

Operating budgets: bridging planning and control solutions

[Business](#)



Operating budgets: bridging planning and control solutions Review Questions

1. A plan for using limited resources. 2.

Firms budget for (1) planning, (2) coordination, and (3) control (performance evaluation and feedback). 3. Operating budgets reflect the collective expression of numerous short-term decisions that conform to the direction set by long-term plans. Financial budgets quantify the outcomes of operating budgets in summary financial statements. 4. The revenue budget.

Organizations begin with the revenue budget because it is the first line on the income statement. Additionally, organizations begin with the revenue budget because revenues dictate the volume of operations which, in turn, drive many costs such as those related to materials and labor. 5. The production budget. 6. The budgets for materials, labor, and overhead.

7. $\text{Cost of goods sold} = \text{Cost of beginning finished goods inventory} + \text{cost of goods manufactured} - \text{cost of ending finished goods inventory}$. 8. The cash budget is important for managing a firm's working capital. It allows companies to determine whether they will have enough money on hand to sustain projected operations. 9.

1) Inflows from operations, (2) outflows from operations, and (3) special items. 10. Because most businesses offer credit terms to their customers – as such, they receive cash a few days, weeks, or months after the sale occurs. Moreover, a firm's credit policy affects the timing and amount of cash flows. 11.

(1) Purchases of direct materials, (2) payments for labor, (3) expenditures on manufacturing overhead, and (4) outflows for marketing and administration costs. 12. Some examples include the purchase or sale of equipment, the purchase or sale of stock, and the payment of dividends. 3. A responsibility center is an organizational subunit. There are three types of responsibility centers: (1) cost centers, (2) profit centers, and (3) investment centers.

14. Top-down is more of an authoritative approach, whereas a bottom-up approach is more participative, encouraging organization-wide input into the budgeting process. 15. An incremental approach to budgeting can be useful as past trends may help with future projections. It is pragmatic, as it focuses attention on making changes to the previous year's budget based on actual performance and new information.

Finally, incremental changes are easier to justify and communicate – it is human nature to compare performance across people and periods.

Discussion questions 16. The span of the operation often determines the need for a formal budget. It is easier to plan and keep track of what is happening if the operation is small enough. As the business expands to a point where it is difficult one person can oversee the whole operation and multiple people have to make decisions with respect to different aspects of the business, planning and coordination become necessary. Moreover, how can the owner of this expanding business ensure that all other employees making the various decisions are in fact making them as he would make them? Some control also becomes necessary! Budgets serve these purposes.

17. Yes, this is in general a true statement. Having a formal written document that different decision units commit to is the most efficient of ensuring that there is proper coordination and there is goal congruence across these units. 18. It is true that there is always likely to some deviation from what is expected. But, deviations can occur because of factors outside decision makers' control, and there is not much one can do to avoid these chance deviations.

Deviations can also occur because the organizational actions and decisions are not in line with what they were expected to do. By providing a baseline for comparison, budgets allow us to measure and analyze these deviations so that corrective actions can be taken when necessary. 19. If budgets can be used to create the right organizational incentives, and all decision makers in the organizations are motivated to do the right thing, then close supervision may not be necessary. However, as discussed in the chapter, budgets cannot be a perfect substitute for supervision monitoring because they are susceptible to game-playing; no budget can be perfect when it comes to setting the right incentives.

Some supervision and monitoring is always beneficial. 20. Budgets play a limited role as a benchmark for performance evaluation in settings where forecasting is difficult and there is a high level of inherent uncertainty. However, it is better to have rough budgets than no budgets at all, and supplement budgets with other monitoring mechanisms such as close supervision. 21. Depending on the size of the organization and the number of

products it offers, forecasting sales is a difficult exercise because it requires careful examination of market conditions and trends.

Inaccurate sales forecasts can throw the entire planning process out of gear. So, many organizations devote a lot of time to develop dependable sales forecasts. Estimating overheads is also difficult especially in large organizations because there are multiple drivers of overhead. Identifying the right drivers and estimating the precise relations between the overhead and its drivers is a difficult but an important step in the budgeting process. 2.

Just-in-system is often referred to as a “ pull” system because an order from a customer triggers all the production and procurement activities. The idea is to carry no inventory in the system, but respond to demand quickly by achieving by coordinating all necessary activities smoothly. To the extent a perfect pull system can be achieved there are minimal inventory budgets that reconcile the difference between sales and production. Similarly, there are minimal raw and work-in-process inventories that account for the difference between material purchase and use. 23. The budgeting process is time consuming in most organizations.

Some large organizations are known to start their budgeting process six months ahead of time. The benefit of going through several iterations is that budgets become more accurate, serve as better benchmarks to evaluate performance, and there is better coordination across the organization because everybody is aware of what is in it. The cost is that it takes time and effort. 24. Both the cash budget and cash flow statement reconcile the cash

position of a company at the beginning of a period to the cash position at the end of the period.

But there are many differences. First, the cash flow statement is prepared at the end of the period, and reports past cash inflows and outflows. Second, the cash flow statement reports cash flows associated with investing, financing, and operating decisions of the firm. On the other hand, a cash flow budget presents a plan of cash inflows and outflows at a more detailed level, such as when and how much cash is expected from customers, when cash is to be paid to suppliers, and working capital requirements. 5. Some believe that budgets promote a financial emphasis in organizations.

It is true that budgets are mostly financial plans of organizational activities. The reason for this is that ultimately the performance of a company is judged in terms of the financial returns it generates for its shareholders. But budgets need not necessarily be restricted to financial measures. Many firms are now benchmarking key non-financial measures to ensure organizational success. 26.

Both lines of reasoning have merit. For growth companies, it is often difficult to develop precise budgets because of the difficulty in forecasting outcomes from research and development and other growth activities. Moreover, rigid budgets are often said to stifle innovation and growth by not giving enough room to exercise discretion to seize opportunities in a timely fashion. On the other hand, budgets that allow discretion are also subject to misuse because formal control is difficult. Often more informal control mechanisms and closer

supervision are needed to achieve a measure of control in such organizations.

