Master Budgeting

LEARNING OBJECTIVES

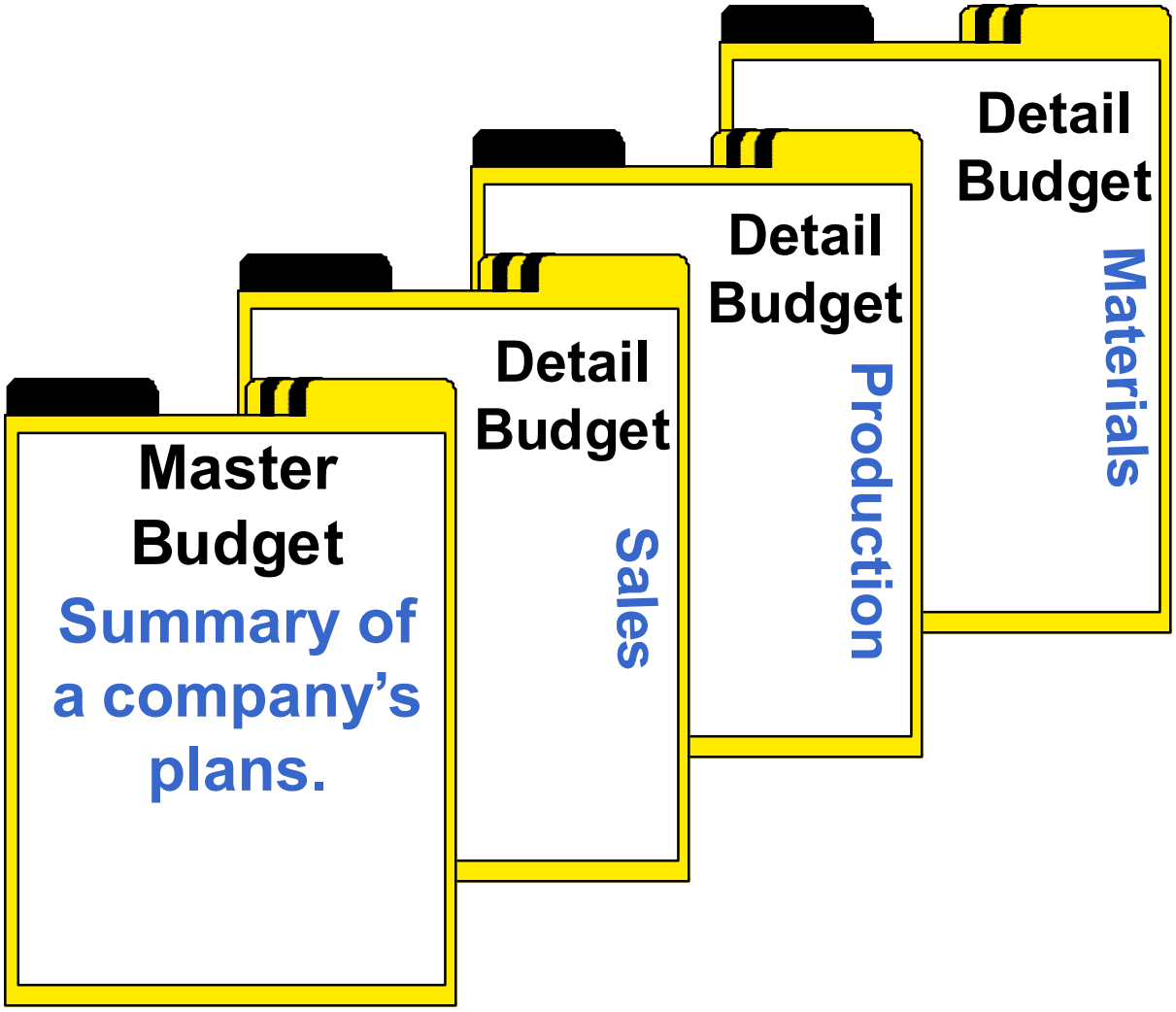
After studying this chapter, we should be able to:

1. **Understand why organizations prepare budget and the processes they use to create budgets.**
2. **Prepare a sales budget, including a schedule of expected cash receipts.**
3. **Prepare a production budget.**
4. **Prepare a direct materials budget, including a schedule of expected cash disbursements for purchases of materials.**
5. **Prepare a direct labour budget.**

LEARNING OBJECTIVES (CONT'D)

6. **Prepare** a manufacturing overhead budget.
7. **Prepare** an ending finished goods inventory budget.
8. **Prepare** a selling and administrative expense budget.
9. **Prepare** a cash budget.
10. **Prepare** a budgeted income statement and a budgeted balance sheet.

