



Tech Refresh at Dell Technologies

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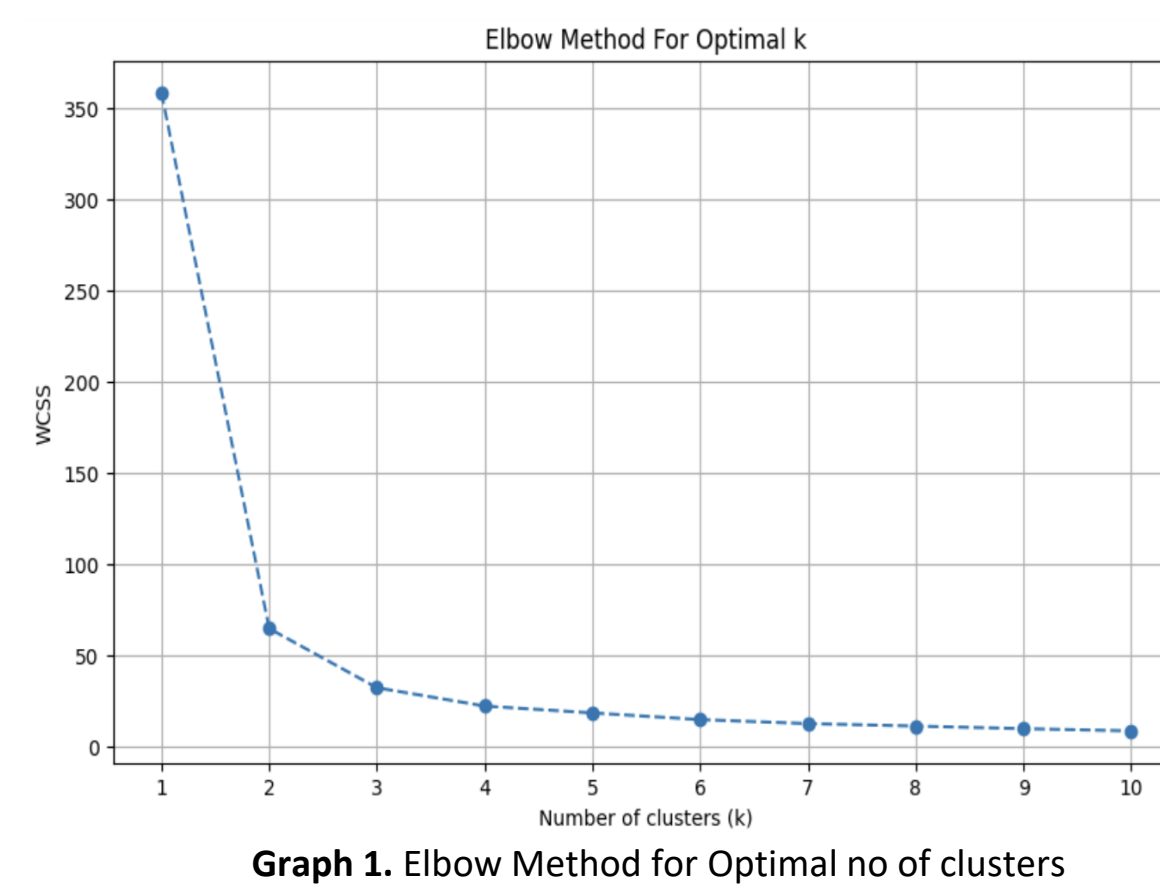
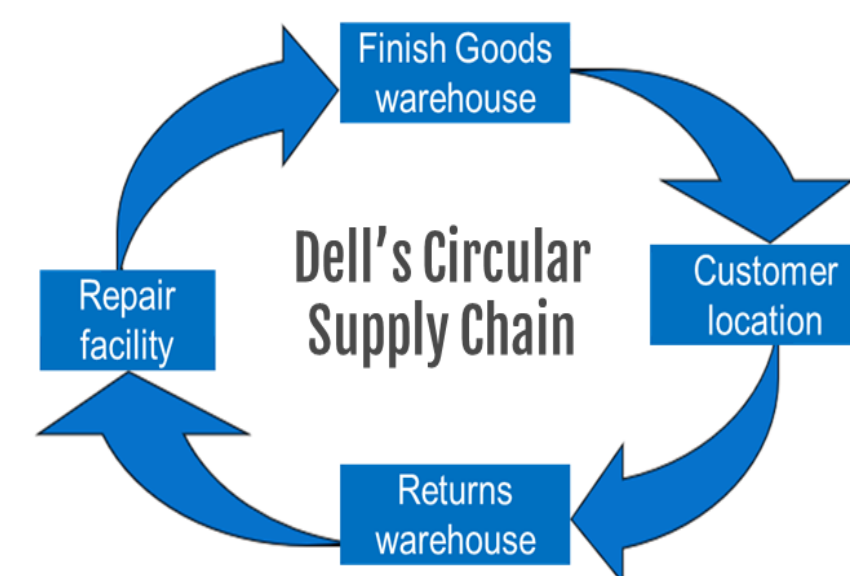
Abstract