7. The advantages of participative budgeting include benefiting of the expertise and knowledge of employees in all levels of the organization by involving them in the budgeting process, promoting a sense of ownership and empowerment among all employees, ensuring that everybody buys into the budget so that implementation is smooth, better communication and coordination. The disadvantages are that participative budgeting is time consuming, and can lead to conflicts and disagreements that are hard to resolve (as the saying goes — “ too many cooks spoil the broth! “). 8. Top-down budgeting is preferable when decisions need to be taken quickly, and time is of essence.

Top-down budgeting is most suitable in smaller organizations with a narrow and manageable range of products and services, and centralized decision making. In these settings, top managers are likely to possess detailed enough information for budgeting purposes. 29. Line-item budgeting is a term used to refer to budgets that are built line-item by line-item. Usually, budget for line-item cannot be used for another line item even if there is still some money left in it.

In the government, for example, each line item in the budget represents a certain use of public money such as road construction, maintenance of public buildings, parks, medical care, public security etc. The reason for not allowing appropriation of funds set aside for one line-item for another purpose is to ensure the no public good or service is left underfunded.

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000 | 176, 700 | | June | 3, 000 | 3, 225 | | 180, 000 | 183, 825 | | July | 3, 100 | 3, 350 | | 186, 000 | 190, 950 | | August | 3, 200 | 3, 475 | | 192, 000 | 198, 075 | | September | 3, 050 | 3, 325 | | 183, 000 | 189, 525 | | October | 2, 900 | 3, 175 | | 174, 000 | 180, 975 | | November | 2, 750 | 3, 025 | | 165, 000 | 172, 425 | | December | 2, 600 | 2, 875 | | 156, 000 | 163, 875 | | Totals | 34, 100 | 36, 700 | | \$2, 046, 000 | \$2, 091, 900 | We see that pricing at \$57 maximizes Premium's revenues. Even though the company receives a smaller amount for each Window, the increased volume compensates for the lower price. b.

Perhaps the most important factor to consider is cost – after all, Premium is interested in maximizing profit, not just revenues. Pricing its product at \$57, Premium will be selling additional 2, 600 windows (36, 700 – 34, 100) over the course of the year. However, reducing the price will not increase profit unless the additional costs of producing and selling the extra windows are less than \$45, 900 (= \$2, 091, 900 – \$2, 046, 000) or about $\$45, 900 / 2, 600 = \17.65 per window. Along these lines, Premium must consider whether it has enough capacity to produce the higher volume, and if the higher volume might add to congestion in the factory.

Premium also needs to consider the accuracy of its demand forecasts and whether a price cut would adversely affect the perceived quality of its product. Finally, Premium needs to consider what its competitors will do in terms of their pricing strategy – if competitors also reduce their prices, Premium may not enjoy the increase in forecasted demand. 33. We can apply the inventory equation to find the missing data, as follows: Number of

Windows | April | September | December | | Desired ending inventory | 1, 800
 | 2, 000 | 3, 200 | |+ Budgeted sales | 10, 000 | 15, 000 | 20, 000 | |= Total
 requirements | 11, 800 | 17, 000 | 23, 200 | |- Beginning inventory | 1, 200 |
 3, 000 | 2, 200 | |= Budgeted production | 10, 600 | 14, 000 | 21, 000 | In
 each instance, we perform the suitable arithmetic to rearrange the terms
 and solve for the required item. 34. To begin, we know that: Beginning
 inventory (March) = Ending inventory (February) and, Desired ending
 inventory (February) = 15% of March sales.

= 0. 15 ? 15, 000 = 2, 250. With this step, we can fill in the table partially:
 Number of Windows | February | March | April | | Desired ending inventory* |
 2, 250 | 3, 000 | 3, 000 | |+ Budgeted sales | 10, 000 | 15, 000 | 20, 000 | |=
 Total requirements | 12, 250 | 18, 000 | 23, 000 | |- Beginning inventory** | 1,
 500 | 2, 250 | 3, 000 | |= Budgeted production | ? | ? | ? | * 2, 250 = 0. 15 ? 15,
 000; 3, 000 = 0. 15 ? 20, 000 ** Beginning inventory (March) = Ending
 inventory (February). We then use the inventory equation to fill in the
 missing data, as follows: Number of Windows | February | March | April | |
 Desired ending inventory | 2, 250 | 3, 000 | 3, 000 | |+ Budgeted sales | 10,
 000 | 15, 000 | 20, 000 | |= Total requirements | 12, 250 | 18, 000 | 23, 000 |
 |- Beginning inventory | 1, 500 | 2, 250 | 3, 000 | |= Budgeted production |
 10, 750 | 15, 750 | 20, 000 | In each instance, we perform the suitable
 arithmetic to rearrange the terms and solve for the required item.

In particular, we first solve for February ending inventory and February
 production. In turn, this gives us the Beginning inventory for March. We
 repeat the process for March to get March production, and so on. 35. a. The

following table provides the required revenue budget, and income statement.

	August	September	October	November
Individuals	700	690	680	675
Family memberships	300	300	295	290
Revenue - Individual	\$ 70,000	\$ 69,000	\$ 68,000	\$ 67,500
Revenue - Family	\$ 48,000	\$ 48,000	\$ 47,200	\$ 46,400
Total Revenue	\$ 118,000	\$ 117,000	\$ 115,200	\$ 113,900
Variable cost - Individual	\$ 24,500	\$ 24,150	\$ 23,800	\$ 23,625
Variable cost - Family	\$ 18,000	\$ 18,000	\$ 17,700	\$ 17,400
Contribution margin	\$ 75,500	\$ 74,850	\$ 73,700	\$ 72,875
Fixed cost	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000
Profit before taxes	\$ 35,500	\$ 34,850	\$ 33,700	\$ 32,875

1\$70,000 = 700 ? 100; \$48,000 = 300 ? \$160; \$24,500 = 700 ? \$35; \$18,000 = 300 ? \$60. b. The following table provides the required revenue budget, and income statement.

	August	September	October	November
Individuals	700	700	690	685
Family memberships	300	305	300	295
Revenue - Individual	\$70,000	\$70,000	\$69,000	\$68,500
Revenue - Family	48,000	48,800	48,000	47,200
Total Revenue	\$118,000	\$118,800	\$117,000	\$115,700
Variable cost - Individual	\$24,500	\$24,500	\$24,150	\$23,975
Variable cost - Family	18,000	18,300	18,000	17,700
Contribution margin	\$75,500	\$76,000	\$74,850	\$74,025
Fixed cost	40,000	40,000	40,000	40,000
Ad campaign	10,000			
Profit before taxes	\$35,500	\$26,000	\$34,850	\$34,025

c. Based on the above, it would appear that profits have decreased. Based on projection in part , Hercules expected to earn \$136,925 (= \$35,500 + \$34,850 + \$33,700 + \$32,875).