The Basic Framework of Budgeting



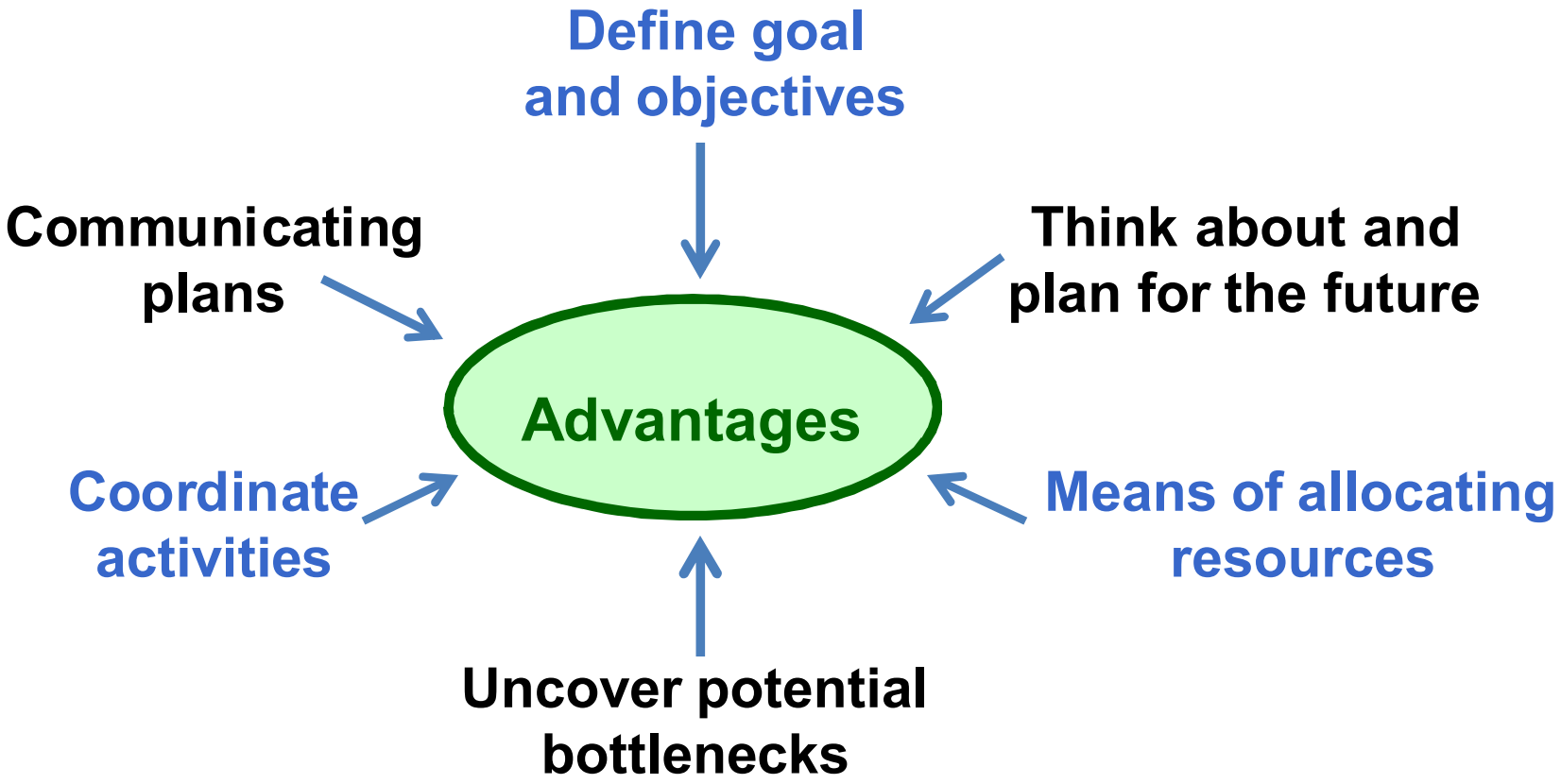
The Basic Framework of Budgeting

- A **budget** is a detailed plan for the future that is usually expressed in formal quantitative terms.
- Once the budget is established, actual spending is compared to the budget to make sure the plan is being followed.
- Companies use budgets in a similar way, although the amount of work and underlying details far exceed a personal budget.
- Budgets are used for two distinct purposes—***planning*** and ***control***.

Planning and Control

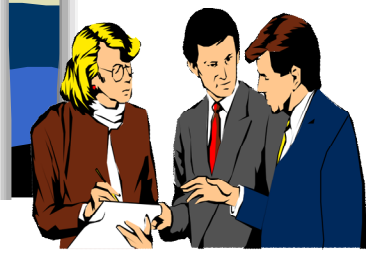
- **Planning** -- involves developing objectives and preparing various budgets to achieve these objectives.
- **Control** -- involves the steps taken by management that attempt to ensure the objectives are attained.

Advantages of Budgeting



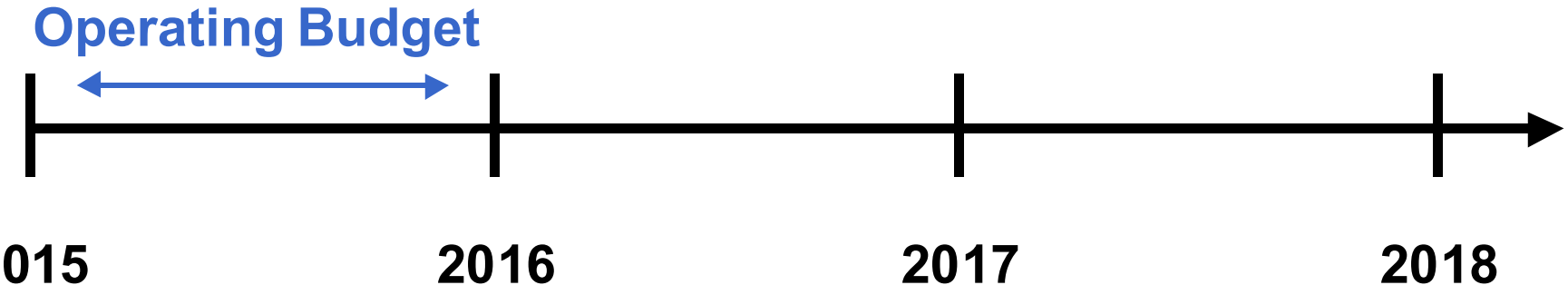
Responsibility Accounting

- Managers should be held responsible for those items — and only those items — that the manager can actually control to a significant extent.
- Each line item (i.e., revenue or cost) in the budget is the responsibility of a manager.
- In effect, responsibility accounting *personalizes accounting information by holding individuals responsible for revenues* and costs.
- This concept is central to any effective planning and control system.
- The manager should take the initiative to understand the sources of significant favorable or unfavorable discrepancies, should take steps to correct unfavorable discrepancies and to exploit and replicate favorable discrepancies.



