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RELEVANT INFORMATION FOR DECISION MAKING

1. Define relevant costs. Why are historical costs irrelevant?

Relevant Costs: Expected costs in future which that vary among the different options under evaluation.

Historical Events: In contrast, historical expenses hold no significance as they pertain to past costs and thus cannot exhibit variation among potential future courses of action.

2. "All future costs are relevant." Do you agree? Why?

I disagree. The concept of relevant costs focuses on expected future expenses that exhibit variation among the choices available for consideration. Therefore, future costs that remain consistent across these alternatives hold no significance in determining the optimal selection.

3. Distinguish between quantitative and qualitative factors in decision making.

Quantitative factors are those that can be measured and expressed in numerical terms. These factors are often objective and can be subjected to mathematical analysis. Examples of quantitative factors include financial metrics like costs, revenues, profits, and quantitative non-financial metrics like quantities, percentages, and time durations.

On the other hand, Qualitative factors are more subjective and cannot be easily quantified with numbers. These factors often involve the assessment of qualities, characteristics, opinions, and perceptions. Examples of qualitative factors include customer satisfaction, employee morale, brand reputation, and the overall organizational culture.

In summary, quantitative factors are measurable and lend themselves to numerical analysis, while qualitative factors are subjective and deal with qualities that are not easily reducible to numbers. Both types of factors play a crucial role in decision making, depending on the context and the nature of the decision being made.

4. Describe two potential problems that should be avoided in relevant-cost analysis.

1. Incomplete Fixed Cost Consideration: Avoid the mistake of excluding fixed costs from analysis, as they can impact decisions even when focusing on variable costs. For instance, ignoring facility rent or salaries can lead to an incomplete cost evaluation.

2. Ignoring Risk and Uncertainty: Relevant-cost analysis often assumes that all information is certain and predictable. However, real-world decisions are often influenced by risk and uncertainty. Ignoring potential risks and not factoring them into the analysis can result in poor decisions that leave the organization vulnerable to unexpected challenges.

5. "Variable costs are always relevant, and fixed costs are always irrelevant." Do you agree? Why?

No, the statement isn't accurate. The relevance of costs, whether variable or fixed, varies based on the context and decision being considered.

Variable costs are often relevant because they change with activity levels. However, fixed costs can also be relevant if they change due to different choices, impacting decisions like capacity planning or long-term strategies. The significance of costs hinges on how they fluctuate across alternatives and influence decisions.

6. "A component part should be purchased (instead of made internally) whenever the purchase price is less than its total manufacturing cost per unit." Do you agree? Why?

I don't completely agree.

While comparing purchase price and manufacturing cost is crucial, other factors like quality control, supply chain reliability, economies of scale, expertise, strategic considerations, and hidden costs must also be considered. The decision should be comprehensive and balanced to determine whether purchasing or internal manufacturing is the better option.

7. Define opportunity cost.

Opportunity cost is the value of the best alternative that is given up when a specific choice is made. It signifies the potential gains lost by not selecting an alternative option.

8. "A branch office or business segment that shows negative operating income should be shut down." Do you agree? Explain briefly.

I don't completely agree with this statement.

Negative operating income in a branch or segment doesn't necessarily warrant immediate closure. Several factors should be considered, such as the segment's strategic importance, potential for improvement, impact on the overall organization, and whether the negative income is due to short-term challenges or long-term viability issues. Decisions should be based on a comprehensive analysis rather than a sole focus on operating income.

9. International outsourcing.
A company manufactures tools in a factory in the United States. Recently, the company designed a collection of tools for professional use rather than consumer use. Management needs to make a good decision about whether to produce this line in their existing space in the United States, where space is available or to accept an offer from a manufacturer in Taiwan. Data concerning the decision are:

Expected annual sales of tools (in units)	800,000
Average selling price of tools	$12
Price quoted by Taiwanese company, in New Taiwanese Dollars (NTD)	175
Current exchange rate	35NTD = 1$
Variable manufacturing costs	$4.75 per unit
Incremental annual fixed manufacturing costs associated with the new product line	$400,000
Variable selling and distribution costs[a]	$1 per unit
Annual fixed selling and distribution costs[a]	$220,000

[a] Selling and distribution costs are the same regardless of whether the tools are manufactured in Maryland or imported.

A. Should the company manufacture the 800,000 tools in the United States facility or purchase them from the supplier in Taiwan? Explain.

