

LO 1: Budgeting

Terms

Budget

Sales forecast

Budget committee

Participative budgeting

Budgetary slack

Long-range planning

Master budget

Operating budget

Financial budget

Benefits of Budgeting:

- Planning for formalization of goals on a recurring basis
- Defines objectives for performance
- Creates a warning system for potential problems
- Facilitates coordination of activities within the business
- Management has greater overall awareness of operations
- Motivates personnel to meet objectives

Essential Elements of Budgeting:

- Having a sound organizational structure where responsibility for operations are defined
- Including research and analysis produce more realistic goals
- Acceptance by all level of management

Other Budgeting Information:

- Can be prepared for any length of time, and many companies use a continuous 12-month budget
- Budgeting begins with the sales forecast
- A budget may be reviewed by a budget committee
- A bottom-to-top approach to budgeting is a participative budget. Lower level management, who are well informed of day-to-day activities can more accurately create the budget and feel more involved in the process. It is then reviewed by higher management.
- As a budget is essential for evaluating performance, top management must completely support it and must carefully review for budgetary slack

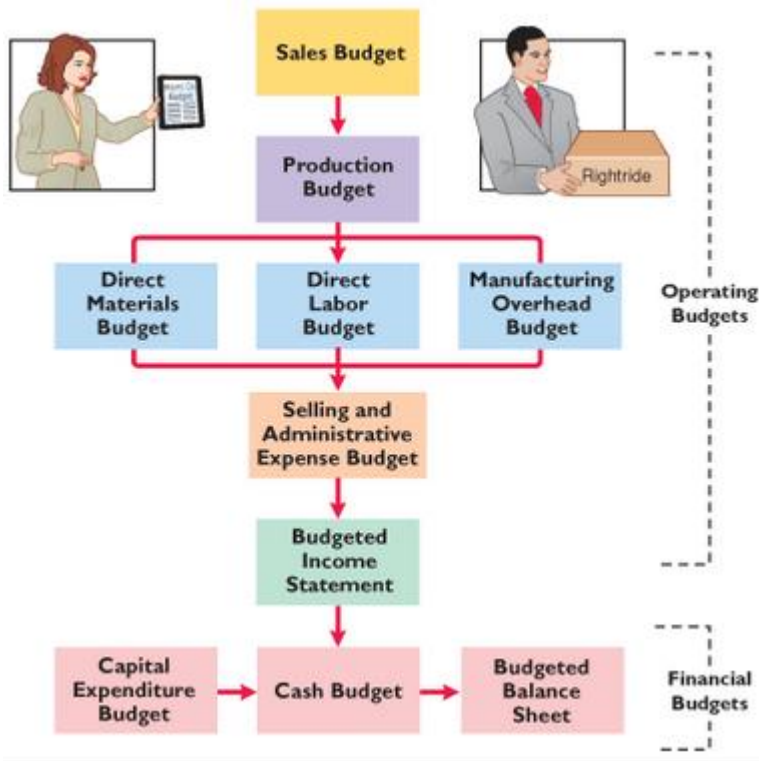
Master Budget:

- Includes a number of separate but interdependent budgets that formally report the company's sales, production, and financial goals.
- The starting point of the master budget is the sales budget and includes all other operating budgets.
- The ending point of the master budget is the budgeted financial statements.
- Since the budgeted financial statements include both an income statement and balance sheet, each step in the master budget has both an income statement and balance sheet component. Sometimes they are presented in the same budget and other times they are presented as separate budgets.

LO 2: Sales, Production and Direct Materials Budget

Terms

- Sales budget
- Production budget
- Direct materials budget



Sales:

- The foundation and starting point for the master budget.
- Determines the anticipated unit and dollar sales for the budgeted income statement.

Expected Unit Sales	*	Unit Selling Price	=	Total Sales
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Production:

- Determines the number of units of finished goods that must be produced each budget period to satisfy expected sales needs (from the sales budget) and to provide for the desired finished ending inventory.
- A realistic ending inventory is essential to production requirements. A “cushion” above expected is used for budgeting purposes

Budgeted Sales Units	+	Desired Ending Finished Goods Units	-	Beginning Finished Goods Units	=	Required Production Units
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Direct Materials:

- Determines the quantity of direct raw materials that must be purchased each period to meet anticipated production needs (from the production budget) and to provide for adequate levels of direct raw materials inventories
- The desired ending inventory is again a key component in the budgeting process for direct materials. A “cushion” above expected is used for budgeting purposes.
- The final step in the direct materials budget is to determine the cost of the direct materials purchased by multiplying the quantity to be purchased by the purchase price per unit.

