

SHOW YOUR WORK FOR EACH PROBLEM PROBLEM 1 - Make Or Buy: Rivertown Corporation Uses A Part Called A Nerfette

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When facing a manufacturing decision, companies often grapple with whether to produce a component internally or purchase it from an external supplier. This process, known as the "Make or Buy" decision, requires detailed analysis to ensure that the company's resources are allocated efficiently and costs are minimized. Rivertown Corporation, a manufacturer relying heavily on a specialized part called a Nerfette, exemplifies this dilemma. In this article, we will explore how Rivertown can approach the Make or Buy decision systematically, demonstrating the importance of showing your work for each problem to arrive at the most informed choice.

Understanding the Make or Buy Decision

What Is the Make or Buy Decision?

The Make or Buy decision involves evaluating whether it is more cost-effective for a company to produce a component in-house or purchase it from an external supplier. This decision hinges on several key factors:

- Cost of manufacturing internally
- Cost of purchasing externally
- Availability of resources and capacity
- Quality considerations
- Impact on production schedules
- Strategic considerations for the business

The Role of Cost Analysis

A thorough cost analysis is critical in making an informed decision. This involves comparing the relevant costs associated with each option, including:

- Direct materials and labor
- Manufacturing overhead
- Setup costs
- Purchasing costs
- Additional costs such as transportation or quality inspections

By systematically calculating these costs, Rivertown can determine the more economical choice for their Nerfette parts.

Rivertown Corporation's Case: The Nerfette Part

Background Information

Rivertown Corporation produces various electronic devices, and the Nerfette is a critical component used in their final products. Currently, Rivertown manufactures the Nerfette in-house, but recent supplier quotes have prompted management to reconsider whether outsourcing might be more advantageous.

Data for Analysis

Suppose Rivertown has the following cost data:

- Direct materials per Nerfette: \$10
- Direct labor per Nerfette: \$5
- Manufacturing overhead allocated per Nerfette: \$4
- Setup costs for in-house production: \$20,000 (one-time)
- Annual demand for Nerfettes: 50,000 units

The company has received a quote from an external supplier offering the Nerfette at \$15 per unit, with no setup costs.

Step-by-Step Cost Analysis

To decide whether to make or buy, Rivertown must compare the relevant costs associated with each alternative, focusing on the costs that will change depending on the decision.

1. Calculating the In-House Manufacturing Cost Per Unit

The per-unit cost includes direct materials, direct labor, and manufacturing overhead:

- Direct materials: \$10
- Direct labor: \$5
- Manufacturing overhead: \$4

Total variable cost per unit:

$$\mathbf{\$10 + \$5 + \$4 = \$19}$$

2. Incorporating Setup Costs

Setup costs are fixed and only incurred if Rivertown produces in-house. To find the relevant cost per unit:

- Annual setup cost: \$20,000
- Annual demand: 50,000 units

Relevant setup cost per unit:

$$\mathbf{\$20,000 / 50,000 \text{ units} = \$0.40 \text{ per unit}}$$

Adding this to the variable cost:

$$\mathbf{\text{Total in-house cost per unit: } \$19 + \$0.40 = \$19.40}$$

3. Comparing to the Purchase Cost

External supplier quote:

- Price per unit: \$15

Final Cost Comparison and Decision

Based on the calculations:

- Make in-house: \$19.40 per unit
- Buy externally: \$15 per unit

Since the purchase price (\$15) is lower than the in-house cost (\$19.40), Rivertown would save money by outsourcing the Nerfette production. However, it is essential to also consider qualitative factors such as quality control, supplier reliability, and strategic

considerations before making the final decision.

Additional Considerations in the Make or Buy Decision

Capacity and Resource Availability

Even if the cost analysis favors outsourcing, Rivertown must assess whether it has the capacity to produce the Nerfette internally without disrupting other operations. If internal capacity is limited, outsourcing might be the only feasible option.

Quality and Supplier Reliability

Ensuring the quality of the Nerfette is crucial. If the external supplier has a proven record of quality and reliability, outsourcing becomes more attractive. Conversely, if quality is uncertain, Rivertown might prefer to keep production in-house.

Strategic and Control Considerations

Sometimes, companies choose to produce certain components internally to maintain control over the manufacturing process, protect proprietary technology, or align with strategic goals.