Cost to Manufacture 800,000 tools:

1. In United States: ($4.75) (800,000) + $400,000 = $4,200,000
2. In Taiwan:
   Dollar conversion: 175/35 = $5
   Cost = ($5) (800,000) = $4,000,000

The company should purchase the 800,000 tools from Taiwan instead of manufacturing them in the United States, as the cost is less when purchasing from Taiwan when compared.

B. The company believes that the U.S. dollar may weaken in the coming months against the New Taiwanese Dollar and does not want to face any currency risk. Assume that the company can enter into a forward contract today to purchase 175 NTD for $5.35. Should the company manufacture the 800,000 tools in the United States facility or purchase them from the Taiwan supplier? Explain.

Cost to Manufacture 800,000 tools:

1. In United States: ($4.75) (800,000) + $400,000 = $4,200,000
2. In Taiwan:
   Dollar rate: $5.35
   Cost = ($5.35) (800,000) = $4,280,000

In this case, the company should manufacture the tools in the United States instead of purchasing them from Taiwan, as the cost is less to manufacture in United States when compared.

C. What are some of the qualitative factors that the company should consider when deciding whether to outsource the tools manufacturing to Taiwan?

Qualitative factors that the company should consider when deciding whether to outsource the tools manufacturing to Taiwan:

1. Quality of the tools
2. Time for delivery
3. Dollar Conversion Rate

10. Relevant costs and opportunity costs.
A company must decide when to release the new version of its product, Version 2.0. Development of Version 2.0 is complete; however, the components of Version 2.0 have not yet been produced. Version 2.0 can be shipped starting July 1.

The major problem is that the company has overstocked the previous version of its product, Version 1.0. The company knows that once Version 2.0 is introduced, the company will not be able to sell any more units of Version 1.0. Rather than just throwing away the inventory of Version 1.0, the company is wondering if it might be better to continue to sell Version 1.0 for the next three months and introduce Version 2.0 on October 1, when the inventory of Version 1.0 will be sold out.

The following information is available:

	Version 1.0	Version 2.0
Selling price	**$165**	**$215**
Variable cost per unit of components	**$24**	**$38**
Development cost per unit	**$60**	**$95**
Marketing and administrative cost per unit	**$31**	**$41**
Total cost per unit	**$115**	**$174**
Operating income per unit	**$50**	**$41**

Development cost per unit for each product equals the total costs of developing the product divided by the anticipated unit sales over the life of the product. Marketing and administrative costs are fixed costs, incurred to support all marketing and administrative activities of the company. Marketing and administrative costs are allocated to products on the basis of the budgeted revenues of each product. The preceding unit costs assume Version 2.0 will be introduced on October 1.

Required:

A. On the basis of financial considerations alone, should the company introduce Version 2.0 on July 1 or wait until October 1?

Based on the analysis, Version 2.0 presents a more favorable relevant operating income compared to Version 1.0, indicating that it should be promptly introduced:

In the comparison of Version 1.0 and Version 2.0, the relevant financial data stands as follows:
Relevant revenues: Version 1.0 - $165, Version 2.0 - $215
Relevant costs (specifically, components): Version 1.0 - $0, Version 2.0 - $38
Relevant operating income: Version 1.0 - $165, Version 2.0 - $177
The rationale for deeming other cost elements as irrelevant is as follows:

For Version 1.0:
Components cost: Already incurred and considered a sunk cost.
Development costs: Already incurred and treated as a sunk cost.

Marketing and administrative costs: If paid, they have no impact on future decisions (sunk cost). Whether paid or not, these costs remain the same for both alternatives (introducing Version 2.0 on July 1 or October 1).

For Version 2.0:
Development costs: Already incurred and viewed as a sunk cost.
Marketing and administrative costs: If already paid, they do not influence future decisions (sunk cost). Regardless of payment status, these costs remain constant for both alternatives (introducing Version 2.0 on July 1 or October 1).

B. What qualitative factors might the company consider in making a decision?

There are several qualitative factors that the company should consider when making its decision:

Customer Satisfaction: It's essential to consider how Version 2.0 will impact customer satisfaction. If it significantly improves the customer experience compared to Version 1.0, a customer-centric company may prioritize its immediate introduction. However, this should be weighed against other factors.

Quality Assurance: The quality of Version 2.0 is crucial. It should undergo rigorous testing to ensure it meets market standards. An immediate release should only be considered if Version 2.0 passes all quality assessments and is deemed "market ready."

