Power BI Analytics: Unlocking $30M in Cost Savings and Agility Across Global Manufacturing Operations

By : Victor Gabriel
GEP Worldwide
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The Challenge: Optimizing a $15B Supply Chain for Cost Efficiency

In the highly competitive consumer packaged goods sector, effective management of contract manufacturing partnerships has become both a strategic necessity and a powerful lever for cost optimization. For a Fortune 500 food manufacturer generating over $15 billion in annual revenue, the stakes for efficiency and margin improvement could not be higher.

Traditional, Excel-based analytics approaches have consistently fallen short in delivering the speed, depth, and scalability required for strategic decision-making across a global network of suppliers, manufacturing sites, and distribution channels.

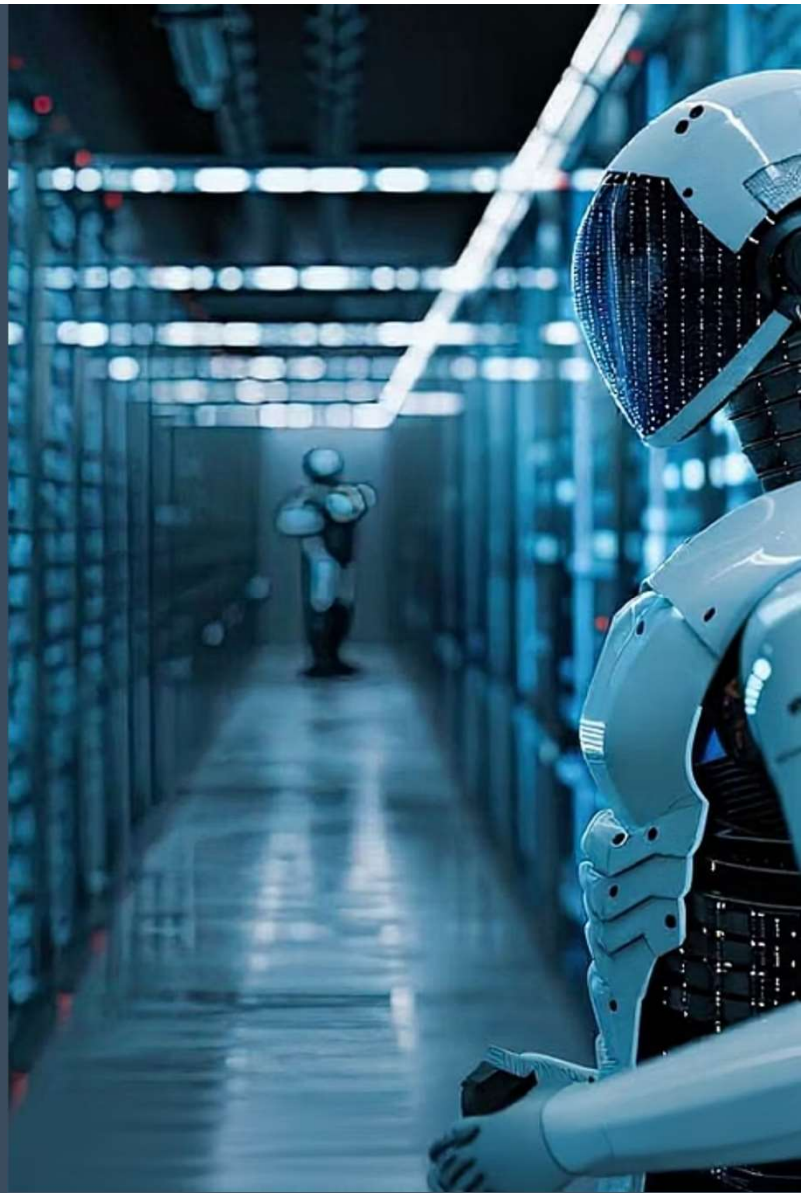
Key Pain Points

- Limited visibility into real-time cost and margin performance
- Fragmented data across systems hindering holistic cost analysis
- Delayed identification of margin leakage and savings opportunities
- Inconsistent translation of cost data into executive insights and actions

A Hybrid Analytics Revolution

An innovative analytics framework was developed by building a robust data model within Power BI. This hybrid approach transformed raw supply chain data into actionable intelligence, creating a strategic advantage in optimizing contract manufacturing operations.

