AGENDA: PROFIT PLANNING (BUDGETING)

A. Purposes and overview of budgeting.

B. Building a master budget.

1. Sales budget
2. Production budget
3. Direct materials budget
4. Direct labor budget
5. Manufacturing overhead budget
6. Ending finished goods inventory budget
7. Selling and administrative expenses budget
8. Cash budget
9. Budgeted income statement
10. Budgeted balance sheet

OVERVIEW OF BUDGETING

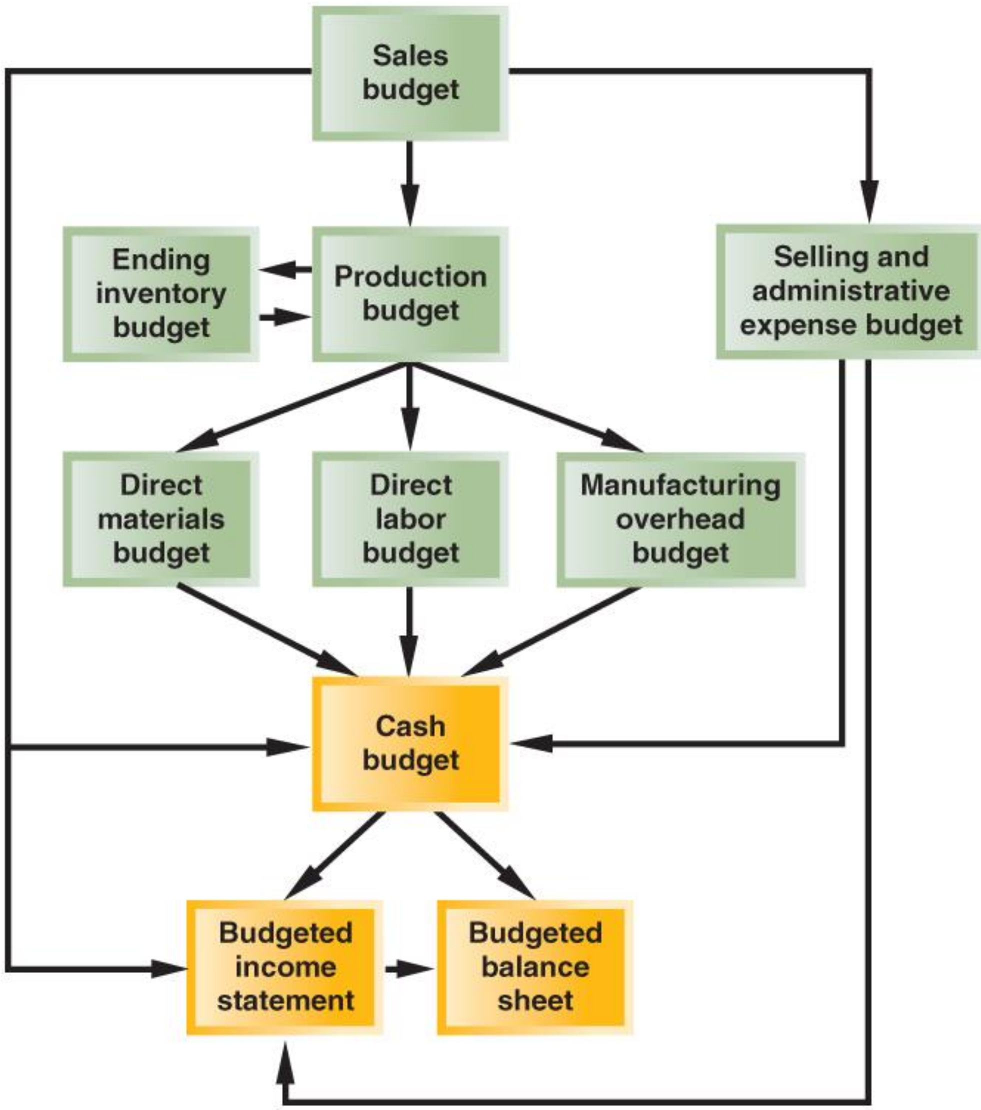
A budget is a detailed plan for acquiring and using financial and other resources over a specified period. Budgeting involves two stages:

- Planning: Developing objectives and preparing various detailed budgets to achieve those objectives.
- Control: The steps taken by management to attain the objectives set down at the planning stage.