Optimize Dell's Tech Refresh process by integrating data analysis and enhancing the spare parts inventory for warranty services. The goal is to align sales strategies with inventory needs, focusing on high-demand, low-inventory parts.

Problem Statement



Introduction



Assumptions



Product value < \$50



Part lifecycle = 10 years



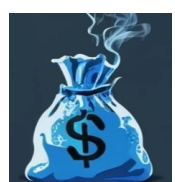
Positive deficit



Planning yield capped at 1

Proposed Solution

Cost Avoidance = Total Value – Initial Cost(Original Monetary Value)



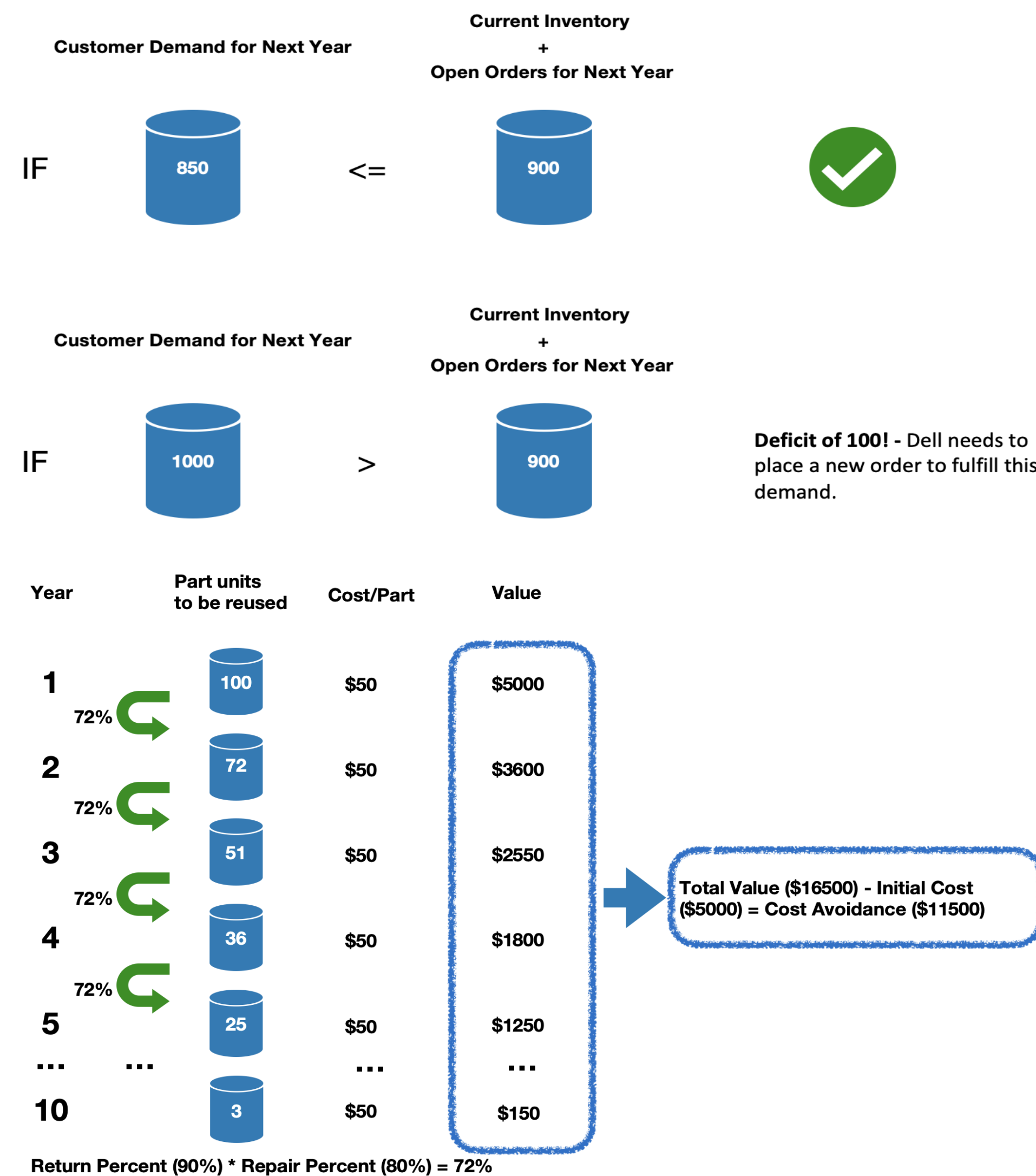
Best Value Parts
High Planning Yield
High Unit Cost
Medium Deficit