The projection in part [b] shows a cumulative profit of \$130,375 (= \$35,500 + \$26,000 + \$34,850 + \$34,025) only, a decrease of about \$6,550.

However, we cannot conclude that the ad campaign is a bad idea. This is because the new members will continue to benefit Hercules in the future as well (but not indefinitely). Suppose that the average new membership is for 12 months. Then, the expected benefit from the campaign is 12 months ? [10 individuals ? (\$100-\$35) + 5 families? (\$160 -\$60)] = \$13,800, which exceeds the cost of the ad campaign.

Note: Firms develop “ life-cycle” models to account for such future effects. Such models are crucial in service firms such as cable operators and wireless providers who expect to get a continuing stream of revenue from each new customer. Thus, these firms are willing to take a “ loss” in the first few months by spending a lot to get new customers. 36. The following table provides the required information. Notice the use of the inventory equation to back out the amount of purchases.

	August	September	October	
Individuals	700	690	680	
Family memberships	300	300	295	
Supplies needed	13,600	13,500	13,290	
Ending inventory	5,000	4,500	4,500	= Total needed
	18,000	17,790		
-Beginning inventory	5,000	5,000	4,500	=
Purchases	\$13,600	\$13,000	\$13,290	13,600 = 700 ? 10 + 300 ? 22.

Notice that the beginning inventory in September is the ending inventory in August. We also calculate supplies needed as # of individual memberships ? \$10 + # of family memberships ? \$22. Finally, notice that we cannot

compute the purchases in November because we do not know the required ending inventory. 37.

Let us begin by calculating the operating cash flow. | Item | Detail |
 September | | Individual fees $[(690-180) \times \$100]$ | \$51, 000 | | Family $[(300 - 60) \times 160]$ | 38, 400 | | Prepaid (individual) $[(180/12) \times (12 \times 100 \times 90\%)]$ | 16, 200 | | Prepaid (family) $[(60/12) \times (12 \times 160 \times 90\%)]$ | 8, 640 | | Total inflows | | \$114, 240 | | | | | Purchase (current) | $0.6 \times \$13, 000$ | \$ 7, 800 | | Purchases (prior) | $0.4 \times \$13, 600$ | 5, 440 | | Variable costs $[(690 \times \$25) + (300 \times 45)]$ | 30, 750 | | Fixed costs | \$41, 000 - \$12, 500 | 28, 500 | | Total outflows | | \$72, 490 | | | | | Operating cash flow | | \$41, 750 | We can now prepare the cash budget. | Item | September | | Beginning balance | \$ 6, 000 | | Operating cash flow | 41, 750 | | Special items – equipment | (20, 000) | | Amount taken out | (15, 000) | | Ending balance | \$12, 750 | 38.

This exercise is “tricky” in the sense that we cannot directly apply the inventory equation to the new sales projection for April. This is because we do not know the original or revised sales for April. However, we know the original production for April. Using this data, we can back out the original sales as 113, 000 units (as shown in the table below). The revised sales therefore = 90% of 113, 000 = 101, 700 units. We could then back out the revised production for April as 106, 500 units.

Notice that there is no change in the beginning inventory for April. This is because March is almost over and Gantz would have already built up inventory as per the original budget. However, because May’s estimates are down 10%, the desired ending inventory for April would be down 10%, from <https://assignbuster.com/operating-budgets-bridging-planning-and-control-solutions/>

22, 000 to 19, 800. | April (old) | April (new) | | Desired ending inventory | 22, 000 | 0. 9 ? 22, 000 = 19, 800 | |+ Budgeted sales | 113, 000 | 0.

9 ? 113, 000 = 101, 700 | |= Total requirements | 135, 000 | 121, 500 | |- Beginning inventory | 15, 000 | 15, 000 | |= Budgeted production | 120, 000 | 106, 500 | 113, 000 = 120, 000 + 15, 000 - 22, 000. 39. The key point in this problem is that we have to perform the calculations separately for each type of box (although we use the same inventory equation for all boxes).

Additionally, it's important to remember that the ending inventory for any one month equals the beginning inventory of the following month – thus, we can calculate the beginning inventory for March as 20% of March's sales (which is the ending inventory of February). Small boxes: | | March | April | | Desired ending inventory | 3, 000 | 4, 000 | |= (.

20 ? ext month's sales) | | |+ Budgeted sales | 10, 000 | 15, 000 | |= Total Requirements | 13, 000 | 19, 000 | |- Beginning inventory | 2, 000 | 3, 000 | | = (. 20 ? current month's sales) | | |= Budgeted production | 11, 000 | 16, 000 | | | | Revenue budget (= Sales ? \$2. 75) | \$27, 500 | \$41, 250 |

Medium boxes: | | March | April | | Desired ending inventory | 6, 000 | 8, 000 | |= (. 20 ? ext month's sales) | | |+ Budgeted sales | 25, 000 | 30, 000 | |= Total requirements | 31, 000 | 38, 000 | |- Beginning inventory | 5, 000 | 6, 000 | |= (. 20 ? current month's sales) | | |= Budgeted production | 26, 000 | 32, 000 | | | | Revenue Budget (= Sales ? \$3. 75) | \$93, 750 | \$112, 500 |

Large boxes: | | March | April | | Desired ending inventory | 4, 000 | 5, 000 | | = (.

20 ? ext month's sales) | | | |+ Budgeted sales | 15, 000 | 20, 000 | |= Total requirements | 19, 000 | 25, 000 | |- Beginning inventory | 3, 000 | 4, 000 | |= (. 20 ? current month's sales) | | | |= Budgeted production | 16, 000 | 21, 000 | | | | | Revenue Budget (= Sales ? \$5. 0) | \$75, 000 | \$100, 000 | 40. a. Once again, we apply the inventory equation to solve this problem.