PURPOSES OF BUDGETING

- Budgets communicate management's plans throughout the organization.
- Budgeting forces managers to give planning top priority.
- Budgets provide a means of allocating resources to their most effective uses.
- Budgeting uncovers potential bottlenecks.
- Budgeting coordinates the activities of the entire organization.
- Budgeting provides goals that serve as benchmarks for evaluating subsequent performance.

MASTER BUDGET INTERRELATIONSHIPS



COMPREHENSIVE BUDGETING EXAMPLE

Royal Company is preparing budgets for the second quarter ending June 30.

- Budgeted sales of the company's only product for the next five months are:

April	20,000 units
May	50,000 units
June	30,000 units
July	25,000 units
August...	15,000 units

- The selling price is $10 per unit.
- The following elements of the master budget will be prepared in this example:

1. Sales budget (with a schedule of expected cash collections).
2. Production budget.
3. Direct materials budget (with a schedule of expected cash disbursements for materials).
4. Direct labor budget.
5. Manufacturing overhead budget.
6. Ending finished goods inventory budget.
7. Selling and administrative expense budget.
8. Cash budget.
9. Budgeted income statement.
10. Budgeted balance sheet.

SALES BUDGET

	April	*May*	*June*	*Quarter*
Budgeted sales (units)...	20,000	50,000	30,000	100,000
Selling price per unit......	× $10	× $10	× $10	× $10
Total sales	$200,000	$500,000	$300,000	$1,000,000

SCHEDULE OF EXPECTED CASH COLLECTIONS

Additional data:

- All sales are on account.
- The company collects 70% of these credit sales in the month of the sale; 25% are collected in the month following sale; and the remaining 5% are uncollectible.
- The accounts receivable balance on March 31 was $30,000. All of this balance was collectible.

	April	*May*	*June*	*Quarter*
Accounts receivable				
beginning balance..........	$ 30,000			$ 30,000
April sales				
70% × $200,000	140,000			140,000
25% × $200,000		$ 50,000		50,000
May sales				
70% × $500,000		350,000		350,000
25% × $500,000			$125,000	125,000
June sales				
70% × $300,000			210,000	210,000
Total cash collections........	$170,000	$400,000	$335,000	$905,000

PRODUCTION BUDGET

Additional data:

- The company desires to have inventory on hand at the end of each month equal to 20% of the following month's budgeted unit sales.
- On March 31, 4,000 units were on hand.

	April	*May*	*June*	*July*
Budgeted sales [TM 8-4]...........	20,000	50,000	30,000	25,000
Add desired ending inventory..	10,000	6,000	5,000	3,000*
Total needs...........................	30,000	56,000	35,000	28,000
Less beginning inventory.........	4,000	10,000	6,000	5,000
Required production	26,000	46,000	29,000	23,000

* Budgeted sales in August = 15,000 units.
Desired ending inventory in July = 15,000 units × 20% = 3,000 units.

DIRECT MATERIALS BUDGET

Additional data:

- 5 pounds of material are required per unit of product.
- Management desires to have materials on hand at the end of each month equal to 10% of the following month's production needs.
- The beginning materials inventory was 13,000 pounds.
- The material costs $0.40 per pound.

	April	*May*	*June*	*Quarter*
Required production in units [TM 8-6]	26,000	46,000	29,000	101,000
Raw materials per unit (pounds)	× 5	× 5	× 5	× 5
Production needs (pounds)	130,000	230,000	145,000	505,000
Add desired ending inventory (pounds)*	23,000	14,500	11,500	11,500
Total needs (pounds)...............	153,000	244,500	156,500	516,500
Less beginning inventory (pounds)	13,000	23,000	14,500	13,000
Raw materials to be purchased (pounds)	140,000	221,500	142,000	503,500
Cost of raw materials to be purchased at $0.40 per pound	$56,000	$88,600	$56,800	$201,400

* For June: 23,000 units produced in July [TM 8-6] × 5 pounds per unit = 115,000 pounds; 115,000 pounds × 10% = 11,500 pounds

SCHEDULE OF EXPECTED CASH DISBURSEMENTS FOR MATERIAL

Additional data:

- Half of a month's purchases are paid for in the month of purchase; the other half is paid for in the following month.
- No discounts are given for early payment.
- The accounts payable balance on March 31 was $12,000.

