier-independent costing
- From fragmented teams → Centralized unit with over 300 specialists

Key Features of the Structure

- Early involvement in Product Development Process (PDP)
- Simulation of technologies/materials for design freedom
- Cross-functional collaboration for target setting and cost control
- “Influencing Mode” vs. “Repair Mode” in cost decisions

Core Pillars

- Independent Competence Center
- Best-Practice Methodology
- Systematic Knowledge Management
- Trained and continuously rotated staff
  - 70% Engineers, 20% Business, 10% Other
  - Employee growth from 80 (2009) → 300 plus (2024

Impact

✓ Clear profitability contribution KPI’s and measured monthly
✓ Increased cost transparency
✓ Higher penetration in purchase volume analytics
✓ Reliable data = Reliable cost decisions

Product Cost Management

Key Impacts - What are the results of losing the emphasis on Product Cost Management?

Offshoring Dependency

- Reliance on low-cost countries sourcing of suppliers for manufacturing.

The U.S. lost ~91K manufacturing plants from 1998-2018[1] as operations moved offshore.

U.S. manufacturing value-added (GDP impact) has declined from 16% in 1997 to ~10% as of 2023.[3]

Diminished Adaptability

- Processes and metrics designed to focus on LCC sourcing.
- Lack of new product cost management development skills and resources.

>90% of North American companies relocated production or sourcing in the past 5 years, with half shifting >20% of their manufacturing/supply chain spend. 55% reported improving unit costs/shortening lead times.[5]

Talent Depletion

- Loss of in-house expertise in product cost management, supplier negotiations, and supply chain management.
- Procurement teams lack experience in understanding the Should Costs for product management

Manufacturing jobs in the US are down ~5M over the last 20 years with 2011-present being within a delta of 1M.[2]

Lack of Detailed Negotiation

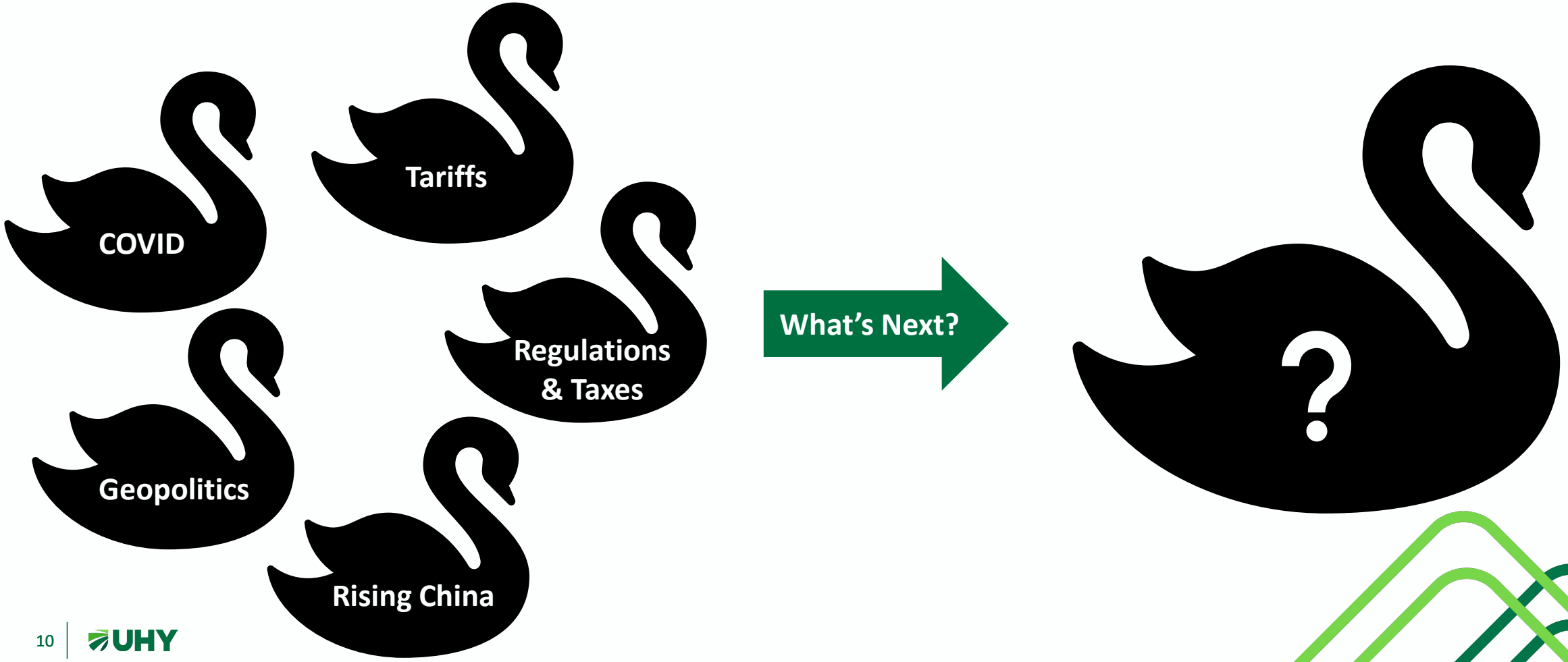
- Inability to support detailed supplier negotiations
- Rapidly changing trade agreements and tariffs