Using the information provided, we have (units in linear feet): | | March | Detail | | Desired ending inventory | 75, 840 | 40% of April needs = 0. 40 ? 15, 800 | |(in linear feet) | | boxes ? 12 feet/box. | |+ Needed for production | 144, 000 | 12, 000 boxes to be produced ? 12 | | | | feet/box. |= Total requirements | 219, 840 | | |- Beginning inventory | 50, 000 | Given | |= Budgeted purchases | 169, 840 | | |(linear feet) | | | | | | Purchases budget = | | | | budgeted purchases ? \$0. 75 per foot | \$127, 380 | | b. Bosworth would use 144, 000 linear feet of cardboard strips to produce the boxes.

The total materials cost = 144, 000 ? \$0. 75 = \$108, 000. An inventory cost flow assumption is not required in this instance because the entire inventory (beginning inventory plus purchases) is valued at \$0. 75 per linear foot. c.

Because Bosworth has different layers of inventory with differing prices, the cost flow assumption now becomes important. With FIFO, the firm will consume the oldest layer first before consuming purchases. Thus, we have:
 From beginning inventory 50, 000 linear feet @ \$0. 70/ft \$35, 000
 From March purchases 94, 000* linear feet @ \$0. 75/ft \$70, 500
 Total materials cost \$105, 500
 94, 000 = 144, 000 - 50, 000
 Notice that the cost of materials usage has decreased. Why? Under the FIFO cost flow assumption used by Bosworth, the materials in beginning inventory will be used up first.

Bosworth's beginning inventory is valued at \$35,000. That difference of \$2,500 (50,000 linear feet \times 0.05/ft) causes the cost of material usage to decrease. Note: The usage budget for March would not change if Bosworth uses the LIFO method. The firm would not be dipping into the layer of beginning inventory, meaning that all 144,000 linear feet used would be valued at \$0.

75 per foot. 41. We compute budgeted cash inflows using the following table:

	November	December	
Revenues	\$135,000	\$150,000	
Cash collections from current revenues	40,500	45,000	
Cash collected one month later	56,000	54,000	
Cash collected two months later	33,750	35,000	
Cash collected three months later	6,000	6,750	
Total Cash Collections	\$136,250	\$140,750	

Notice that the collections for November include 30% of November sales (0.30 \times \$135,000), 40% of October sales (0.40 \times \$140,000), 25% of September sales (0.

25 \times \$135,000), and 5% of August sales (0.05 \times \$120,000). We need to stagger sales in this fashion because it takes Bruce 3+ months to collect cash from his sales.

42. As with the prior problem (which deals with receivables), it is most convenient to calculate Bruce's cash outflows using a table such as the following:

	October	November	December	
Purchases	120,000	110,000	120,000	
Cash payment for current purchases	\$72,000	\$66,000	\$72,000	
Cash payment for prior month purchase	28,500	36,000	33,000	
Cash payment for purchases made 2 months ago	9,000	9,500	12,000	
Total Cash Outflow	\$109,500	\$111,500	\$117,	

000 | Notice that the total cash outflow for December includes payments for December purchases (0.

60 ? 120, 000), for November purchases (0. 30 ? 110, 000), and for October purchases (0. 10 ? 120, 000). We compute the cash outflows for October and November in a similar fashion. 43. The following items pertain to October, and illustrate the logic for the cash budget.

1. Total cash available = beginning balance + receipts = \$9, 500 + \$14, 100 = \$23, 600. 2. Total disbursement = Sum of payments for materials, labor and overhead. Backing out the numbers, for the payments for overhead we have \$18, 300 - \$4, 400 - \$8, 450 = \$5, 450 3. Balance prior to financing = total available - total payments (or, disbursements).

Thus, \$23, 600 - \$18, 300 = \$5, 300. 4. Borrowing needed (if any) = Minimum balance - balance prior to financing. 5. Ending balance (October) =

Beginning balance (November) The following table provides the completed

Cash Budget - Fourth Quarter	October	November	December
Beginning cash balance	\$9, 500	\$9, 500	\$9, 500
Cash receipts	14, 100	17, 900	18, 400
Total cash available	\$23, 600	\$27, 400	\$27, 900
Cash disbursements			
Payments for materials	4, 400	3, 630	4, 100
Payments for labor	8, 450	7, 250	7, 210
Payments for overhead	5, 450	5, 920	5, 720
Total disbursements	18, 300	16, 800	17, 030
Balance prior to financing	5, 300	10, 600	10, 870
Minimum cash balance	9, 500	9, 500	9, 500
Financing			
Borrowing/(repayment)	4, 200	(1, 100)	(1, 370)
Ending cash balance			

\$9,500 | \$9,500 | \$9,500 | The firm's ending loan balance is therefore \$4,200 - \$1,100 - \$1,370 = \$1,730.

44. The following table provides Gilbert's cash budget for November and December.

	November	December
Opening balance of cash	\$16,000	\$27,000
+ Receipts from current sales (70% of current revenues)	35,000	42,000
+ Receipts from prior month sales (30% of prior month revenues)	12,000	15,000
= Total available	\$63,000	\$84,000
- Purchase cost (= COGS = 60% of revenues)	30,000	36,000
- Marketing and admin. expenses	6,000	5,000
Ending balance of cash	\$27,000	\$43,000

Notice that Gilbert's November collections include 70% of November sales (\$35,000) and 30% of October sales (\$12,000). Based on our analysis, it appears that Gilbert will have plenty of cash on hand and, thus, will not need to borrow money. 45.

a. We can do this problem in two ways. The short method is to recognize that Kris would have collected all of her sales for March and April by May 31. She also would have collected 50% of May sales in May. Thus, her accounts receivable would be 50% of May sales or \$23,000 (= \$46,000 ? 0.

50). The longer method is to write down her accounts receivable, using a format similar to that for inventory accounts. We have:

	April	May
Opening balance for receivables	\$25,000	\$20,000
+ Current sales	40,000	46,000
= Total collectible	\$65,000	\$66,000
- Collections for prior month	25,000	20,000
- Collections for current month	20,000	23,000
Closing balance for receivables	\$20,000	\$23,000

b. Again, we can do this problem in two ways. The short method is to recognize that Kris

would have paid for all of her purchases in March and April by May 31. She also would have paid for 80% of purchases in May.