	April	*May*	*June*	*Quarter*
Accounts payable beginning balance	$12,000			$ 12,000
April purchases:				
50% × $56,000	28,000			28,000
50% × $56,000		$28,000		28,000
May purchases:				
50% × $88,600		44,300		44,300
50% × $88,600			$44,300	44,300
June purchases:				
50% × $56,800			28,400	28,400
Total cash disbursements for materials	$40,000	$72,300	$72,700	$185,000

DIRECT LABOR BUDGET

Additional data:

- Each unit produced requires 0.05 hour of direct labor.
- Each hour of direct labor costs the company $10.
- Management fully adjusts the workforce to the workload each month.

	April	*May*	*June*	*Quarter*
Required production [TM 8-6]	26,000	46,000	29,000	101,000
Direct labor-hours per unit	× 0.05	× 0.05	× 0.05	× 0.05
Total direct labor–hours needed..........................	1,300	2,300	1,450	5,050
Direct labor cost per hour .	× $10	× $10	× $10	× $10
Total direct labor cost	$13,000	$23,000	$14,500	$50,500

Note: Many companies do not fully adjust their direct labor workforce every month and in such companies direct labor behaves more like a fixed cost, with additional cost if overtime is necessary.

MANUFACTURING OVERHEAD BUDGET

Additional data:

- Variable manufacturing overhead is $20 per direct labor-hour.
- Fixed manufacturing overhead is $50,500 per month. This includes $20,500 in depreciation, which is not a cash outflow.

	April	*May*	*June*	*Quarter*
Budgeted direct labor-hours [TM 8-9]	1,300	2,300	1,450	5,050
Variable manufacturing overhead rate	× $20	× $20	× $20	× $20
Variable manufacturing overhead	$26,000	$46,000	$29,000	$101,000
Fixed manufacturing overhead	50,500	50,500	50,500	151,500
Total manufacturing overhead	76,500	96,500	79,500	252,500
Less depreciation	20,500	20,500	20,500	61,500
Cash disbursements for manufacturing overhead	$56,000	$76,000	$59,000	$191,000

ENDING FINISHED GOODS INVENTORY BUDGET

Additional data:

- Royal Company uses absorption costing in its budgeted income statement and balance sheet.
- Manufacturing overhead is applied to units of product on the basis of direct labor-hours.
- The company has no work in process inventories.

Computation of absorption unit product cost:

	Quantity		*Cost*		*Total*
Direct materials	5	pounds	$0.40	per pound	$2.00
Direct labor	0.05	hours	$10.00	per hour	0.50
Manufacturing overhead.	0.05	hours	$50.00	per hour*	2.50
Unit product cost					$5.00

$$* \quad \text{Predetermined overhead rate} = \frac{\text{Total manufacturing overhead}}{\text{Total direct labor hours}}$$

$$= \frac{\$252{,}500}{5{,}050 \text{ hours}} = \$50.00 \text{ per hour}$$

Budgeted ending finished goods inventory:

Ending finished goods inventory in units [TM 8-6]...	5,000
Unit product cost [see above]	× $5
Ending finished goods inventory in dollars	$25,000

SELLING AND ADMINISTRATIVE EXPENSE BUDGET

Additional data:

- Variable selling and administrative expenses are $0.50 per unit *sold*.
- Fixed selling and administrative expenses are $70,000 per month and include $10,000 in depreciation.

	April	*May*	*June*	*Quarter*
Budgeted sales in units [TM 8-4]	20,000	50,000	30,000	100,000
Variable selling and administrative expense per unit	× $0.50	× $0.50	× $0.50	× $0.50
Variable selling and administrative expense	$10,000	$25,000	$15,000	$ 50,000
Fixed selling and administrative expense	70,000	70,000	70,000	210,000
Total selling and administrative expense	80,000	95,000	85,000	260,000
Less depreciation	10,000	10,000	10,000	30,000
Cash disbursements for selling and administrative expenses	$70,000	$85,000	$75,000	$230,000

CASH BUDGET

Additional data:

1. A line of credit is available at a local bank that allows the company to borrow up to $75,000.
    a. All borrowing occurs at the beginning of the month, and all repayments occur at the end of the month.
    b. The interest rate is 1% per month.
    c. The company does not have to make any payments until the end of the quarter.
2. Royal Company desires a cash balance of at least $30,000 at the end of each month. The cash balance at the beginning of April was $40,000.
3. Cash dividends of $51,000 are to be paid to stockholders in April.
4. Equipment purchases of $143,700 are scheduled for May and $48,800 for June. This equipment will be installed and tested during the second quarter and will not become operational until July, when depreciation charges will commence.