The platform integrated real-time dashboards with scenario-based analytics, enabling rapid exploration of complex business conditions and the generation of executive-level insights—accelerating decision cycles from weeks to hours.



Platform Architecture: Three Core Components

Power BI Foundation

Real-time dashboards tracking scrap rates, conversion costs, supplier efficiency, and financial metrics across global operations with drill-down capabilities

Prompt Engineering Layer

Advanced analytical capability enabling rapid hypothesis testing, scenario modeling, and intuitive data exploration to address complex operational questions through Microsoft Copilot enablement

Integration Engine

Seamless data flows from manufacturing systems, supplier portals, and financial platforms into a unified analytics environment

Prompt Engineering in Action

Driver Analysis

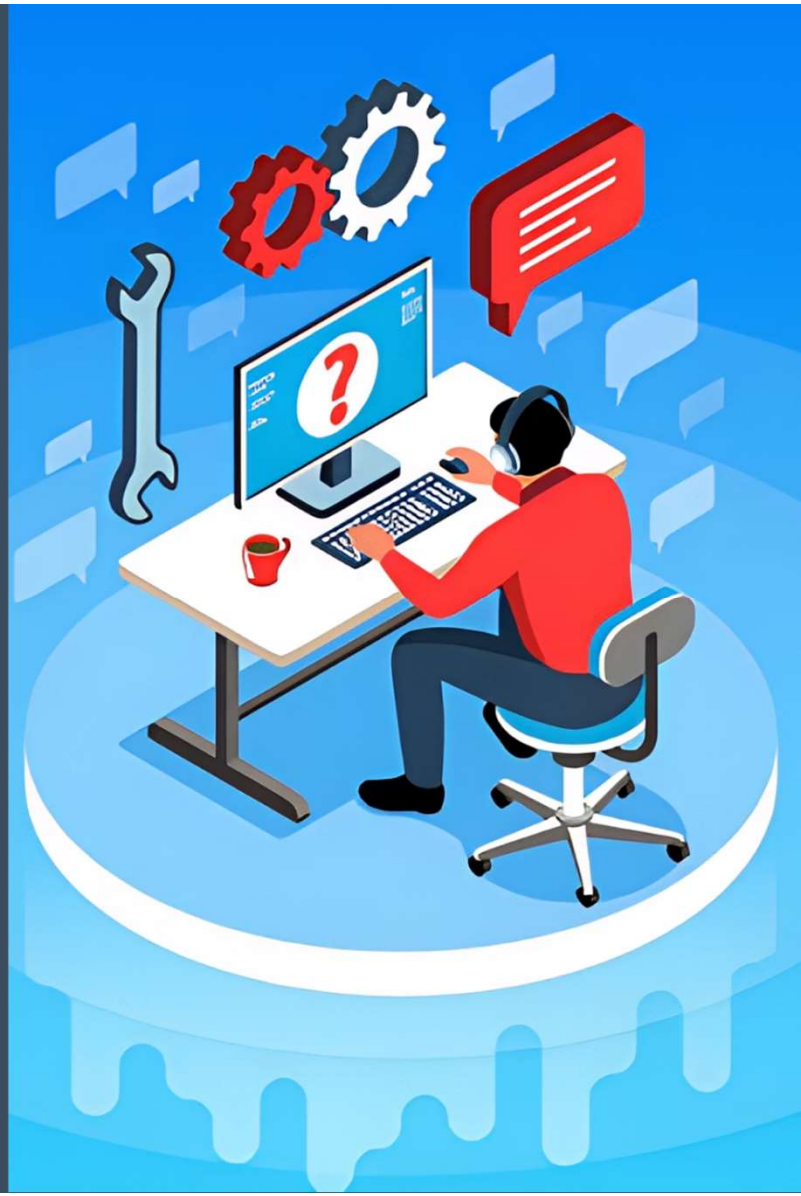
Rapid exploration of cost drivers using natural language queries: "What factors contribute most to scrap variance in Q3?"