Conclusion: The Importance of Showing Your Work in Decision Making

The example of Rivertown Corporation illustrates why it is vital to show your work for each problem when making a Make or Buy decision. By systematically analyzing relevant costs, considering qualitative factors, and documenting each step, companies can arrive at well-informed, justifiable decisions.

This transparent approach ensures accountability, facilitates communication among stakeholders, and provides a clear rationale that can be revisited if circumstances change. Whether Rivertown decides to make or buy the Nerfette, the process of showing your work ensures the decision is grounded in thorough analysis and strategic thinking.

Summary

- The Make or Buy decision involves comparing internal production costs to external purchase costs.
- Relevant costs include direct materials, direct labor, manufacturing overhead, and fixed setup costs.

- Cost analysis must be detailed and transparent to support sound decision-making.
- Qualitative factors such as quality, capacity, and strategic importance influence the final choice.
- Showing your work in each problem fosters better understanding and accountability.

By thoroughly evaluating each aspect of the decision and transparently laying out calculations and assumptions, Rivertown Corporation exemplifies a best-practice approach to complex manufacturing decisions.

Frequently Asked Questions

What factors should Rivertown Corporation consider when deciding whether to make or buy the Nerfette part?

Rivertown should evaluate the cost of manufacturing in-house versus purchasing from suppliers, including direct materials, labor, overhead, quality control, lead times, and potential capacity constraints.

How does analyzing the variable and fixed costs help in making the make-or-buy decision for the Nerfette?

By comparing variable costs incurred if they make the part to the purchase price, Rivertown can determine if producing internally is cost-effective. Fixed costs are usually sunk and less relevant unless they change with the decision.

What role does opportunity cost play in the make-or-buy analysis for Rivertown?

Opportunity cost considers the benefits Rivertown forgoes by not using its resources elsewhere. If manufacturing the Nerfette prevents the company from producing higher-margin products, this cost should be factored into the decision.

If Rivertown decides to buy the Nerfette, what additional considerations should they keep in mind?

They should consider supplier reliability, quality standards, delivery schedules, potential for price negotiations, and the impact on existing supplier relationships.

How can a contribution margin analysis assist Rivertown in the make-or-buy decision for the Nerfette?

Contribution margin analysis helps Rivertown determine if the savings from manufacturing in-house exceed the contribution margin lost by not producing other products, aiding in a more comprehensive decision.

What impact might the decision to make or buy have on Rivertown's overall profitability?

The decision can directly affect costs and margins, potentially increasing profitability if the cheaper option is chosen, or if internal production adds value through quality or other strategic benefits.

How should Rivertown incorporate qualitative factors into their make-or-buy decision regarding the Nerfette?

Qualitative factors include supplier relationships, quality control, flexibility, lead times, and strategic considerations like core competencies, which can influence the long-term success of the decision beyond just costs.

Additional Resources

Show Your Work for Each Problem Problem 1 - Make Or Buy: Rivertown Corporation Uses A Part Called A Nerfette

When evaluating manufacturing decisions, especially whether to produce a component internally or outsource it, the clarity of analysis is critical. Rivertown Corporation faces such a decision with its component called the Nerfette. This problem exemplifies the importance of detailed cost analysis, strategic considerations, and understanding the implications of each choice. In this review, we will explore the intricacies of the "Make or Buy" decision for Rivertown's Nerfette, highlighting the process of showing thorough work for each problem, analyzing key factors, and understanding the broader impact of the decision.

Understanding the Make or Buy Decision

What Is a Make or Buy Decision?

A make or buy decision involves determining whether a company should produce a component in-house (make) or purchase it from an external supplier (buy). This decision hinges on multiple financial and strategic factors, including cost, capacity, quality, control, and long-term plans.

Key considerations include:

- Cost of internal production versus purchase price
- Fixed and variable costs associated with manufacturing
- Capacity constraints
- Quality control and supplier reliability
- Strategic importance of the component

- Potential for future cost reductions or technological improvements

Analyzing Rivertown Corporation's Nerfette

Background Information

Rivertown Corporation produces a variety of products, and the Nerfette is a crucial part of its manufacturing process. The decision to make or buy the Nerfette hinges on detailed cost comparisons and strategic considerations.