Direct Material Units Required for Production	+	Desired Ending Direct Material Units	-	Beginning Direct Material Units	=	Required Direct Material Units to be Purchased
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Required Direct Material Units to be Purchased	*	Unit Selling Price	=	Total Cost of Direct Materials Purchased
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Practice #1

F Company has budgeted sales of its innovative mobile phone for next four months as follows:

	<u>Sales Budget in Units</u>
July	30,000
August	45,000
September	60,000
October	50,000

The company is now in the process of preparing a production budget for the third quarter. Ending inventory level must equal 10% of the next month's sales.

- Calculate the ending inventory as of June 30.
- Prepare a production budget for the third quarter showing the number of units to be produced each month and for the quarter in total
- Prepare a direct materials budget for the third quarter. Each mobile phone requires 3 data chips to operate. Each data chip cost \$50 to purchase. The current beginning inventory at July 1 of data chips is 10,000. The desired ending inventory for September is 32,300. The company requires of 20% the next quarter production requirements in ending inventory.

LO 3: Direct Labor, Manufacturing Overhead, Selling and Administrative, and Income Statement Budgets

Terms

Direct Labor Budget

Manufacturing overhead budget

Selling and administrative expense budget

Budgeted income statement

Direct Labor:

- Determines the direct labor hours and direct labor dollars required each period to meet anticipated production needs (from the production budget).

Units to be Produced	x	Direct Labor Hours per unit	X	Direct Labor Cost per Hour	=	Total Direct Labor Cost
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Practice #2

The production department of the Company B has submitted the following forecast of units to be produced by quarter for the upcoming fiscal year:

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Units to be produced	10,000	8,000	8,500	9,000

Each unit requires 0.6 direct labor-hours and at a cost of \$15.00 per direct labor hour. The workforce can be adjusted each quarter for the expected production level

Required: Prepare the company's direct labor budget for the next fiscal year.

Manufacturing Overhead:

- The manufacturing overhead budget has two components – variable and fixed overhead.
- Budgeted variable overhead expenses depend on the number of units produced from the production budget and a budgeted variable overhead cost per unit.
- Budgeted fixed overhead expenses depend on the total cost expected to be incurred for each type of fixed overhead cost.
- To determine an overhead rate to apply use total manufacturing overhead determined and divide by the direct labor budgeted hours

Practice #3

Y Company's variable manufacturing overhead rate is \$2.00 per direct labor-hour and the company's fixed manufacturing overhead is \$40,250 per quarter.

The budgeted direct labor-hours for each quarter are as followed:

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Budgeted direct labor hours	5,000	6,500	6,000	5,500

- Required:
- Construct company's manufacturing overhead budget for the year.
 - Compute the company's total manufacturing overhead rates for the year.

Selling and Administrative:

- Selling and Administrative (S&A) expense budget is similar to the manufacturing overhead budget as it includes variable and fixed expenses.
- Budgeted variable S&A expenses depend on the number of units sold or sales dollars from the sales budget.
- Budgeted fixed S&A expenses depend on the total cost expected to be incurred for each type of fixed S&A cost.

Income Statement:

- Budgeted income statements are prepared from other operating budgets
- They serve as a benchmark against which subsequent actual company performance can be measured

Sales	Total From Sales Budget
-Cost of Goods Sold	Per unit cost calculated from direct material, direct labor, and manufacturing overhead budget
=Gross Profit	Calculate
-Selling and Administrative	Total From Selling and Administrative Budget
=Income from Operations	Calculate
-Interest Expense	Given
=Income before Income Tax	Calculate
-Income Tax Expense	Given
= Net Income	Calculate

LO 4: Cash Budget and Budgeted Balance Sheet

Terms

Cash budget

Budgeted balance sheet

Cash Budget:

- Cash budget is composed of four major sections:
 - Cash Receipts
 - Cash Disbursements
 - Cash Excess or Deficiency
 - Financing
- The cash budget uses information from all of the other budgets: cash receipts from the sales budget, cash disbursements from direct materials budget, cash disbursements from the direct labor, manufacturing overhead and selling administrative expense budget.
 - Amounts from cash receipts and disbursements are calculated with a schedule of expected collections/disbursements based on percentages expected to be received or paid
- **Amounts taken from manufacturing overhead budget and selling and administrative budgets must be adjusted for depreciation-** which is a non-cash expense and requires to be subtracted from amounts determined in these budgets.
- It may also include other sources of cash receipts such as proceeds from the sale of plant assets, issuance of stock or issuance of bonds.
- It may also include other sources of cash disbursements such as the purchase of plant assets and the payment of cash dividends.
- The company may also have to meet a minimum balance requirement for its cash account that is imposed by the bank. If the cash balance falls short of the minimum required, the company will have to borrow money to increase the cash balance to the minimum. If the company has cash in excess of the minimum balance required, it is obligated to pay off any outstanding borrowings and the related interest payable. After the borrowings and interest have been paid off, the company may leave the “excess” cash in the cash account.

Practice #4

W Company wants to prepare a cash budget. The cash balance on July 1 is \$10,400. Cash receipts other than for loans received for July, August and September are Forecasted as \$24,000, \$32,000 and \$40,000, respectively. Payments other than for loan or interest payments for the same periods are planned as \$28,000, \$30,000 and \$32,000, respectively. These payments, taken from the manufacturing overhead and selling and administrative budgets include \$2,000 related to depreciation each month.

W Company requires a \$10,000 minimum cash balance. If necessary, loans are borrowed to meet this requirement at a cost of 10% annual interest at the beginning of the quarter. If the ending cash balance exceeds the \$10,000 minimum, repaying any outstanding loan balance will be done at the end of each quarter. At July 1, there are no outstanding loans.

Required: Prepare the company's cash budget by month and in total for the three months.

Practice #5

P Company produces calculators. Each calculator requires three chips costing \$2.00 each, purchased from an overseas supplier. Texas Products has prepared a production budget for the calculator by quarters for Year 2 and for the first quarter of Year 3:

	<u>Year 2</u>				<u>Year 3</u>
	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>First</u>
Budgeted productions, in calculators	60,000	90,000	150,000	100,000	80,000

The inventory of the chips at the end of a quarter must be equal to 20% of the following quarter's production needs. There will be 36,000 chips on hand to start Year 2. Purchases are paid for 50% in the quarter of purchase and 50% in the following quarter.

- Required:
- Prepare the direct materials budget for the chips by quarter and in total for year 2.
 - Prepare the cash disbursements budget for the chips by quarter and in total for year 2.
 - Determine the accounts payable balance at the end of Year 2.

Balance Sheet:

- Budgeted balance sheets are prepared from other budgets to project financial position
- The budgeted balance sheet includes the following accounts taken from various budgets. All other data is given

Cash	Cash Budget
Accounts receivable	Schedule of cash collections
Finished goods inventory	Production budget
Raw materials inventory	Direct materials budget
Property, plant, equipment	Previous balance + purchases shown on cash budget
Accumulated Depreciation	Previous balance + amounts for depreciation expense shown on manufacturing overhead and selling and administrative budgets
Accounts Payable	Schedule of cash disbursements
Common Stock	Previous balance + receipts shown on cash budget
Retained Earnings	Previous balance + net

	income shown on budgeted income statement
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LO 5: Budgeting for Nonmanufacturing Companies

Terms

Merchandise purchases budget

Merchandisers:

- uses a merchandise purchases budget instead of a production budget
- does not use manufacturing budgets (direct materials, direct labor, manufacturing overhead)

Budgeted cost of goods sold	+	Desired ending merchandise inventory	-	Beginning merchandise inventory	=	Required merchandise purchases
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Service Companies:

- direct labor budgets are important as labor costs are high
- revenue can be budgeted based on expected output an input

Not for Profit Organizations:

- budget based on cash flows instead of revenue and expenses

Solution #1

a) Ending inventory:

Since the ending inventory level must equal 10% of the next month's sales, the ending inventory for the month of June must be 10% of July's sales of 30,000 or 3,000 units.

b) Production Budget

	July	August	September	Quarter Total	October
- Budgeted sales in units	30,000	45,000	60,000	135,000	50,000
+ ending inventory	<u>4,500</u>	<u>6,000</u>	<u>5,000</u>	<u>5,000</u>	
= Total required units	34,500	51,000	65,000	140,000	
- beginning inventory	<u>3,000</u>	<u>4,500</u>	<u>6,000</u>	<u>3,000</u>	<u>5,000</u>
= Required production	31,500	46,500	59,000	137,000	