Choosing the Budget Period

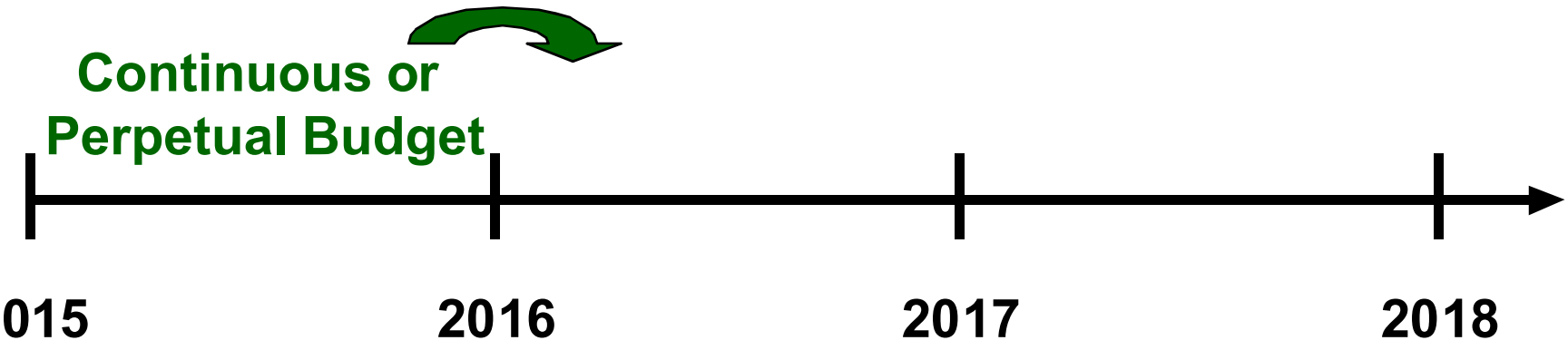
- Operating budgets ordinarily cover a one-year period corresponding to the company's fiscal year.
- Many companies divide their budget year into four quarters.
- The first quarter is then subdivided into months, and monthly budgets are developed.
- As the year progresses, the figures for the second quarter are broken down into monthly amounts, then the third-quarter figures are broken down, and so forth.
- This approach has the advantage of requiring periodic review and reappraisal of budget data throughout the year.



The annual operating budget may be divided into quarterly or monthly budgets.

Choosing the Budget Period

- *Continuous or perpetual budgets are sometimes used.*
- *A **continuous or perpetual budget*** is a 12-month budget that rolls forward one month (or quarter) as the current month (or quarter) is completed.
- In other words, one month (or quarter) is added to the end of the budget as each month (or quarter) comes to a close.
- This approach keeps managers focused at least one year ahead so that they do not become too narrowly focused on short-term results.

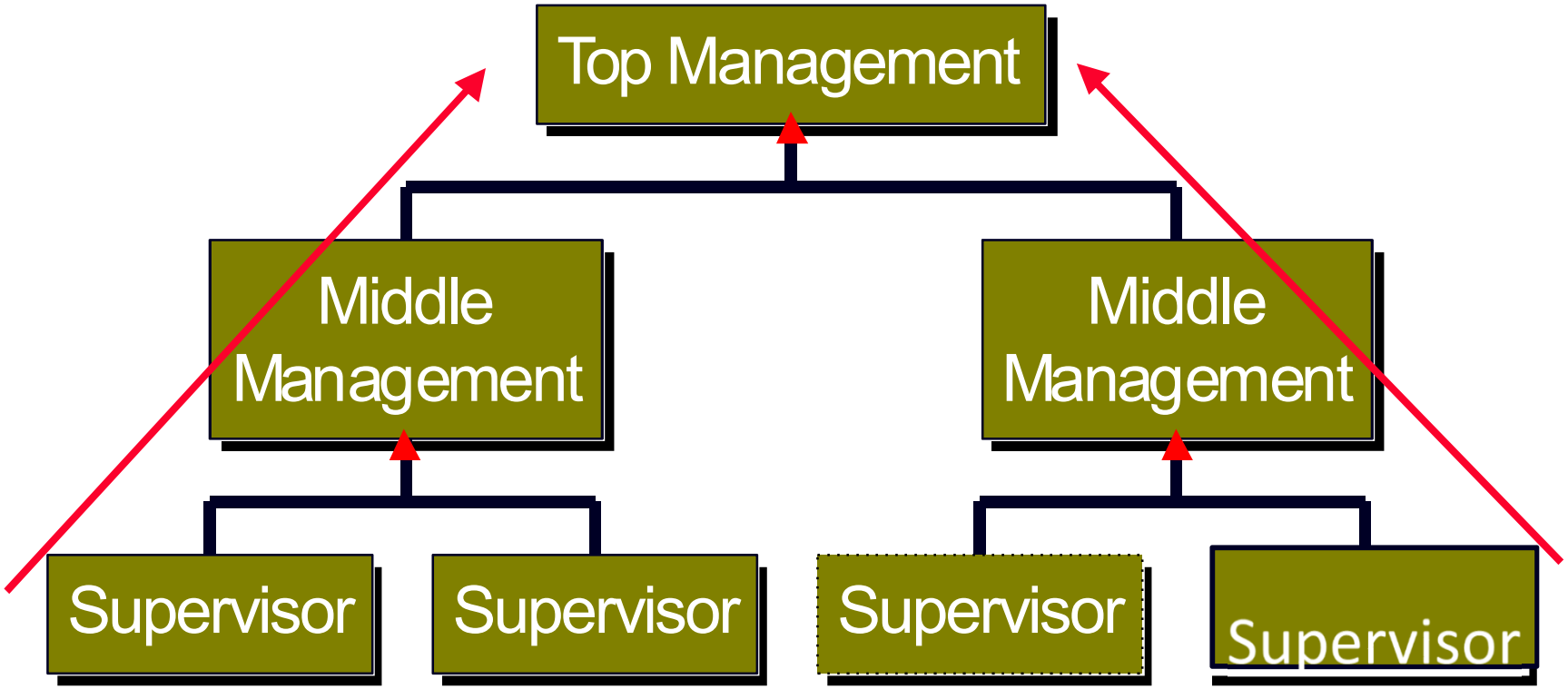


This budget is usually a twelve-month budget that rolls forward one month as the current month is completed.

Self-Imposed/Participative Budget

- In the most successful budget programs, managers actively participate in preparing their own budgets.
- Imposing expectations from above and then penalizing employees who do not meet those expectations will generate resentment rather than cooperation and commitment.
- In fact, many managers believe that being empowered to create their own *self-imposed budgets is the most effective method of budget preparation.*
- A **self-imposed budget or participative budget is a budget that is prepared with the full cooperation and participation of managers at all levels.**

Participative Budget System



Flow of Budget Data

Advantages

- Individuals at all levels of the organization are recognized as members of the team whose views and judgments are valued by top management.
- Budget estimates prepared by front-line managers are often more accurate and reliable than estimates prepared by top managers who have less intimate knowledge of markets and day-to-day operations.
- Motivation is generally higher when individuals participate in setting their own goals than when the goals are imposed from above. Self-imposed budgets create commitment.
- A manager who is not able to meet a budget that has been imposed from above can always say that the budget was unrealistic and impossible to meet. With a self-imposed budget, this claim cannot be made.