Cost Control

- Lack of visibility into product cost
- Inability to quickly pivot in product cost management with interest rates and tariffs

Black Swans? What's Next?

A **Black Swan** event in supply chain refers to a high-impact, low-likelihood disruption that can significantly alter the normal flow of goods and services.



Polling Question

What is **NOT** a current challenge facing Product Cost Management in manufacturing?

A. Tariffs and trade agreements
B. Lack of data visibility
C. Geopolitical events causing supply chain disruptions
D. An over-abundance of technology and subject matter expertise

Why Focus on Product Cost Management?

Navigating Current Issues and Future-Proofing for the next Black Swan

Traditional quick wins are gone	Manufacturers need greater visibility into Product Costs, especially as cost pressures increase in the US. A return to robust PCM will help with understanding and controlling costs.
Loss of leverage with suppliers	Detailed negotiations require supporting, quantifiable data. A robust PCM structure supports a data-driven approach negotiations.
Deeper analysis is required	LCC and current-state cost management methods are outdated. A data-driven approach that utilizes the proper skills and digital tools is required to bring additional value.
Future uncertainty prevails 	Given that there will be another black swan, manufacturers need to strive for greater Supply Chain visibility and adaptability.

What Are The Benefits of Product Cost Management?

10 Key Benefits

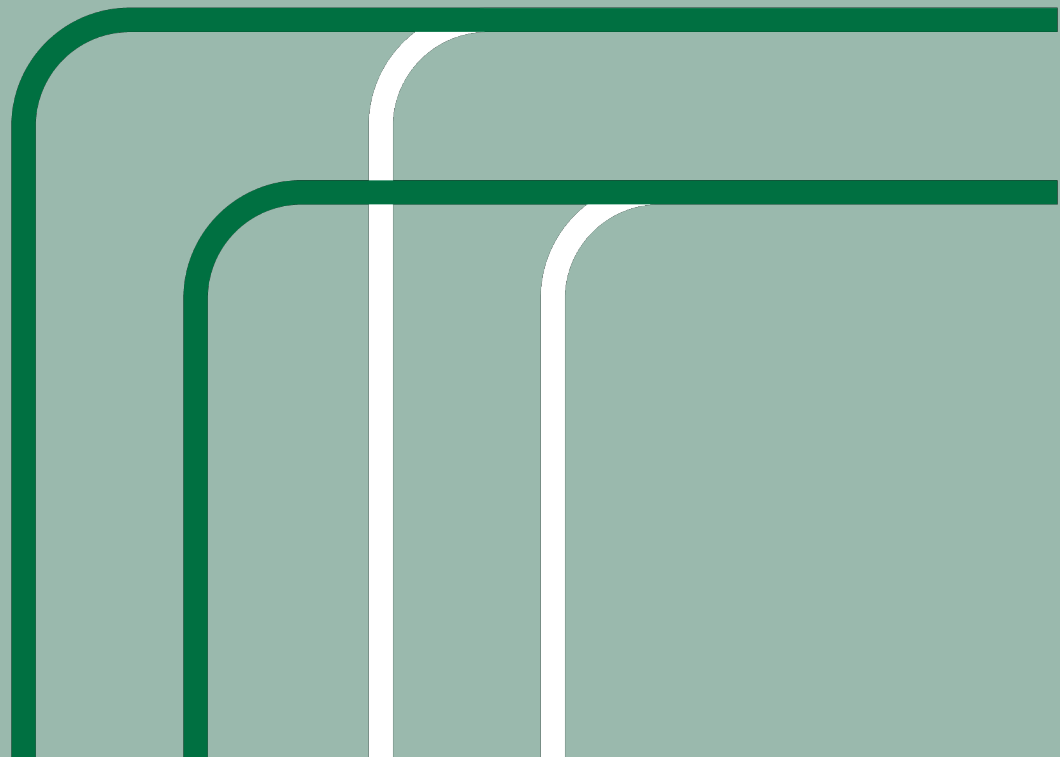
1. Supply Chain Adaptability 
2. Factual Negotiation 
3. Production Part Approval Process 
4. Knowledge of Troubled Suppliers 
5. Better Understand Should Costs 
6. Control Costs 
7. Design to Cost 
8. Risk Aversion 
9. Reduce Cycle Times and Waste 
10. Improve Quality 