Scenario Modeling

Test hypothetical changes instantly: "Assess margin impact from a 20% reduction in conversion costs for Supplier A-managed SKUs"

Narrative Generation

Auto-generate executive summaries translating complex data patterns into strategic recommendations



Approach: Unpacking the Levers of Cost Optimization

Margin Performance

- Conversion cost per unit
- Scrap and yield rates
- Product-level margin variance
- Profitability by supplier or SKU

Cost Optimization

- Cost-saving opportunity tracking
- Supplier cost benchmarking
- Material and packaging efficiency metrics
- Production process improvement initiatives

Strategic Timing: Supporting Corporate Transformation

The analytics platform's deployment aligned perfectly with restructuring a strategic separation of parent company into two focused entities designed to unlock shareholder value and operational agility.

Our insights directly supported this transformation by identifying which manufacturing relationships to strengthen, which suppliers to consolidate, and where to reallocate resources for maximum efficiency within each new business unit.

The Results: Transformative Impact

1

Total Savings Identified

Cost optimization opportunities across scrap and conversion costs uncovered across the contract manufacturing network

2

Return on Investment

Platform development and implementation costs recovered multiple times over

3

Scrap Reduction

Raw and Packaging scrap reduced by implementing targeted supplier improvement initiatives and establishing performance benchmarks aligned with industry leaders.

4

Cost Reduction

Conversion cost reductions driven by product design improvements, process efficiencies, and optimized supplier sourcing strategies.

Real-World Application: Scrap Rate & Cost Optimization

1

The Problem

Scrap rates for top-spend products were ~15% above industry benchmarks, driving millions in annual raw and packaging material waste.

2

The Analysis

Prompt-driven queries revealed non-standardized bills of materials across suppliers, driving conversion cost and scrap variations.

3

The Solution

- **Standardize** recipes and formulations across similar products
- **Renegotiate** supplier scrap allowance contracts to align with industry benchmarks
- **Establish** real-time monitoring and alert systems for production variances
- **Reallocate** production of similar products to lower-cost suppliers

4

The Outcome

~$30M in potential savings unlocked by driving scrap and conversion costs to best-in-class performance, realizable within 18–24 months.

Lessons Learned: Keys to Success

Start with Business Questions, Not Technology

Define the strategic decisions you need to make before building dashboards. Technology should serve clear business outcomes.

Invest in Data Quality Early

The most sophisticated analytics are worthless with poor data. Establish governance and validation processes from day one.

Build Cross-Functional Partnerships

Success requires collaboration between IT, operations, finance, and procurement. Create shared ownership of insights.

Balance Automation with Human Judgment

Prompt engineering accelerates analysis, but domain expertise remains essential for interpreting context and making final decisions.

From Insight to Action: The Decision Cycle

1

Data Integration

Automated pipelines pull real-time data from manufacturing systems, creating a single source of truth updated continuously

2

Visual Discovery

Analysts explore Power BI dashboards to identify anomalies, trends, and opportunity areas requiring deeper investigation

3

Prompt-Driven Analysis

Natural language queries rapidly test hypotheses and generate scenario models without custom coding using co-pilot integration

4

Executive Synthesis

AI-generated narratives translate findings into strategic recommendations for leadership review

5

Implementation

Cross-functional teams execute approved initiatives with ongoing dashboard monitoring to track results

Practical Blueprint: Getting Started

01

Identify High-Impact Use Cases

Focus on areas where 20% improvement drives significant financial results conversion costs, waste reduction, supplier consolidation

02

Build MVP Dashboards

Start with 3-5 critical metrics in Power BI, ensuring data accuracy before expanding scope

03

Layer in Prompt Engineering

Add AI-assisted analysis capabilities gradually using Microsoft Copilot, training users on effective prompt formulation

04

Establish Feedback Loops

Track which insights lead to action and refine your approach based on what drives decisions

05

Scale and Standardize

Once proven, replicate successful patterns across business units with consistent methodologies

The Future: AI-Augmented Supply Chain Intelligence

This initiative represents just the beginning of AI-augmented supply chain management. Future enhancements include predictive analytics for proactive issue identification, automated recommendation engines for optimal supplier selection, and integration with external market data for risk forecasting.

The combination of structured analytics and flexible AI assistance creates a foundation for continuous innovation enabling organizations to adapt quickly as both technology and business conditions evolve.

Thank You!

Questions?

Let's discuss how these techniques can transform your supply chain operations.

Victor Gabriel

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