Market Leadership: The company should assess the importance of being perceived as a market leader. Being the first to introduce a new product can provide a "first-mover advantage," allowing the company to capture a substantial market share early on. This advantage may also result in future customers favoring Version 2.0. Additionally, launching Version 2.0 earlier allows for quick user feedback, aiding further product refinement ahead of competitors. Early adoption may also increase the likelihood of these customers purchasing future upgrades of Version 2.0.

In summary, while financial considerations are crucial, these qualitative factors can significantly influence the decision-making process and should not be overlooked.

11. Closing down divisions.
A corporation has four operating divisions. The budgeted revenues and expenses for each division for the year follows:

	Division			
	A	B	C	D
Sales	$504,000	$ 948,000	$960,000	$1,240,000
Cost of goods sold	440,000	930,000	765,000	925,000
Selling, general, and administrative expenses	96,000	202,500	144,000	210,000
Operating income/loss	$ (32,000)	$(184,500)	$ 51,000	$ 105,000

Further analysis of costs reveals the following percentages of variable costs in each division:

Cost of goods sold	90%	80%	90%	85%
Selling, general, and administrative expenses	50%	50%	60%	60%

Closing down any division would result in savings of 40% of the fixed costs of that division.

Top management is very concerned about the unprofitable divisions (A and B) and is considering closing them for the year.

Required:
1. Calculate the increase or decrease in operating income if the corporation closes division A.
2. Calculate the increase or decrease in operating income if the corporation closes division B.
3. What other factors should the top management of the corporation consider before making a decision?

	Division A	Division B
Sales	$504,000	$948,000
Variable costs of goods sold. ($440,000 × 0.90; $930,000 × 0.80)	396,000	744,000
Variable S, G & A ($96,000 × 0.50; $202,500 × 0.50)	48,000	101,250
Total variable costs	444,000	845,250
Contribution margin	$ 60,000	$102,750

	Division A	Division B
Fixed costs of goods sold. ($440,000 × 0.10; $930,000 × 0.20)	$ 44,000	$186,000
Fixed S, G & A ($96,000 × 0.50; $202,500 × 0.50)	48,000	101,250
Total fixed costs	$ 92,000	$287,250
Fixed costs savings if shutdown ($92,000 × 0.40; $287,250 × 0.40)	$ 36,800	$114,900

In Division A, the contribution margin of $60,000 is more than enough to cover its avoidable fixed costs of $36,800. The surplus of $23,200 contributes to offsetting the company's unavoidable fixed costs. Since $36,800 of Division A's fixed costs can be avoided, the remaining $55,200 ($92,000 - $36,800) is considered unavoidable and will be incurred regardless of whether Division A continues to operate. The $32,000 loss in Division A accounts for the remaining portion of the unavoidable fixed costs ($55,200 - $23,200). If Division A is shut down, the other divisions will have to generate adequate profits to cover the entire $55,200 in unavoidable fixed costs. Therefore, it is advisable not to close Division A because it assists in covering $23,200 of this cost.

In the case of Division B, it generates a positive contribution margin of $102,750 but is burdened with $114,900 in avoidable fixed costs. From a purely financial standpoint, it is recommended to close Division B because doing so would result in cost savings of $12,150 ($114,900 - $102,750). Division B is currently incurring $114,900 in fixed costs that could have been avoided, while only earning $102,750 in contribution margin.

Alternatively,

	Division A	Division B
Total variable costs	$444,000	$845,250
Avoidable fixed costs if shutdown	36,800	114,900
Total cost savings if shutdown	480,800	960,150
Loss of revenues if shutdown	(504,000)	(948,000)
Cost savings minus loss of revenues	$ (23,200)	$ 12,150

Division A should remain operational because the loss of revenues resulting from its shutdown outweighs the cost savings, with a net difference of $23,200. On the other hand, Division B should be closed since the cost savings from its closure surpass the loss of revenues, with a net advantage of $12,150.

Solution (3):

Prior to making the decision to shut down Division B, management should consider the significance of Division B's product line in comparison to other product lines. For instance, if the products produced by Division B serve as a draw for customers to the company, discontinuing Division B could potentially harm the revenues of the remaining divisions. Additionally, management should consider the potential impact on the morale of the remaining employees if Division B is closed. Talented employees may become apprehensive about job security and start looking for employment elsewhere.