Limitations

- First, Lower-level managers may make suboptimal budgeting recommendations if they lack the broad strategic perspective possessed by top managers.

- Second, self-imposed budgeting may allow lower-level managers to create too much ***budgetary slack***. *Because the* ***manager who creates the budget*** will be held accountable for actual results that deviate from the budget, the manager will have a natural tendency to submit a budget that is easy to attain.

- For the above reason, budgets prepared by lower-level managers should be scrutinized by higher levels of management. Questionable items should be discussed and modified as appropriate.

Human Factors in Budgeting

- The success of a budget program depends on the degree to which top management accepts the budget program as a vital part of the company's activities and the way in which top management uses budgeted data.
- Budget must have the complete acceptance and support of the persons who occupy key management positions.
- Budgeting is hard work, and if top management is not enthusiastic about the budget implementation, then it is unlikely that anyone else will do so.
- But, it is important that top management should not use the budget to pressure or blame employees.
- Budget should be used as a positive instrument to assist in establishing operating goals, measuring operating goals, and isolating areas that need attention.

Human Factors in Budgeting (Cont'd)

- The human aspects of budgeting are extremely important.
- The purpose of the budget is to motivate people and to coordinate efforts.
- The purpose will be undermined if manager's become preoccupied with the technical aspects, or if the budget is used in a rigid and inflexible manner to control people.

The Budget Committee

A standing committee responsible for

- overall policy matters relating to the budget
- coordinating the preparation of the budget

- Difficulties and disputes relating to the budget are resolved by this committee. In addition, this committee approves the final budget.

- Many decisions, i.e., resource allocation, setting benchmark for measuring performance, are related to budget.

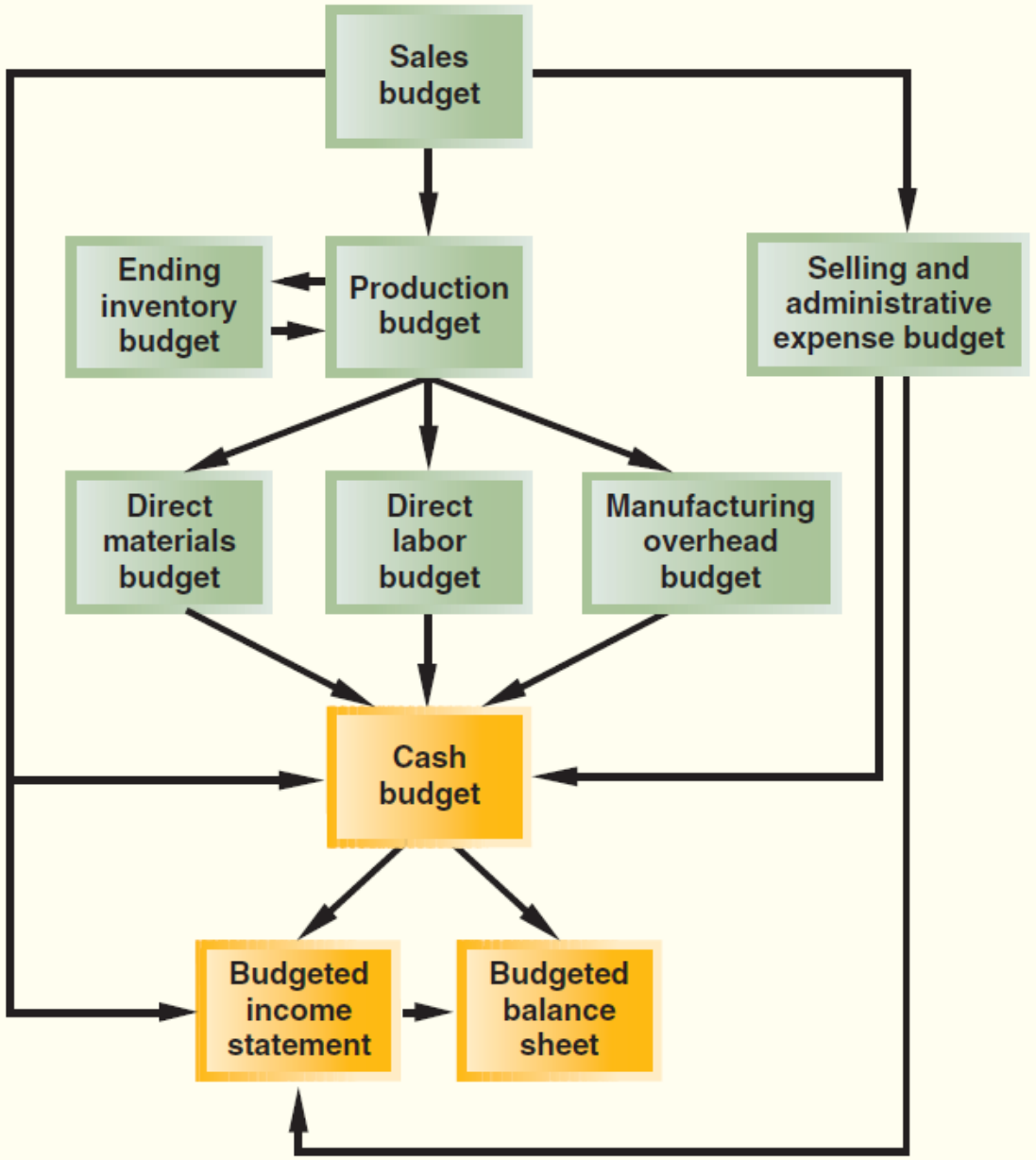
- So, care has to be taken so that working environment within the organization should not be influenced by budgeting decision.

The Master Budget: An Overview

- The **master budget consists of a number of separate but interdependent budgets that formally** lay out the company's sales, production, and financial goals.
- The **master budget** culminates in **a cash budget**, **a budgeted income statement**, and **a budgeted balance sheet**.
- The first step is the preparation of **the sales budget**, which is a detailed schedule showing the expected sales for the budgeted period.
- The **sales budget** helps determine how many units need to be produced.
- Thus, **the production budget** is prepared after the sales budget.
- The production budget in turn is used to determine **the direct material, the direct labor,** and **the manufacturing overhead budget**.
- These budgets combine with the **sales budget** and **the selling and administrative expense budget** are used to determine **the cash budget**.

