

Power BI Project: Supply Chain Cost Optimization Dashboard

Live Dashboard

🔗 [View the Live Supply Chain Dashboard](#)

For access or questions, contact istiak36@gmail.com.

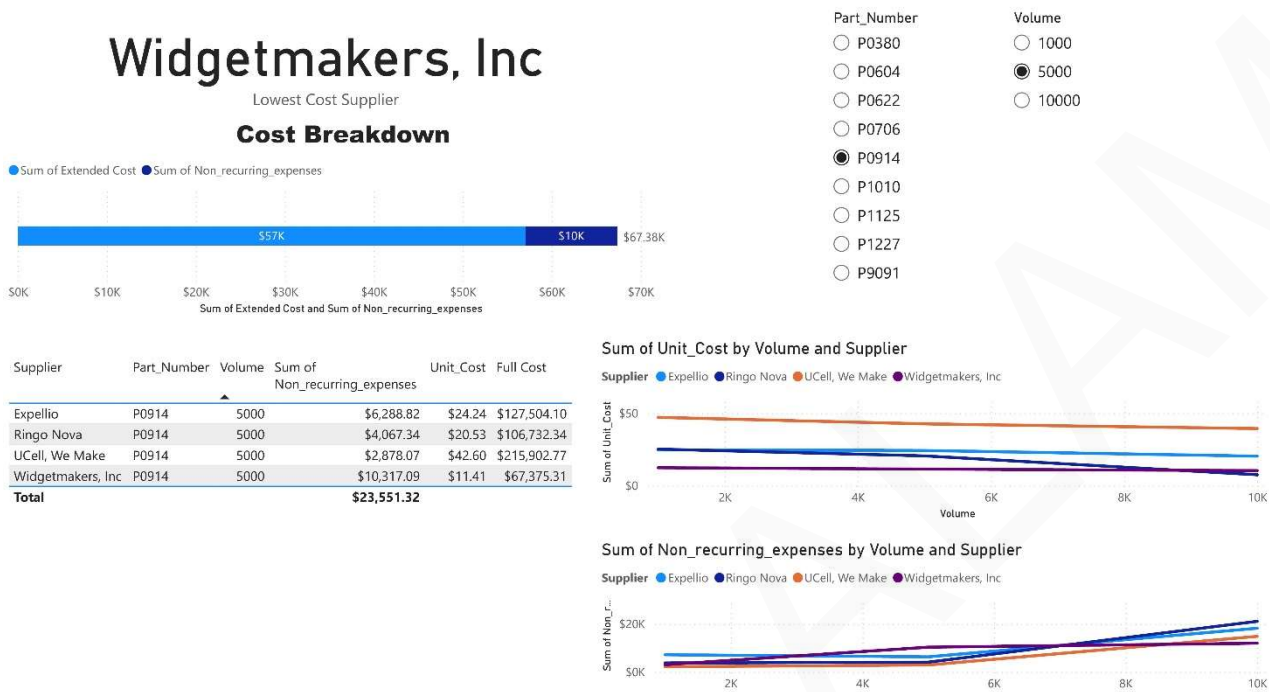
Overview

This interactive Power BI dashboard delivers data-driven insights for supply chain cost optimization by enabling teams to compare supplier bids, analyze full procurement and production costs, and run robust make-vs-buy scenario analyses. With rich, visual analytics, operations and sourcing leaders can minimize costs, benchmark vendors, and optimize capital investments within a modern, visual platform.

Features

- **Supplier Cost Comparison:** Instantly compare non-recurring expenses, per-unit, and full costs for each part and vendor.
- **Cost Breakdown Detail:** Visualize extended costs, non-recurring expenses, and total volumes to see the drivers of procurement spending.
- **Scenario Analysis:** Evaluate buy scenario full costs at multiple supply volumes to support negotiation and batch optimization decisions.
- **Make vs Buy Decisions:** Assess capital investment, unit capacity, and scenario costs for strategic sourcing decisions.
- **Capital Planning:** Benchmark make and buy scenarios to maximize cost avoidance and capital efficiency.