Thus, her accounts payable would be 20% of May purchases or $0.20 \times \$40,000 = \$8,000$. The longer method is to write down her accounts payable, using a format similar to that for inventory accounts. We have:

	April	May
Opening balance for payables	\$6,000	\$6,400
+ Current purchases	32,000	40,000
= Total payable	38,000	46,400
- Payments for prior month	6,000	6,400
- Payments for current month	25,600	32,000
Closing balance for payables	\$6,400	\$8,000

46. This is an open-ended question with many possible views on the Wilma's best course of action.

We summarize some possible arguments below. Some might argue that Wilma should follow Scott and Jake's lead and pad her budget as well. The problem appears to be very rigid standards and a formulaic approach to incentive compensation. The founder's approach, some may argue, leaves the managers no choice, but to build in some cushion. Indeed, we might justify Jake's actions as beneficial in the long term, although we only have his word that the cushion is for long-term improvements.

Some might question Scott's "excessive" low-balling, although how much is "OK" and how much is "excessive" is not resolved easily. At the other extreme, clearly the firm's plans contain information known to be false.

Ethical standards for accounting professionals preclude Wilma from knowingly compromising the integrity of information. Thus, she might have no choice but to try and rectify the situation as much as possible. Doing so, however, might pit her against the other managers, limiting her

effectiveness. Overall, a pragmatic approach might involve attempting to educate the owner about the pitfalls of his methods.

Indeed, Wilma might find that Roy is well aware of the padding by his managers and that this is the 'game' that all in the firm agree to (implicitly). In this case, Wilma's conscience is clear and, in our opinion, she would comply with accounting standards as well. Thus, our recommendation is for Wilma to speak with Roy and feel him out on his views about budget padding before taking the next step. 47. This question is likely to provoke a range of answers.

Clearly, the manager experienced an unfavorable and uncontrollable event. Yet, should Carrie revise the budget? We see the issue as two separate problems. The first is a planning problem in terms of scheduling production, ordering materials, and so on. Naturally, the firm should take the latest information into account for such decisions. The second problem is whether the manager's performance targets should be changed. One could argue either for or against a change - we are inclined to not change the performance targets in this instance.

First, as Carrie notes, a change requires that she define a 'big' event, and this is a slippery slope. It would not be long before any adverse event triggered a request for a target reset. Second, good managers are supposed to deal with risk. Insulating them against risk defeats the purpose. Third, managers often are very innovative when their back is against the wall.

This event might spur management into un-chartered territory. And, the final argument is “ will the manager ask for a target reset if the fire were in a competitor’s plant? ” Problems 48. a. BlueSteel appears to have enough capacity to meet its annual sales forecast. Annual sales are 112, 500 units (24, 000 + 28, 500 + 33, 000 + 27, 000) and the firm has installed capacity for 120, 000 units (12 months ? 10, 000 units per month). b.

Clearly, BlueSteel needs to build up inventory to meet the demand surge in Q3. BlueSteel could do this by building up inventory in Q1 and Q2. The company would need to begin in Q1 because there is limited excess capacity in Q2 – the excess capacity in Q2 is not enough to make the extra units to meet the demand for Q3. The following table illustrates one possible production schedule that enables the firm to meet its sales forecast. |

Quarter 1	Quarter 2	Quarter 3	Quarter 4	Sales for quarter
24, 000	28, 500	33, 000	27, 000	24, 000
25, 500	30, 000	30, 000	27, 000	28, 500
1, 500	3, 000	0	0	33, 000
				27, 000

In reality, the firm might wish to build up more inventory in Q1 so that the factory has some slack in Q2 and Q3 to deal with unanticipated problems.

Another alternative is to produce something like 28, 500; 28, 500; 28, 500, 27, 000 cabinets in the four quarters. This schedule smoothes out production (from a hiring standpoint), leaves some additional capacity in Q2 and Q3 if needed, and lightens a bit in Q4, perhaps for additional maintenance, and to secure desired year-end inventory. c. The CEO’s basic approach appears to be sound. Modern management practice is to limit the amount of inventory as much as possible. Such curtailing of capacity has several advantages.

First, it reduces the capital tied up. Second, it reduces obsolescence. Third, a low inventory policy, if done in conjunction with suitable changes to production processes, could help the firm improve quality and increase responsiveness. However, the low inventory policy comes with a cost. For BlueSteel, a zero inventory policy would curtail Q3 sales to 30, 000 units. Other than building inventory, the only way to meet demand is by adding to capacity, which will increase capacity for all four quarters.

d. Inventory gives firms a way to “ move” capacity across periods, as shown in part [b]. However, such movement is costly because of storage costs and the cost of capital tied up in inventory, as well as intangible quality costs. The best solution is, of course, situation specific, but the problem highlights that holding inventory has both costs and benefits. 49.

It is convenient to compute Mina’s expected cash inflows using a table such as the following:

	October	November	December
Sales	\$164, 000	\$175, 000	\$190, 000
Cash from current sales	\$49, 200	\$52, 500	\$57, 000
Credit sales (current month)	35, 000	45, 920	49, 000
Credit (one month later)	33, 250	43, 750	57, 400
Credit (two months later)	4, 760	5, 320	7, 000
Total	\$122, 210	\$ 147, 490	\$170, 400

Thirty percent of Mina’s sales are made for cash, so the collections for October include 30% of October sales ($0.30 \times \$164, 000$). The remainder of 70% credit purchases for October is calculated as follows: 40% of the credit sales in September ($0.40 \times 0.70 \times \$125, 000$), 50% of the credit sales in August (0.50×0).

70 ? \$95, 000) and 8% of the credit sales in July (0. 08 ? 0. 70 ? 85, 000). We need to stagger sales in this fashion because Mina takes several months to collect cash from her sales. We compute the collections for November and December in a similar fashion.

Notice that Mina writing off 2% of her credit sales has no impact on her expected cash inflow. The write off would, however, reduce her balance of accounts receivable by increasing the balance of allowance for doubtful accounts (The other side of the entry is an expense in the income statement.

) 50. The numerical answer to this question is relatively straightforward.

Ashwini will commit \$150, 000 in April, \$185, 000 in May and \$210, 000 in June.