The Master Budget

EXHIBIT 8–1
The Master Budget Interrelationships



The Sales Budget

- The first step in the budgeting process is the preparation of the **sales budget , which** is a detailed schedule showing the expected sales for the budget period.
- An accurate sales budget is the key to the entire budgeting process. As illustrated in last slide, all other parts of the master budget depend on the sales budget.
- If the sales budget is inaccurate, the rest of the budget will be inaccurate.
- The sales budget is based on the company's sales forecast, which may require the use of sophisticated mathematical models and statistical tools that are beyond the scope of this course.

Budgeting Example

- Royal Company is preparing budgets for the quarter ending June 30.
- Budgeted sales 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.**

1. The selling price is $10 per unit.

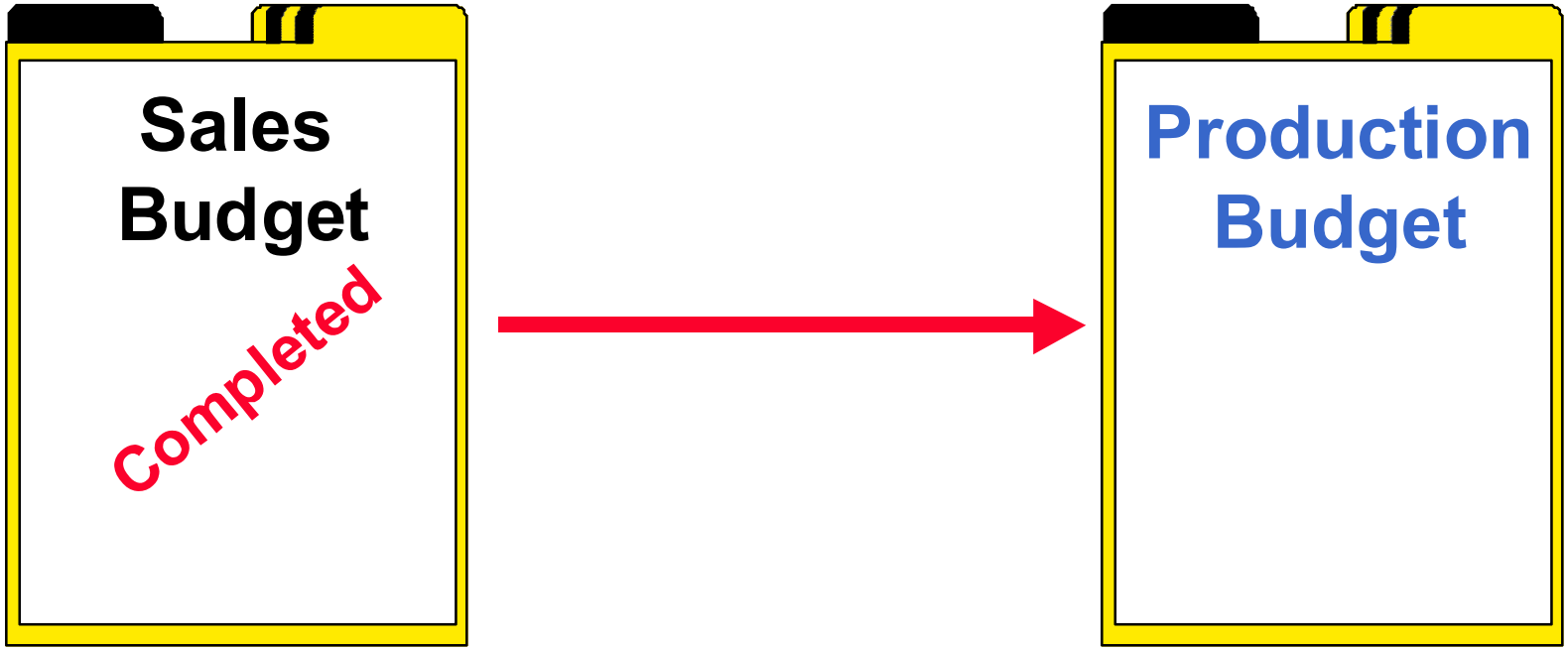
The Sales Budget

	April	May	June	Quarter
Budgeted sales (units)	20,000	50,000	30,000	100,000
Selling price per unit				
Total sales				

The 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

The Production Budget



Production must be adequate to meet budgeted sales and provide for sufficient ending inventory.

The Production Budget

- The production budget is prepared after the sales budget.
- The **production budget lists** the number of units that must be produced to satisfy sales needs and to provide for the desired ending finished goods inventory.
- Excessive inventories tie up resources and create storage problems.
- Insufficient inventories can lead to lost sales or last-minute high-cost production efforts.