CASH BUDGET

Royal Company
Cash Budget
For the Quarter Ending June 30

	April	*May*	*June*	*Quarter*
Cash balance, beginning	$ 40,000	$ 30,000	$ 30,000	$ 40,000
Add receipts:				
Cash collections [TM 8-5]......	170,000	400,000	335,000	905,000
Total cash available	210,000	430,000	365,000	945,000
Less disbursements:				
Direct materials [TM 8-8]......	40,000	72,300	72,700	185,000
Direct labor [TM 8-9]............	13,000	23,000	14,500	50,500
Manufacturing overhead [TM 8-10]	56,000	76,000	59,000	191,000
Selling & administrative [TM 8-12]	70,000	85,000	75,000	230,000
Equipment purchases.........	0	143,700	48,800	192,500
Dividends	51,000	0	0	51,000
Total disbursements	230,000	400,000	270,000	900,000
Excess (deficiency) of cash available over disbursements	(20,000)	30,000	95,000	45,000
Financing:				
Borrowings	50,000	0	0	50,000
Repayments	0	0	(50,000)	(50,000)
Interest*	0	0	(2,000)	(2,000)
Total financing	50,000	0	(52,000)	(2,000)
Cash balance, ending...........	$ 30,000	$ 30,000	$ 43,000	$ 43,000

* $50,000 × 1% × 3 = $2,000.

BUDGETED INCOME STATEMENT

Royal Company
Budgeted Income Statement
For the Quarter Ending June 30

Net sales [see below]	$950,000
Cost of goods sold [see below]	500,000
Gross margin	450,000
Selling & administrative expenses [TM 8-12]	260,000
Net operating income	190,000
Interest expense [TM 8-14]	2,000
Net income	$188,000

Computation of net sales:

Sales	$1,000,000
Less uncollectible amounts (5%)	50,000
Net sales	$ 950,000

Computation of cost of goods sold:

Budgeted sales (units)	100,000
Unit product cost	× $5
Cost of goods sold	$500,000

BEGINNING BALANCE SHEET

Royal Company
Balance Sheet
March 31

Current assets:				
Cash	$ 40,000	(a)		
Accounts receivable	30,000	(b)		
Raw materials inventory	5,200	(c)		
Finished goods inventory	20,000	(d)	$ 95,200	
Plant and equipment:				
Land	400,000	(e)		
Buildings and equipment	1,610,000	(f)		
Accumulated depreciation	(750,000)	(g)	1,260,000	
Total assets			$1,355,200	
Liabilities:				
Accounts payable			$ 12,000	(h)
Stockholders' equity:				
Common stock	$ 200,000	(i)		
Retained earnings	1,143,200	(j)	1,343,200	
Total liabilities and stockholders' equity			$1,355,200	

(a) See TM 8-13
(b) See TM 8-5
(c) Given
(d) Given
(e) Given
(f) Given
(g) Given
(h) See TM 8-8
(i) Given
(j) Given

BUDGETED BALANCE SHEET

Royal Company
Budgeted Balance Sheet
June 30

Current assets:			
Cash	$ 43,000	(a)	
Accounts receivable	75,000	(b)	
Raw materials inventory	4,600	(c)	
Finished goods inventory	25,000	(d)	$ 147,600
Plant and equipment:			
Land	400,000	(e)	
Buildings and equipment	1,802,500	(f)	
Accumulated depreciation	(841,500)	(g)	1,361,000
Total assets			$1,508,600
Liabilities:			
Accounts payable			$ 28,400 (h)
Stockholders' equity:			
Common stock	$ 200,000	(i)	
Retained earnings	1,280,200	(j)	1,480,200
Total liabilities and stockholders' equity			$1,508,600

(a) See TM 8-14
(b) $300,000 sales × 25%
(c) 11,500 pounds × $0.40 per pound
(d) See TM 8-11
(e) See TM 8-16
(f) $1,610,000+ $143,700+ $48,800
(g) $750,000 + $61,500 + $30,000
(h) $56,800 purchases × 50%
(i) See TM 8-16
(j) $1,143,200 + $188,000 – $51,000