Dashboard Snapshots



Compare all suppliers in terms of unit costs and non-recurring setup charges for high-volume buys.

Scenario Volume

25000

Scenario Planner

Part_Number

- ☐ P0380
☐ P0604
☐ P0622
☐ P0706
☐ P0914
☐ P1010
☐ P1125
☐ P1227
☐ P9091

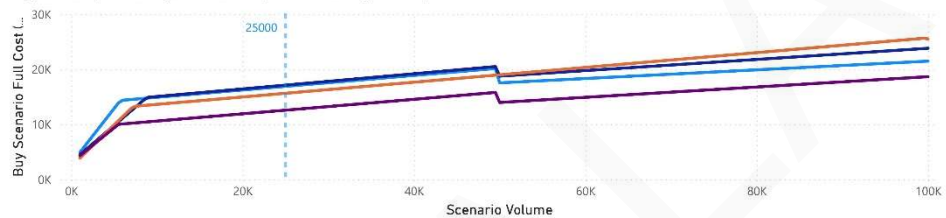
Supplier	Part_Number	Buy Scenario Full Cost
Widgetmakers, Inc	P1010	\$1,560,816.99
Ringo Nova	P0604	\$1,439,021.66
Widgetmakers, Inc	P0604	\$1,337,048.82
UCell, We Make	P1010	\$1,235,201.47
UCell, We Make	P0604	\$1,226,444.51
Total		\$13,886.48

\$9,316.52

Sum of Non_recurring_expenses

Buy Scenario Full Cost (All) by Scenario Volume and Supplier

Supplier ● Expellio ● Ringo Nova ● UCell, We Make ● Widgetmakers, Inc



Visuals show how extended procurement costs and upfront/non-recurring expenses stack by part and by supplier.

Make versus Buy

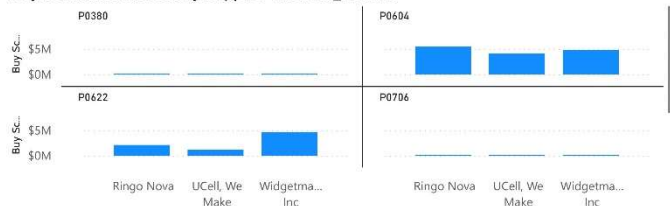
Scenario Volume

99000

Part_Name	Part_Number	Machine_Model	Existing_Capacity	Unit_Capacity	Additional Unit Capacity Required	Capital Investment Required (Make)	Make Scenario Full Cost
Grotop	P0604	3D Printer79	476	1072	98,524	\$460,000.00	\$629,191.00
Degunkifier	P1227	3D Printer79	850	500	98,150	\$985,000.00	\$1,303,780.00
Dewgodur	P1125	3D Printer79	1472	304	97,528	\$1,605,000.00	\$2,403,534.00
Porlity	P0706	3D Printer79	1854	1141	97,146	\$430,000.00	\$560,581.00
Furronaw	P9091	Lathe23	29760	13224	69,240	\$6,000,000.00	\$6,459,261.00
Bewpittros	P1010	Lathe23	39273	8002	59,727	\$8,000,000.00	\$8,163,647.00
Stepner	P0380	Lathe23	51007	20963	47,993	\$3,000,000.00	\$3,080,685.00
Chattlecrat	P0914	Lathe23	240000	1000	0	\$0.00	\$97,020.00
Inperfusionator	P0622	Lathe23	240000	1000	0	\$0.00	\$22,770.00
Total					0	\$0.00	\$22,770.00

Part_Name	Part_Number	Make vs Buy	Cost Avoidance	Buy Scenario Full Cost
Bewpittros	P1010	Buy	\$4,646,958.98	\$3,516,688
Chattlecrat	P0914	Make	\$820,435.07	\$917,455
Degunkifier	P1227	Buy	\$461,314.73	\$842,465
Dewgodur	P1125	Buy	\$1,770,588.98	\$632,945
Furronaw	P9091	Buy	\$5,218,391.98	\$1,240,869
Grotop	P0604	Make	\$3,510,897.00	\$4,140,088
Inperfusionator	P0622	Make	\$1,160,175.88	\$1,182,945
Porlity	P0706	Buy	\$428,716.37	\$131,864
Total		Buy	\$560.66	\$22,209.