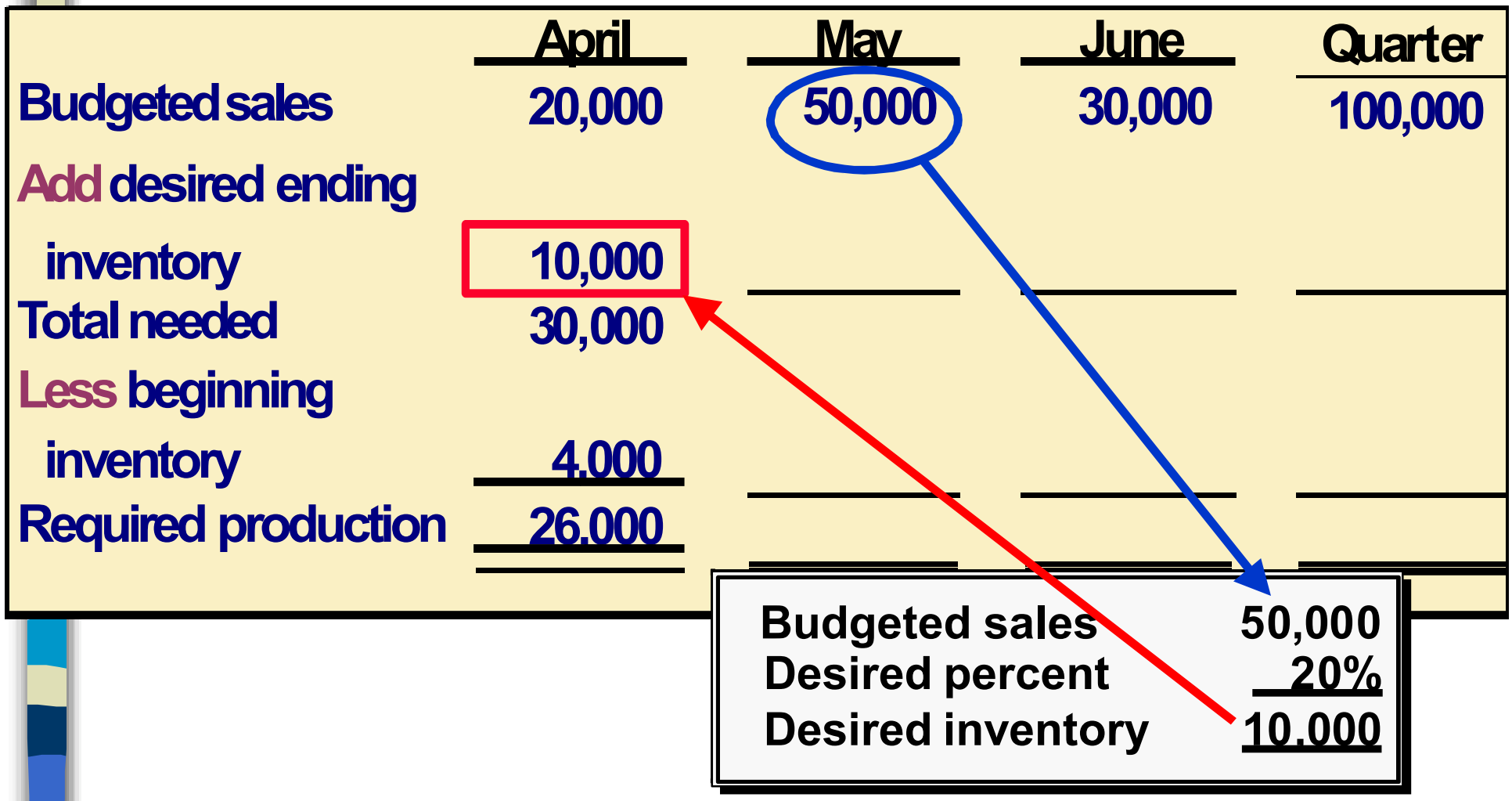
The Production Budget

- Royal Company wants ending inventory to be equal to 20% of the following month's budgeted sales in units.

- On March 31, 4,000 units were on hand.

Let's prepare the production budget.

The Production Budget



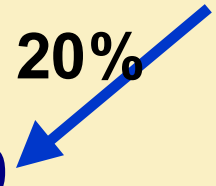
The Production Budget

	April	May	June	Quarter
Budgeted sales	20,000	50,000	30,000	100,000
Add desired ending inventory	10,000			
Total needed	30,000			
Less beginning inventory	4,000			
Required production	26,000			

March 31 ending inventory

The Production Budget

	April	May	June	Quarter
Budgeted sales	20,000	50,000	30,000	100,000
Add desired ending inventory	10,000	6,000		
Total needed	30,000	56,000		
Less beginning inventory	4,000			
Required production	26,000			



The Production Budget

	April	May	June	Quarter
Budgeted sales	20,000	50,000	30,000	100,000
Add desired ending inventory	10,000	6,000		
Total needed	30,000	56,000		
Less beginning inventory		10,000		
	4,000	46,000		
Required production	26,000			

The Production Budget

	April	May	June	Quarter
Budgeted sales	20,000	50,000	30,000	100,000
Add desired ending inventory	10,000	6,000	5,000	5,000
Total needed	30,000	56,000	35,000	105,000
Less beginning inventory	4,000	10,000	6,000	4,000
Required production	26,000	46,000	29,000	101,000

Expected Cash Collections

- All sales are on account.
- Royal's collection pattern is:

  70% collected in the month of sale,
  25% collected in the month following sale,
  5% is uncollectible.

- The March 31 accounts receivable balance of $30,000 will be collected in full.

Expected Cash Collections

	April	May	June	Quarter
Accounts rec. - 3/31	$ 30,000			$ 30,000
Total cash collections				

Expected Cash Collections

	April	May	June	Quarter
Accounts rec. - 3/31	$ 30,000			$ 30,000
April sales				
70% x $200,000	140,000			140,000
25% x $200,000		$ 50,000		50,000
Total cash collections	$170,000			

Expected Cash Collections

	April	May	June	Quarter
Accounts rec. - 3/31	$ 30,000			$ 30,000
April sales				
70% x $200,000	140,000			140,000
25% x $200,000		$ 50,000		50,000
May sales				
70% x $500,000		350,000		350,000
25% x $500,000			$ 125,000	125,000
Total cash collections	$ 170,000	$ 400,000		

Expected Cash Collections

	April	May	June	Quarter
Accounts rec. - 3/31	$ 30,000			$ 30,000
April sales				
70% x $200,000	140,000			140,000
25% x $200,000		$ 50,000		50,000
May sales				
70% x $500,000		350,000		350,000
25% x $500,000			$ 125,000	125,000
June sales				
70% x $300,000			210,000	210,000
Total cash collections	$ 170,000	$ 400,000	$ 335,000	$ 905,000

The Direct Materials Budget

- A direct materials budget is prepared after the production requirements have been computed.
- The direct materials budget details the raw materials that must be purchased to fulfill the production budget and to provide for adequate inventories.
- The first line in the direct materials budget contains the required production for each time period, which is taken directly from the production budget.
- As with the production budget, the amounts listed under the Year column are not always the sum of the quarterly amounts.
- The desired ending raw materials inventory for the year is the same as the desired ending raw materials inventory for the fourth quarter.
- The direct materials budget is accompanied by a schedule of expected cash disbursements for raw materials.