Tier 2 and 3 Supplier Implications

Are you prepared to defend your costs?

- As OEM's and Tier 1 suppliers are revitalizing their Product Cost Management Teams, now is the time to get prepared and reevaluate your cost drivers:
  - Labor
  - Materials
  - Fixed & Variable Burden
  - SG&A
  - Profit
  - Engineering Changes Impacts to Costs
  - Other Overhead
    - Tool Replacement
    - Dunnage
    - Material Overhead
    - Inbound Logistics

Product Cost Management Action Plan



Product Cost Management Action Plan

Triage
1
Apply 80 / 20 rule to your products

Data
2
Is your data updated/accurate? (cycle times, labor, materials, FX, tooling, freight)

Technology
3
Evaluate your Cost Engineering Tools (Excel, TcPCM)

Analytics
4
Cross-compare to supplier RFQs Based on key cost drivers

Should Costs
5
Build analytical models based on your business

Supplier RFQs
6
Ensure that a data warehouse is established to store and track supplier responses

Playbooks
7
Develop Playbooks for fact based negotiations based upon Cost Walks of Should Cost to RFQs

Training
8
Update your training approach and cross functional reach

People
9
How to create a sustainable recruit and retention system that includes a “Farm Club” approach

Performance Management
10
Measure success with a real time KPI management dashboard and historical cost data

Expansion
11
Expand efforts to lower tier products

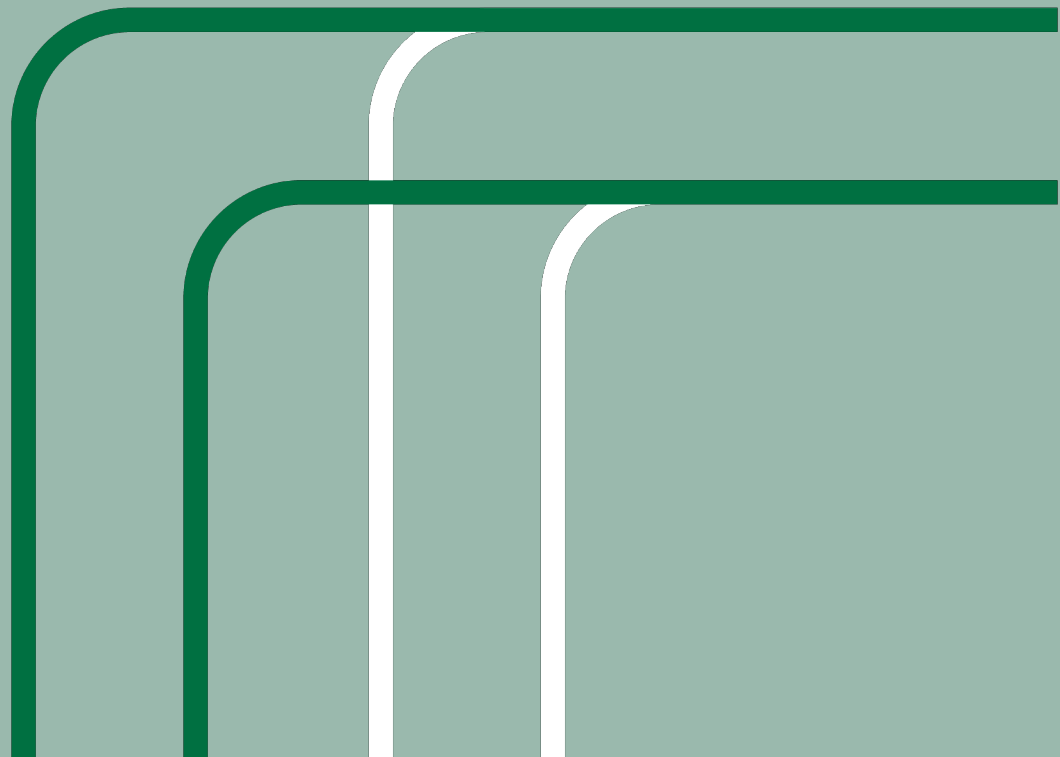
Continuous Improvement
12
Drive sustainment and continuous improvement with a Plan-Do-Check-Act (PDCA) cycle