However, her bank statement will record a cash outflow equal to received items: \$150, 000 in May, \$185, 000 in June, and \$210, 000 in July. This discrepancy between committed outflows and actual outflows highlights two observations. First, we might have to pay for some purchases before we receive the items. Such arrangements are common in international settings, and in settings where the seller has a great deal of bargaining power.

Second, Ashwini's actual cash outflow (in the sense of an outflow from her bank account) would take place the same month she receives the items.

However, she needs to budget a bit differently because the bank would place a " hold" on the money.

This hold means that the money would not be available to Ashwini for other purposes. Thus, the problem emphasizes that cash budgets must include the commitment of cash, even if the actual outflow might take place later. We

often see this in purchase budgets that go into future months to show commitments triggered by current purchases. In cases like the one Ashwini faces, firms would often have a separate line item for committed funds that they would remove from available cash balances. Note: Ashwini's problem is similar, in principle, to depositing a check at a bank but not having access to the funds until the check clears. 51.

a. The following table provides Gary's income statement for October through December. In this statement, notice that the cost of purchases = 80% of sales. (Gary marks up \$1 of cost to \$1.25 in sales. So, \$1 in sales = \$1/1.25 = \$0.80 in cost.)

	October	November	December
Revenues	\$475,000	\$525,000	\$562,500
Purchases cost	380,000	420,000	450,000
Contribution Margin	\$95,000	\$105,000	\$112,500
Cash fixed costs	85,000	85,000	85,000
Non cash fixed costs	10,000	10,000	10,000
Profit before taxes	\$0	\$10,000	\$17,500

Overall, Gary appears to be running a profitable business, with breakeven sales of \$475,000. (Check: \$475,000 ? CMR of 20% - \$95,000 = 0). Thus, while Gary is at breakeven in October, he is well past the required volume in November and December.

b. The following table provides Gary's cash budget for October - December. In this statement, Collections - 1 month are the collections from prior month sales (e. g. , October = 0.

30 of September sales) and Collections - 2 months are the collections from sales 2 months ago (October = 0.70 ? August sales). Likewise, purchases - current month = 50% of current month purchases and purchases - 1 month

are 50% of the prior months purchases. | October | November | December | |
 Collections - 1 month | \$140, 625 | \$142, 500 | \$157, 500 | | Collections - 2
 months | 328, 125 | 328, 125 | 332, 500 | | Total cash available | \$468, 750 |
 \$470, 625 | \$490, 000 | | Purchase - current month | 190, 000 | 210, 000 |
 225, 000 | | Purchase month ago | 187, 500¹ | 190, 000² | 210, 000 | | Cash
 fixed costs | 85, 000 | 85, 000 | 85, 000 | | Net cash from operations | \$6, 250
 | (\$14, 375) | (\$30, 000) | | +opening balance | 5, 000 | 11, 250 | (3, 125) | | =
 Ending balance | \$11, 250 | (\$3, 125) | (\$33, 125) | | | | | | | | 1\$187, 500 = (468,
 750/1. 25) ? 0.

50. 2\$190, 000 = (475, 000/1. 25) ? 0. 50. Overall, Gary appears to be facing
 a cash crunch. Available cash dips from \$11, 250 in October to an
 anticipated shortfall of (\$33, 125) in December.

This occurs even though sales have increased in this time period. c. Gary's
 problem is common among firms which experience growth. In essence, Gary
 is pumping money into working capital because he is financing his
 customers' purchases. He is paying his suppliers faster than his customers
 are paying him. Thus, when his business grows, he has to put more money
 into the business.

We can see this by calculating that the accounts receivable at the start of
 October is \$796, 875 (= 70% of August sales + September sales), whereas it
 is \$930, 000 (= 70% of November sales + December sales) at the start of
 January next year. Gary needs to find ways to manage this imbalance. One
 avenue is to borrow, but he has to consider interest costs. The other avenue
 is to accelerate collections or defer payments, but then customers might cut

back on orders and suppliers might raise prices. Both actions are costly to Gary.

Gary would need to estimate his expected profit to evaluate each option. 52.

We know that the COGM is the outflow from the WIP inventory account.

Direct materials, direct labor, and overhead are the inflows into this account.

Applying the inventory equation then helps us fill in the required data.

Likewise, we know that the COGS is the cost of the items removed from

finished goods inventory. Thus, we can compute COGS by applying the

inventory equation to the FG inventory account. Notice that COGM is the

linking number between the two accounts. This amount is the outflow from

the WIP account and is the inflow into the FG account. Let us begin with the

WIP account.

We have:

	May	June
Opening WIP	\$180,000	\$275,500
+ Direct materials usage	250,000	280,000
+ Direct labor	265,500	345,000
+ Variable overhead	125,000	145,000
= Total inflow into WIP	820,500	1,045,500
- Variable cost of goods manufactured	545,000	574,000
= Ending WIP	\$275,500	\$471,500

Beginning with May, we apply the standard inventory equation to obtain ending inventory as \$275,500.

The ending inventory in May is the beginning inventory for June. This allows us to calculate the remaining “?” for June. Next, let us apply the inventory

	May	June
Opening FG	\$220,000	\$150,000
+ Cost of goods manufactured	545,000	574,000
= Cost of goods available for sale	765,000	724,000
- Cost of goods sold	615,000	\$499,000
= Ending FG inventory	\$150,000	\$225,000

Once

again, our computation uses the fact that the ending inventory in May = the beginning inventory in June.

53. This problem highlights the planning role for budgets. Let us first determine the variable and fixed costs corresponding to Naomi's operations.

Item	Detail	Current cost	Expected cost
Direct materials	\$480,000/120,000 units	\$4/unit	\$4.40/unit
Direct labor	\$720,000/120,000 units	\$6/unit	\$6.30/unit
Selling & Adm.			