One Time Use
Low Planning Yield
Low Unit Cost
Low Deficit



Bread and Butter
Medium Planning Yield
Low Unit Cost
High Deficit



Unlocking Value through Part Reuse :

Two Avenues for Reuse

- Customer returns and reutilising parts
- Sustainable and cost efficient

Repair and Reuse

- Repairing the salvageable parts significantly cuts the new order placement costs

Measuring Reusability

- Reusability Factor = Return Rate x Repair Rate**
- Assess the effectiveness of reuse strategies

Value Calculation

- Total Value** = $\sum_{i=1}^{10} (\text{Part A Units}_i) \times (\text{Part A Cost per Piece}_i)$
- Assuming cost per piece doesn't change between 1 to 10 years.

	Part Code		
Rank	Cluster 0	Cluster 1	Cluster 2
1	407QZ	944IA	813FX
2	092UB	064FI	207FB
3	414VK	613KW	485UA
4	632ME	405NQ	106AX
5	134BR	114CB	959DY
6	881BT	869IA	093PB
7	932YN	178XW	046RD
8	749PI	886IC	250YN
9	061ZV	375DU	092BE
10	765TH	515EE	886KI

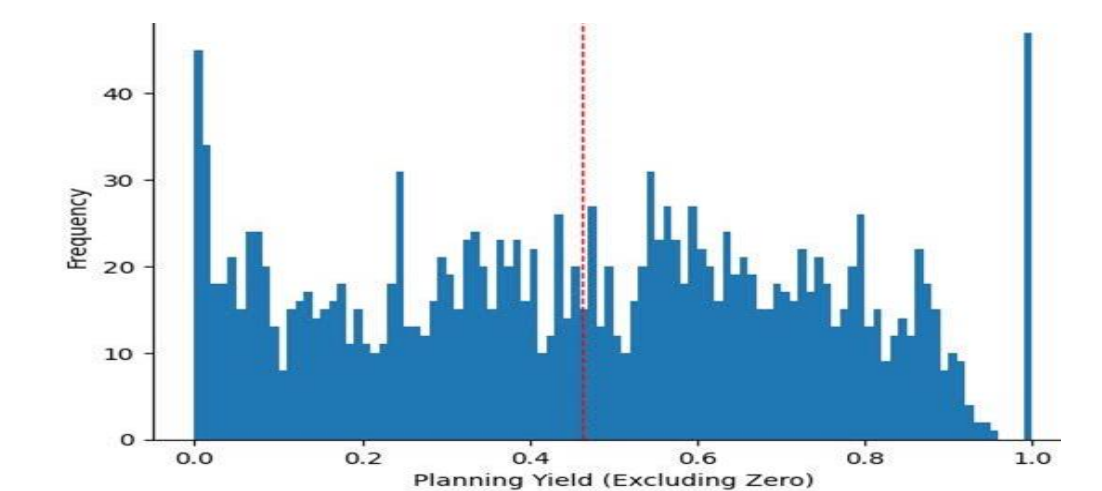
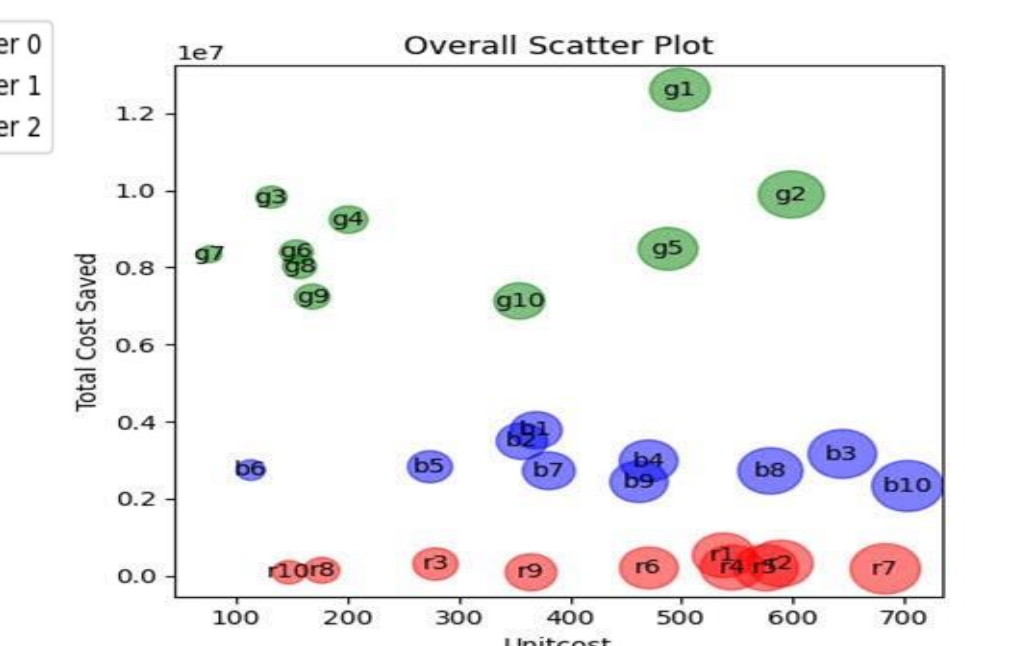
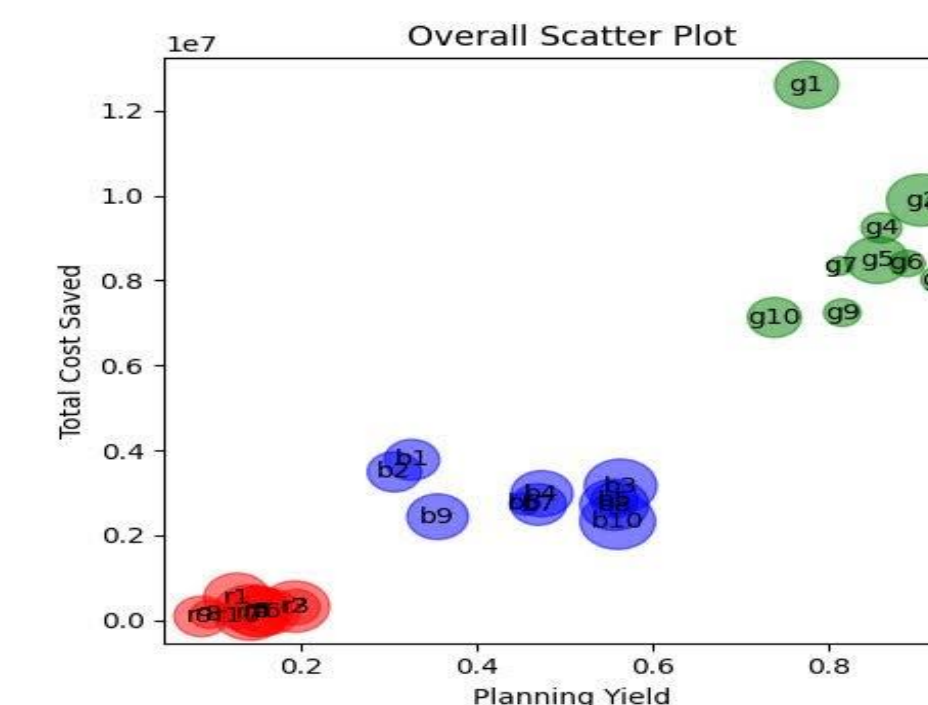
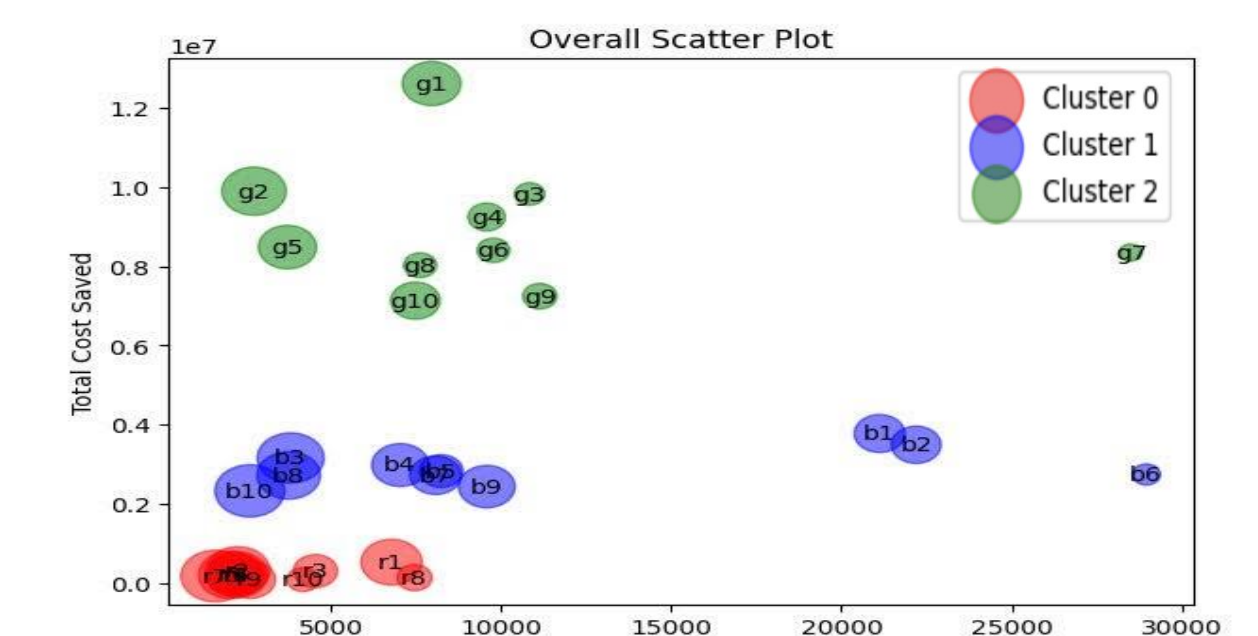


Chart 1. Distribution of Planning Yield



Results & Recommendations

Silhouette Score(Quality of Cluster): **High**



Best Value Parts
\$88.94Million

- High planning yield, high average unit cost.
- FOCUS



One Time Use
\$2.27 Million

- Low planning yield
- Order to fulfill customer demand without keeping huge inventory.



Bread and Butter
\$29.02Million

- High deficit
- Improve repair yield and return process.

Conclusion



Experimental model predicts critical parts nearing end-of-life, enabling targeted customer outreach for Tech Refresh Program, enhancing service provision and product updates.

Scalable, robust, adaptive ranking algorithm

\$120.23 Million in savings

Enhanced decision making

References

GPT 4 and Dell experts