The Direct Materials Budget

- At Royal Company, five kilograms of material are required per unit of product.
- Management wants materials on hand at the end of each month equal to 10% of the following month's production.
- On March 31, 13,000 kilograms of material are on hand. Material cost $0.40 per kilogram.

Let's prepare the direct materials budget.

The Direct Materials Budget

	April	May	June	Quarter
Production	26,000	46,000	29,000	101,000
Materials per unit				
Production needs				
Add desired ending inventory				
Total needed				
Less beginning inventory				
Materials to be purchased				

From production budget

The Direct Materials Budget

	April	May	June	Quarter
Production	26,000	46,000	29,000	101,000
Materials per unit	5	5	5	5
Production needs	130,000	230,000	145,000	505,000
Add desired ending inventory				
Total needed				
Less beginning inventory				
Materials to be purchased				

The Direct Materials Budget

	April	May	June	Quarter
Production	26,000	46,000	29,000	101,000
Materials per unit	5	5	5	5
Production needs	130,000	230,000	145,000	505,000
Add desired ending inventory	23,000			
Total needed	153,000			
Less beginning inventory				
Materials to be purchased				

10% of the following month's production

The Direct Materials Budget

	April	May	June	Quarter
Production	26,000	46,000	29,000	101,000
Materials per unit	5	5	5	5
Production needs	130,000	230,000	145,000	505,000
Add desired ending inventory	23,000			
Total needed	153,000			
Less beginning inventory	13,000			
Materials to be purchased	140,000			

March 31 inventory

The Direct Materials Budget

	April	May	June	Quarter
Production	26,000	46,000	29,000	101,000
Materials per unit	5	5	5	5
Production needs	130,000	230,000	145,000	505,000
Add desired ending inventory	23,000	14,500	11,500	11,500
Total needed	153,000	244,500	156,500	516,500
Less beginning inventory	13,000	23,000	14,500	13,000
Materials to be purchased	140,000	221,500	142,000	503,500

The Direct Materials Budget

	April	May	June	Quarter
Production	26,000	46,000	29,000	101,000
Materials per unit	5	5	5	5
Production needs	130,000	230,000	145,000	505,000
Add desired ending inventory	23,000	14,500	11,500	11,500
			156,500	516,500
			14,500	13,000
			142,000	503,500

July Production and Inventory

Sales in units	25,000
Add desired ending inventory	3,000
Total units needed	28,000
Less beginning inventory	5,000
Production in units	23,000
Kilograms per unit	5
Total kilograms, July	115,000
Desired percent	10%
Desired ending inventory, June	11,500

Expected Cash Disbursement for Materials

- Royal pays $0.40 per kilogram for its materials.
- One-half of a month's purchases are paid for in the month of purchase; the other half is paid in the following month.
- The March 31 accounts payable balance is $12,000.

Let's calculate expected cash disbursements.

Expected Cash Disbursement for Materials

	April	May	June	Quarter
Accounts pay. 3/31	$12,000			$ 12,000
April purchases				
May purchases				
June purchases				
Total cash disbursements				

Expected Cash Disbursement for Materials

	April	May	June	Quarter
Accounts pay. 3/31	$12,000			$ 12,000
April purchases				
50% x $56,000	28,000			28,000
50% x $56,000		$28,000		28,000
May purchases				
June purchases				
Total cash disbursements	$40,000			

140,000 lbs. × $.40/lb. = $56,000

Expected Cash Disbursement for Materials

	April	May	June	Quarter
Accounts pay. 3/31	$12,000			$ 12,000
April purchases				
50% x $56,000	28,000			28,000
50% x $56,000		$28,000		28,000
May purchases				
50% x $88,600		44,300		44,300
50% x $88,600			$44,300	44,300
June purchases				
Total cash disbursements	$40,000	$72,300		

Expected Cash Disbursement for Materials

	April	May	June	Quarter
Accounts pay. 3/31	$12,000			$ 12,000
April purchases				
50% x $56,000	28,000			28,000
50% x $56,000		$28,000		28,000
May purchases				
50% x $88,600		44,300		44,300
50% x $88,600			$44,300	44,300
June purchases				
50% x $56,800			28,400	28,400
Total cash disbursements	$40,000	$72,300	$72,700	$185,000

The Direct Labor Budget

- The direct labor budget shows the direct-labor hour required to satisfy the production budget.
- By knowing in advance how much labor time will be needed throughout the budget year, the company can develop plans to adjust the labor force as the situation arises.
- Companies that neglect to budget run the risk of facing labor shortage or having to hire and lay off workers at awkward times.

The Direct Labour Budget

- At Royal, each unit of product requires 0.05 hours of direct labour.
- The Company has a “no layoff” policy so all employees will be paid for 40 hours of work each week.
- In exchange for the “no layoff” policy, workers agreed to a wage rate of $10 per hour regardless of the hours worked (No overtime pay).
- For the next three months, the direct labour workforce will be paid for a minimum of 1,500 hours per month.

Let’s prepare the direct labour budget.

The Direct Labour Budget

	April	May	June	Quarter
Production	26,000	46,000	29,000	101,000
Direct labour hours				
Labour hours required				
Guaranteed labour hours				
Labour hours paid				
Wage rate				
Total direct labour cost				

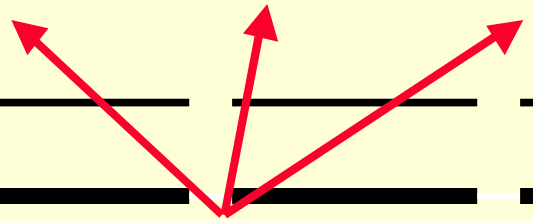
From production budget

The Direct Labour Budget

	April	May	June	Quarter
Production	26,000	46,000	29,000	101,000
Direct labour hours	0.05	0.05	0.05	0.05
Labour hours required	1,300	2,300	1,450	5,050
Guaranteed labour hours				
Labour hours paid				
Wage rate				
Total direct labour cost				

The Direct Labour Budget

	April	May	June	Quarter
Production	26,000	46,000	29,000	101,000
Direct labour hours	0.05	0.05	0.05	0.05
Labour hours required	1,300	2,300	1,450	5,050
Guaranteed labour hours	1,500	1,500	1,500	
Labour hours paid	1,500	2,300	1,500	5,300
Wage rate				
Total direct labour cost				



Higher of labour hours required or labour hours guaranteed.