Given Data:

- Cost to produce Nerfette internally:
- Direct materials: \$X per unit
- Direct labor: \$Y per unit
- Variable manufacturing overhead: \$Z per unit
- Fixed manufacturing overhead (allocated): \$A per unit
- Cost to purchase Nerfette from an outside supplier: \$B per unit
- Additional considerations:
- Capacity constraints
- Quality differences
- Potential for cost savings over time
- Impact on other operations

(Note: Specific numerical data would be provided in the actual problem statement; here, we will analyze based on typical assumptions and structure.)

Step-by-Step Approach to Show Work

1. Identify Relevant Costs

The first step involves distinguishing between relevant and irrelevant costs.

Relevant costs:

- Costs that differ between the two options
- Future costs that will be incurred depending on the decision

Irrelevant costs:

- Sunk costs
- Fixed manufacturing overheads that will be incurred regardless of the decision (unless they can be eliminated if outsourcing)

In practice:

- Direct materials, direct labor, and variable overhead are relevant because they vary with the decision.
- Fixed overheads are often considered sunk if they won't change, but if some fixed costs are avoidable, they are relevant.

2. Calculate the Total Cost of Making

Total manufacturing cost per unit = Direct materials + Direct labor + Variable overhead + Avoidable fixed overhead (if applicable)

Total cost to produce in-house = (Cost per unit) × expected units

3. Calculate the Total Cost of Buying

Total purchase cost = Purchase price per unit × expected units

Additional costs or savings:

- Transportation costs
- Quality inspection costs
- Potential savings from volume discounts

4. Compare Costs and Qualitative Factors

After calculating total costs, compare the figures:

- Is the cost to make less than the cost to buy?
- Are there qualitative factors (e.g., quality, supplier reliability, strategic control)?

5. Make a Decision and Show Work Clearly

Present the cost comparison clearly:

- Summarize total costs for each option
- Highlight assumptions made
- Discuss qualitative considerations

Pros and Cons of Making the Nerfette

Pros:

- Greater control over quality and production schedules
- Potential for cost reductions through process improvements
- Flexibility to modify design as needed
- Avoidance of supplier dependency

Cons:

- High fixed costs and capital investment
- Possible underutilization of capacity
- Increased managerial responsibility
- Risk of production disruptions

Pros and Cons of Buying the Nerfette

Pros:

- Lower initial investment
- Cost savings in the short term
- Reduced managerial burden
- Flexibility to switch suppliers or adjust volume

Cons:

- Less control over quality and timing
- Potential for supplier issues
- Long-term costs may escalate
- Dependence on external supplier performance

Strategic Considerations

Beyond immediate cost analysis, Rivertown must consider:

- Core Competencies: Does manufacturing the Nerfette align with Rivertown's strategic strengths?
- Capacity Utilization: Will internal production utilize excess capacity or cause bottlenecks?
- Supplier Reliability: Can the external supplier meet quality and delivery standards?
- Long-term Costs: Are there opportunities for cost reductions through in-house production over time?

Conclusion: Making a Well-Informed Decision

The decision to make or buy the Nerfette hinges on detailed cost analysis, strategic alignment, and risk assessment. Showing work for each problem involves meticulous calculation of relevant costs, transparent assumptions, and consideration of qualitative factors. Rivertown's management must weigh the immediate cost benefits against strategic advantages and potential risks.

In a typical scenario, if the cost to produce internally is significantly higher than purchasing, and quality or control is a concern, outsourcing might be preferred. Conversely, if Rivertown has excess capacity, can achieve cost savings through efficiency, and values control, making the Nerfette in-house could be advantageous.

By following a structured approach—identifying relevant costs, performing accurate calculations, and considering qualitative factors—Rivertown can make a sound, data-driven decision. This methodology exemplifies best practices in decision-making, ensuring transparency and thoroughness, which is essential in complex manufacturing choices.

Final Thoughts

The “Make or Buy” dilemma isn't merely a financial calculation; it's a strategic choice that influences a company's competitive position, operational flexibility, and long-term success. Rivertown Corporation's careful analysis, showing work for each problem, exemplifies the importance of detailed, transparent decision-making processes. Whether choosing to produce the Nerfette internally or outsource it, the key lies in comprehensive evaluation and aligning the decision with broader corporate goals.

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