Buy Scenario Full Cost by Supplier and Part_Number



Understand the true cost impact of different purchase volumes and suppliers to support scenario planning and negotiation.

Key Insights

- Widgetmakers, Inc and Ringo Nova provided the **lowest per-unit plus full costs** for key parts, leading to significant savings at high volumes.
- Non-recurring engineering/setup costs vary widely between suppliers and must be included in real scenario evaluations.
- Make-vs-buy scenario analysis exposes where capital investment could be justified and where purchasing is measurably more cost-effective.
- Scenario planning for volume changes (e.g., 5,000 to 99,000 units) highlights the non-linear cost structure that should drive batch negotiation and vendor selection.

How to Use

1. Use the live dashboard to adjust volume and supplier filters for scenario analysis.
2. Drill into visuals above for targeted, presentation-ready evidence of your supply chain analytics skills.
3. Apply these findings for procurement negotiations, budgeting, and capital investment decisions.

About

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All data and visuals are for demonstration and portfolio purposes only. Images are located in the /images folder.

Technical Implementation

Data Source:

- Source data is received from ERP procurement system exports and supplier bid sheet files (XLSX/CSV).

Data Storage:

- All procurement, volume, and cost data are versioned and stored in a secured SharePoint directory, imported to Power BI Desktop.

Update Frequency:

- Data is updated as new supplier bids are received or when new volume forecasts are shared; typical cadence is per sourcing event or quarterly.

ETL Process:

- Power Query (M) handles all loading, transformation, and integration of disparate price/cost sheets.
- No external ETL tool required due to the limited data source complexity.

Connection Mode:

- Import mode—ensures fast response and all Power BI features, and works well for the batch-based, scenario-driven nature of the dataset.

Data Transformation:

- All mapping (supplier names, part IDs, cost fields) and unification is performed in Power Query, including conversion of all cost data to a single currency and resolving naming format inconsistencies.
- Challenges: inconsistent part number syntax from different suppliers, solved via conditional split columns and standardization.

Data Modeling Challenges:

- Needed to unify supplier and internal part identifiers; resolved with reference mapping tables and a robust star schema (Suppliers, Parts, Scenarios).

DAX Functions:

- Employed CALCULATE, SUMX, FILTER and scenario-dependent logic with SWITCH and IF to aggregate costs by scenario and volume.
- Used RANKX to highlight the lowest-cost supplier for each part.

KPIs:

- Unit Cost, Full Scenario Cost, Non-Recurring Expenses, Cost Avoidance (Make vs Buy)
- Cost per Supplier/Part, Volume-Driven Total Spend

Best Practices:

- Consistent, descriptive column/measure labeling; measures organized by folder.
- Adopted clear, high-contrast color schemas and custom tooltips.
- Used bookmarks for scenario and supplier switching.

Performance Optimization:

- Removed unnecessary columns and minimized visuals per page; all volume logic calculated in measures for optimized refresh.

RLS:

- Not required for this demonstration, but could be implemented for stakeholder- or product-line-limited access in a multi-client environment.

Data Validation:

- Cross-validated calculated totals against original ERP/tender quotes and summed by hand for key scenarios.

End Users:

- Supply chain managers, procurement leads, finance and operations executives.

Data Refresh:

- Manual upload/refresh for each event or scenario update; could be scheduled if source system connects directly.

Collaboration & Sharing:

- Dashboard shared on Power BI Service via secure links for sourcing teams; summary exports provided for supplier negotiations and executive review.