Polling Question

What is one of the best ways for customer and supplier relations to improve?

A. See who will bid against the current supplier
B. Build strategic relationships with suppliers
C. For the customer to sell more
D. Spend a lot of time with each other on conference calls

Case Studies

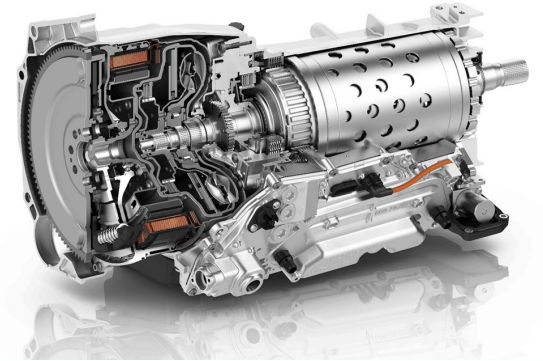


Case Study: Success with Teamcenter Product Cost Management

Goal: Top 5 global tier 1 supplier wanted to reduce bottlenecks caused by a high volume of part calculations, cut the time for cost and carbon footprint calculations, and retain knowledge and expertise within the company.

Solution:

- Efficiently calculate product and tool costs
- Use the parametric model frameworks to accelerate workflows
- Optimize costs and CO2 for in-house and purchased components
- Enable all skill levels to easily calculate detailed cost structures.



Result:

- 95% time reduction for detailed, bottom-up cost calculations
- Enhanced calculation quality by standardizing cost structures
- Improved estimate accuracy and control over cost overruns
- Elimination of nonessential costing systems and data sources

"Using Teamcenter Product Cost Management will help the cost engineering and controlling departments seamlessly collaborate, enhancing data security, transparency, quality, and the speed of decision-making."

Client testimonial: Cost Engineering Leader

Polling Question

True or **False**: A Should Cost Model is 100% correct and reflects the actual costs and mark-ups on a specific product.

Case Study: Near Shoring Study

Goal: Prior to current tariff/duties issues, a top 5 global Tier 1 supplier was researching to bring tier 2 and tier 3 parts to North America to begin a risk mitigation program on supply chain interruptions and unforeseen cost increases.