	\$120,000/\$2.4 million	5% of sales	5% of sales	Fixed costs
Direct materials	\$528,000			
Direct labor	756,000			
Selling and administration	132,000			
Variable costs	\$1,416,000			
Revenues (120,000 units @ \$22)	\$2,640,000			
Contribution Margin	\$1,224,000			
Fixed costs		\$888,000		
Manufacturing		540,000		
Marketing and sales		120,000		
General administration		228,000		
Profit before taxes	\$336,000			
Return on sales (\$336,000/\$2,640,000)	12.73%			

Let us repeat the exercise with the lower-price, high-volume strategy. | Price = \$19 & Number of units sold = 175,000 | | Revenues (175,000 units @ \$19) | | \$3,325,000 | | Variable costs | | | | Direct materials | \$770,000 | | | Direct labor | 1,102,500 | | | Selling and administration | 166,250 | | \$2,038,750 | | Contribution Margin | | \$1,286,250 | | Fixed costs | | | | Manufacturing | \$540,000 | | | Marketing and sales | 120,000 | | | General administration | 228,000 | | \$888,000 | | Profit before taxes | | \$398,250

250 | | Return on sales | | 11. 98% | |(\$398, 250/\$3, 325, 000) | | | Both strategies meet Naomi's goals of increasing her profit and return on sales.

However, the two income statements conflict in terms of expected profit and expected profitability. The higher-price, lower volume strategy has lower profit but higher profitability. Naomi's choice therefore depends on her goals and the nature of the product market. In some instances, such as often occurs with premium products, it can make most sense to go for a high margin strategy, sacrificing volume. In other instances, such as with consumer goods, it might make more sense to lock up the market by going for sales growth. Regardless, projecting future income statements under alternate formats help firms put a number on the tradeoff and make a more informed choice.

In Naomi's case, she does not appear to have a sustainable competitive advantage for the types of products she offers (the barriers to entry are likely minimal) – thus, we would argue for setting a lower price and getting a larger share of the market. 54. The participative budget described here seems participative in name only. The goal for participative budgets is to take advantage of localized knowledge that operating personnel possess. In virtually every instance, the participative input is subject to oversight and discussion.

Some amount of revision is also common. However, excessive and arbitrary review that substitutes a top-down target for a bottom-up estimate makes a mockery of the process, eliminating its value. Such a gutting appears to be the case in Tim's firm. Melanie's statement hints at a very autocratic style

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that essentially says, “ My way or the highway. ” The revision process also appears to be arbitrary and capricious. There is little incentive for the salespersons to spend much time and effort in projecting the true expected sales because they know that the target would be revised upwards and Tim’s estimate will prevail.

This problem lays the foundation for an interesting discussion about the costs and benefits of participative budgeting. While these budgets are useful, they also give rise to game playing and slack. Reviews by top management cut down on slack, but also remove some of the benefits. How best to manage the tradeoff is an open-ended problem with no clear answer. Research has identified factors that increase game playing (excessive reliance on incentives, uncertain environment, lack of management experience at the top, lack of trust) but executing the tradeoff well remains an art. 55.

a. The following tables provide the required classifications. The classification into manufacturing and selling depends is somewhat intuitive. The classification into fixed versus variable costs is subjective to some degree. We gain confidence in this estimate by computing unit costs (for manufacturing expenses) and the cost per sales dollar (for selling expenses) – if these costs stay mostly the same as volume changes, then we classify the expense as variable. If, however, these costs decrease markedly as volume increases, then we classify the expense as fixed.

	Manufacturing (M)	Selling (S)	Fixed (F)	Variable (V)	Direct
materials	M	V			
Direct labor hours	M	V			
Plant maintenance	M		F		

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Plant depreciation | M | F | | Indirect labor | M | V | | Engineering design | M | F | | Utilities | M | V | | Plant administration | M | F | | Marketing administration | S | F | | Sales force commissions | S | V | | Plant supervision | M | F |

Based on the above we conclude that: 1) Variable manufacturing costs Direct materials, direct labor, indirect labor, utilities (2) Variable selling costs Sales commissions (3) Fixed manufacturing costs Plant maintenance, plant depreciation, engineering design, plant administration, and plant supervision (4) Fixed selling costs Marketing administration

b. Using the above table, we obtain the following estimates (averages of three years): Unit price \$56.00/unit Variable manufacturing costs \$27.67/unit (the average for 3 months) Variable selling costs \$0.03 per sales \$ Total fixed costs \$2,178,000 (the average for 3 months) Thus, we could write the firm's contribution margin statement as follows:

Units	150,000
Revenues	\$8,400,000
Variable manufacturing costs	4,150,500
Variable selling costs	252,000
Contribution Margin	\$3,997,500
Total fixed costs	2,178,000
Profit before taxes	\$1,819,500

c.

This problem illustrates a “quick and dirty” way to budget operations. In essence, the firm is using the CVP relation to project its goals for the coming year. The parameters for the CVP relation are the average of operations for the past three years. While this approach has merit, there are potential concerns. First, given the significant change in operations, it is likely that the demand projection falls outside the firm's relevant range of operations – thus, Essex may need to add additional capacity to manage the additional demand.

The simple CVP relation ignores these complications. A second major problem is the omission of any kind of detailed breakdown or basis for the sales forecast – this is particularly important given the optimistic nature of the forecast – Essex could find itself in an awkward position if sales fall dramatically short of projections.

56. a. With the given data, we could write the firm's contribution margin statement as follows:

	Original	Adjustment	Revised Budget
Units	150,000		150,000
Revenues	\$8,400,000		\$8,400,000
Variable manufacturing costs	4,150,500		4,150,500
Variable selling costs	252,000		252,000
Contribution Margin	\$3,997,500		\$3,997,500
Total fixed costs	2,178,000	\$565,000	\$2,743,000
Profit before taxes	\$1,819,500	\$565,000	\$1,254,500

$000 = (225,000 + 125,000 + 100,000 + 40,000 + 75,000)$. Notice that we have collapsed all of the increase in fixed costs into one line item.

This increase reflects the additional capacity costs that stem from increasing the firm's production capabilities – as we will learn in Chapters 9 and 10, cost allocations provide us with a way to estimate such changes in capacity costs.

b. We could project the income statement for 125,000 units, using the estimates for fixed and variable costs that we derived for the previous problem. We have:

	Original	Revenue/Cost per unit	Revised Budget
Units	150,000		125,000
Revenues	\$8,400,000	\$56.00	\$7,000,000
Variable manufacturing costs	4,150,500	\$27.	