July Ending Inventory= 45,000*10%

August Ending Inventory= 60,000*10%

c) Direct Materials budget

	July	August	September	Quarter Total
Required production	31,500	46,500	59,000	137,000
Direct material per unit	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
Total materials needed	94,500	139,500	177,000	411,000

+ ending inventory	<u>27,900</u>	<u>35,400</u>	<u>32,300</u>	<u>32,300</u>
Total material required	122,400	174,900	209,300	443,300
- beginning inventory	<u>10,000</u>	<u>27,900</u>	<u>35,400</u>	<u>10,000</u>
Direct material to purchase	112,400	147,000	173,900	433,300
Cost per direct material	\$50	\$50	\$50	\$50
Total Cost of purchases	\$5,620,000	\$7,350,000	\$8,695,000	\$21,665,000

July Ending Inventory= 139,500*20%

August Ending Inventory= 177,000*20%

Solution #2

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Required production – units	10,000	8,000	8,500	9,000
X Direct labor hours per unit	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>
= Total direct labor-hours needed	6,000	4,800	5,100	5,400
X Direct labor cost per hour	<u>\$15.00</u>	<u>\$15.00</u>	<u>\$15.00</u>	<u>\$15.00</u>
= Total direct labor cost	\$90,000	\$72,000	\$76,500	\$81,000

Solution #3

a) Overhead budget

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>Year</u>
Budgeted direct labor-hours	5,000	6,500	6,000	5,500	23,000
X Variable overhead rate	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>
= Variable overhead	\$10,000	\$13,000	\$12,000	\$11,000	\$46,000
+ Fixed overhead	<u>40,250</u>	<u>40,250</u>	<u>40,250</u>	<u>40,250</u>	<u>161,000</u>
= Total overhead	\$50,250	\$53,250	\$52,250	\$51,250	\$207,000
/Total Direct Labor Hours	5,000	6,500	6,000	5,500	23,000
= Overhead Rate per DLH					\$9

Solution #4

	<u>July</u>	<u>August</u>	<u>September</u>	<u>Quarter</u>
Cash Balance:				
Beginning Balance	\$10,400	\$10,000	\$14,000	\$10,400
Add: Cash Receipts	<u>24,000</u>	<u>32,000</u>	<u>40,000</u>	<u>94,000</u>
Total Available Cash	34,400	42,000	54,000	104,400
Cash Disbursements	(26,000)	(28,000)	(30,000)	(84,000)
Excess (Deficiency) of available cash over cash disbursements	\$6,400	\$14,000	\$24,000	\$20,400
Borrowings	3,600	0	0	3,600
Repayments	<u>0</u>	<u>0</u>	<u>(3,690)</u>	<u>(3,690)</u>
Ending Balance	\$10,000	\$14,000	\$20,310	\$20,310

Interest: $3,600 \times 10\% \times 3/12 = 90$

Solution #5

	<u>Year 2</u>				<u>Year 3</u>
	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>First</u>
Calculators produced	60,000	90,000	150,000	100,000	80,000
X Chips per calculator	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
= Production needs - chips	180,000	270,000	450,000	300,000	240,000
+ Ending inventory - chips	<u>54,000</u>	<u>90,000</u>	<u>60,000</u>	<u>48,000</u>	<u>48,000</u>
= Total needs - chips	234,000	360,000	510,000	348,000	1,248,000
- Beginning inventory - chips	<u>36,000</u>	<u>54,000</u>	<u>90,000</u>	<u>60,000</u>	<u>36,000</u>
= Required purchases - chips	198,000	306,000	420,000	288,000	1,212,000
X Purchase cost per chip	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>
= Total purchase cost	\$396,000	\$612,000	\$840,000	\$576,000	\$2,424,000

Cash Disbursements:

Fourth Quarter, Year 1 purchases

36,000 chips x \$2.00 x 50%	\$36,000				\$36,000
First Quarter purchases	198,000	\$198,000			\$396,000
Second Quarter purchases		306,000	\$306,000		\$612,000
Third Quarter purchases			420,000	\$420,000	\$840,000
Fourth Quarter purchases				<u>288,000</u>	<u>\$288,000</u>
	\$234,000	\$504,000	\$726,000	\$708,000	\$2,172,000

Accounts payable at the end of Year 2 is the unpaid balance of the fourth quarter purchases

\$288,000