Solution:

- Detailed Bottom-Up Cost Study based on Chinese Accounting Standards vs GAAP standards.
- PPAP data was used to confirm process, machine size, cycle times, staffing, scrap, etc.
- Developed a Greenfield Cost Model
- Confirmed the labor cost in the particular region in China
- Performed a 5 year NPV review on the suppliers CAPEX
- Developed a Should Cost on the HPDC tool

Result: Highlighted the differences in Fixed Burden between North American suppliers and Chinese accounting practices. The cost avoidance was based on total landed cost savings:

- Shipping container from Shanghai (high rates)
- Trucking from Freemont CA, to Grand Rapids MI
- 60 days of inventory, in transit and potential engineering change scrap of re-work
- Tariff at 145%
- Chinese supplier did not offer an LTA contact

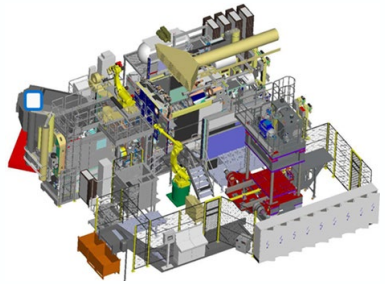
$2.5M were found in Total Landed Cost Savings annually for the remaining 3 years of the contract.

Case Study: Challenging a Supplier Cost Increase with Facts

Goal: A supplier requoted a current production part for a 15% price increase. The impacted organization sought to understand why and where it came from. They wanted to get to fact-based negotiation in their dealings with their suppliers.

Solution: The organization developed a best practice Bottom-Up cost calculation based upon lean processes:

- PPAP data was used to confirm process, machine size, cycle times, staffing, scrap, etc.
- The company confirmed mass, machining requirements, and specifications
- Confirmed the labor cost in a city in Kentucky
- Performed a 5-year NPV review on the suppliers' CAPEX to see its effect in the quote



Result: Based on data analytics, fact-based negotiation tactics:

- Learned the cell was 20 years old, and was 100% depreciated
- Supplier claimed that each year $1M was required for maintenance and rebuild
- Confirmed that the supplier did not know how to fill out a Cost Breakdown, due to turnover at the plant in estimating
- It was determined that the suppliers' labor quote was 30% higher than the highest job advertised in the area

In the end, the cost increase was refused, and the supplier was exited from the supply base. A current supplier was awarded additional work on a line that recently become open. The organization saw a cost avoidance of $12 per part, at 500,000 annually over 5 years - estimated $30,000,000 life-time saving.

Thank you!

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Sources

Links

1 - https://www.epi.org/publication/reshoring-manufacturing-jobs/

2 - https://data.bls.gov/dataViewer/view

3 - https://data.worldbank.org/indicator/NV.IND.MANF.ZS?locations=CN-US

4 - https://www.weforum.org/stories/2019/08/a-new-assessment-of-the-role-of-offshoring-in-the-decline-in-us-manufacturing-employment/

5 - https://www.bcg.com/press/21september2023-north-american-companies-have-relocated-production-sourcing-over-past-five-years

6 - https://web.archive.org/web/20131130021237/http://www.nydailynews.com/autos/ford-assembly-line-turns-100-changed-society-article-1.1478331

7 - https://time.com/46860/gm-scandal-blame/

8 - https://www.rolandberger.com/en/Insights/Publications/Why-Mexico-is-becoming-the-leading-destination-for-automotive-companies.html?utm_source=chatgpt.com

9 - https://www.ivemsa.com/3-reasons-why-auto-manufacturers-move-to-mexico/?utm_source=chatgpt.com

10 - https://www.lemonde.fr/en/economy/article/2024/06/19/carlos-tavares-ruthless-cost-cutting-strategy_6675189_19.html?utm_source=chatgpt.com

11 - https://www.sweetstudy.com/content/case-study-merging-it-daimler-chrysler?utm_source=chatgpt.com

12 - https://www.investopedia.com/terms/p/product-life-cycle-management.asp?utm_source=chatgpt.com

13 - https://www.wired.com/1998/05/chryslers-digital-designs/?utm_source=chatgpt.com

14 - https://thesystemsthinker.com/abc-initiating-large-scale-change-at-chrysler/?utm_source=chatgpt.com

15 - https://www.motales.com/chrysler-corp/score.php?utm_source=chatgpt.com

16 - https://www.researchgate.net/publication/263714304_Structuring_and_restructuring_Fiat-Chrysler_can_two_weak_carmakers_jointly_survive_in_the_new_automotive_arena?utm_source=chatgpt.com

17- https://trustedtolead.com/Resources/Publications/Stallkamp----Chrysler-lost--24-Billion.pdf