67 per unit	3,458,750	Variable selling costs	252,000	\$0.03 per sales
\$	210,000	Contribution Margin	\$3,997,500	\$3,331,250
Total fixed costs	2,178,000		2,178,000	Profit before taxes
				\$1,819,500

\$1, 153, 250 | Notice that Essex's profit decreases substantially, by 37%, if the firm produces 125, 000 units. c. Based on our analysis, Essex will more profitable situation if it produces 150, 000 units and invests in additional capacity resources. However, if the company decides to go ahead and make the investment to meet the budgeted volume of 150, 000 and demand falls short of expectations, either in the coming year or in future years, then Essex will have to "eat" the additional fixed costs. This problem helps us see how budgets enable firms to evaluate options in terms of their potential risks and rewards.

57. The following table provides the required income statement. | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Total | | Sales |\$406, 000 |\$529, 250 | \$420, 500 |\$594, 500 |\$1, 950, 250 | | Discounts¹ | | 52, 925 | | 59, 450 | 112, 375 | | Net Sales |\$406, 000 |\$476, 325 |\$420, 500 |\$535, 050 |\$1, 837, 875 | | Cost of merchandise² | 280, 000 | 365, 000 | 290, 000 | 410, 000 | 1, 345, 000 | | Credit card fees³ | 6, 496 | 7, 621 | 6, 728 | 8, 561 | 29, 406 | | Fixed costs⁴ | 105, 000 | 105, 000 | 105, 000 | 105, 000 | 420, 000 | | Profit | \$14, 504 | (\$1, 296) | \$18, 772 | \$11, 489 | \$43, 469 | Notes: 1. Discounts = Sales ? . 50 ? .

20 in Quarters 2 and 4. 2. Cost of merchandise = Sales/1. 45. 3. Credit card fees = .

02 ? . 80 ? Net Sales. 4. Fixed costs = \$35, 000 ? 3 months per quarter. 58.

a.

The following table provides the required monthly budget.

Item	Detail	Amount
Subscription fees	Basic Cable	50,000 ? 0.05 ? \$20 \$50,000
	Extended Basic	50,000 ? 0.95 ? \$50 2,375,000
	Premium Channels	15,000 ? \$10 150,000
	Internet connection	26,000 ? \$45 1,170,000
	Modem fees	20,000 ? 3 60,000
	Total subscriptions	\$3,805,000
	Discounts	Premium channels 4,000 ? \$(20%*10) 8,000
	Bundling	25,500 ? \$5 127,500
	Net Revenues	\$3,669,500
Content fees	Fixed	\$1,400,000
	Content fee (Premium)	15,000 ? \$6 90,000
	Franchise fee (Spudcity)	10% ? Net Revenues 366,950
	Internet fee	26,000 ? 35 910,000
	Internet fee	Fixed 85,000
Operating costs	Installation	250 @ \$60 15,000
	Repair	600 @ \$35 21,000
	Line maintenance	35 @ \$75 2,625
	Operating costs	Fixed 450,000
	Total costs	\$3,340,575
	Profit before Taxes	\$328,925

b. There are many similarities in the process.

One similarity includes the focus on output activity (number of subscribers) for the firm's various products (TV, Premium channels, Internet) as the starting point. This estimate serves as the basis for both revenues and costs (e. g. , franchise fees). Just like a manufacturing firm, the service firm has both variable and fixed costs.

There are a few differences, though. For example, there is not much room for a production or purchases budget for Media Mogul. The primary service is to act as a pass through agent between the TV content providers and the retail customer. Other than this difference in orientation, we would argue that the budgeting process is more alike than not. 59.

Not-for-profit organizations, which often operate multiple programs, face unique planning, control, and reporting needs. From the output side, I-Care needs to track budgets and actual results by program so that it could assess the effectiveness of individual activities. From the input side, I-Care also might need to track expenses and activities by specific grants. For example, suppose USAID gives I-Care a grant of \$1, 000, 000. I-Care would need to submit periodic reports that show how it used these funds. Often, the money may be spent for multiple programs, which complicates the reporting process.

From a regulatory view point, I-Care needs to submit reports to the IRS and other agencies (e. g. , Form 990). These forms have specific expense categories such as fund raising expenses. From a control perspective, a significant amount of cost is common across programs. Such costs often pertain to personnel because the same set of people might work on several programs simultaneously.

Of course, I-Care also needs to have appropriate expense approval and reporting policies in place because of the significant fiduciary responsibility it bears towards donors. Often, charities will voluntarily undergo annual audits (by suitably qualified accountants) to increase confidence among donors.

Thus, we see that not-for-profit institutions such as I-Care require sophisticated budgeting and control systems to meet their various information needs. Usually, such organizations prepare a program-centered budget, wherein they estimate costs for each of the many programs they might execute during a year. In addition, the organization needs to budget

for common activities such as a fund-raising campaign or office administration. Given the number of external constituents, the budgeting process at I-Care typically would be more detailed and involved than the process for a for-profit organization (whose primary goal is to make money). Indeed, for each program, I-Care needs to estimate the activity volume and associated costs. Moreover, each program might comprise several modules (such as the number of senior centers visited, with each visit being a module) that might be scaled up or down based on the availability of funds and actual expenses. Usually, accounting systems in such organizations allow the data to be aggregated along multiple dimensions. For example, any specific expenditure would be classified as to program (Corneal transplant), source of funds (Kaufman Foundation grant #14-567-2005), and functional category (Travel: Airfare). Overall, this problem looks at how budgeting needs might systematically differ across organizations.

60. To prepare an income statement, we need to be able to calculate the cost of goods sold (COGS). This is the outflow from the finished goods (FG) inventory account. However, we do not have the inflow into the FG account. For Peterson, the inflows into the FG account comprise materials and labor (because all overhead expenses are fixed). Once again, while we know labor costs, we do not know the materials used in production. However, we do have information about the amount of materials purchased and expected inventories. Thus, we can back out the materials issued, as shown below:

Quarter 1	Quarter 2	Quarter 3	Quarter 4	
				Opening balance for materials
\$400, 000	\$420, 000	\$415, 000	\$425, 000	+ Purchases
235, 000	211, 200	222, 300	207, 500	= Total available
				\$635, 000

\$631, 200 | \$637, 300 | \$632, 500 | - Ending balance | 420, 000 | 415, 000 |
425, 000 | 410, 000 | = Materials used for production | \$215, 000 | \$216,
200 | \$212, 300 | \$222, 500 | In this table, notice that we link quarters by the
fact that ending inventory in Q1 = beginning inventory in Q2.