The Direct Labour Budget

	April	May	June	Quarter
Production	26,000	46,000	29,000	101,000
Direct labour hours	0.05	0.05	0.05	0.05
Labour hours required	1,300	2,300	1,450	5,050
Guaranteed labour hours	1,500	1,500	1,500	
Labour hours paid	1,500	2,300	1,500	5,300
Wage rate	$ 10	$ 10	$ 10	$ 10
Total direct labour cost	$ 15,000	$ 23,000	$ 15,000	$ 53,000

Manufacturing Overhead Budget

- The **manufacturing overhead budget** lists all costs of production other than direct material and direct labor.
- The manufacturing overhead cost may include a variable element (varies with the activity level) and a fixed element.
- Fixed element of the manufacturing overhead cost are the costs of supplying capacity to make products, process purchase orders, handle customer calls, etc.
- The amount of capacity depends on the expected level of activity.
- If expected level of activity is greater than the current level of capacity, than fixed cost might have to be increased. If expected level of activity is substantially lower than the current capacity, the fixed might have to be decreased.

Manufacturing Overhead Budget

- Royal Company uses a variable manufacturing overhead rate of $1 per unit **produced**.
- Fixed manufacturing overhead is $50,000 per month and includes $20,000 of non-cash costs (primarily amortization of plant assets).

Let's prepare the manufacturing overhead budget.

Manufacturing Overhead Budget

	April	May	June	Quarter
Production in units	26,000	46,000	29,000	101,000
Variable mfg. OH rate	$ 1	$ 1	$ 1	$ 1
Variable mfg. OH costs	$ 26,000	$ 46,000	$ 29,000	$ 101,000
Fixed mfg. OH costs				
Total mfg. OH costs				
Less noncash costs				
Cash disbursements for manufacturing OH				

From production budget

Manufacturing Overhead Budget

	April	May	June	Quarter
Production in units	26,000	46,000	29,000	101,000
Variable mfg. OH rate	$ 1	$ 1	$ 1	$ 1
Variable mfg. OH costs	$ 26,000	$ 46,000	$ 29,000	$ 101,000
Fixed mfg. OH costs	50,000	50,000	50,000	150,000
Total mfg. OH costs	76,000	96,000	79,000	251,000
Less noncash costs				
Cash disbursements for manufacturing OH				

Manufacturing Overhead Budget

	April	May	June	Quarter
Production in units	26,000	46,000	29,000	101,000
Variable mfg. OH rate	$ 1	$ 1	$ 1	$ 1
Variable mfg. OH costs	$ 26,000	$ 46,000	$ 29,000	$ 101,000
Fixed mfg. OH costs	50,000	50,000	50,000	150,000
Total mfg. OH costs	76,000	96,000	79,000	251,000
Less noncash costs	20,000	20,000	20,000	60,000
Cash disbursements for manufacturing OH	$ 56,000	$ 76,000	$ 59,000	$ 191,000

Amortization is a non-cash charge.

Ending Finished Goods Inventory Budget

- The cost of unsold units is computed on the ending finished goods inventory budget.
- Now, Royal can complete the ending finished goods inventory budget.
- At Royal, manufacturing overhead is applied to units of product on the basis of direct labour hours.

Let's calculate ending finished goods inventory.

Ending Finished Goods Inventory Budget

Production costs per unit	Quantity	Cost	Total
Direct materials	5.00 lbs.	$ 0.40	$ 2.00
Direct labour			
Manufacturing overhead			
Budgeted finished goods inventory			
Ending inventory in units			
Unit product cost			
Ending finished goods inventory			

Direct materials budget and information

Ending Finished Goods Inventory Budget

Production costs per unit	Quantity	Cost	Total
Direct materials	5.00 lbs.	$ 0.40	$ 2.00
Direct labour	0.05 hrs.	$10.00	0.50
Manufacturing overhead			
Budgeted finished goods inventory			
Ending inventory in units			
Unit product cost			
Ending finished goods inventory			

Direct labour budget

Ending Finished Goods Inventory Budget

Production costs per unit	Quantity		Cost	Total
Direct materials	5.00	lbs.	$ 0.40	$ 2.00
Direct labour	0.05	hrs.	$ 10.00	0.50
Manufacturing overhead	0.05	hrs.	$ 49.70	2.49
				$ 4.99

Budgeted finished goods inventory	
Ending inventory in units	
Unit product cost	$ 4.99
Ending finished goods inventory	

$$\frac{\text{Total mfg. OH for quarter } \$251{,}000}{\text{Total labour hours required } 5{,}050 \text{ hrs.}} = \$49.70 \text{ per hr.}^*$$

*rounded

Ending Finished Goods Inventory Budget

Production costs per unit	Quantity		Cost	Total
Direct materials	5.00	lbs.	$ 0.40	$ 2.00
Direct labour	0.05	hrs.	$ 10.00	0.50
Manufacturing overhea	0.05	hrs.	$ 49.70	2.49
				$ 4.99
Budgeted finished goods inventory				
Ending inventory in units				5,000
Unit product cost				$ 4.99
Ending finished goods inventory				$ 24,950

Production Budget

Selling and Administrative Expense Budget

- The selling and administrative expense budget lists the budgeted expenses for areas other than manufacturing.
- In large organizations, this budget would be a compilation of many smaller, individual budgets submitted by department heads and other persons responsible for selling and administrative expenses.
- For example, marketing manager would submit a budget detailing the advertising expense budget for each budget period.

Selling and Administrative Expense Budget

- At Royal, variable selling and administrative expenses are $0.50 per unit sold.
- Fixed selling and administrative expenses are $70,000 per month.
- The fixed selling and administrative expenses include $10,000 in costs – primarily amortization – that are not cash outflows of the current month.

Let's prepare the company's selling and administrative expense budget.

Selling and Administrative Expense Budget

	April	May	June	Quarter
Budgeted sales	20,000	50,000	30,000	100,000
Variable selling and admin. rate	$ 0.50	$ 0.50	$ 0.50	$ 0.50
Variable expense	$10,000	$25,000	$15,000	$ 50,000
Fixed selling and admin. expense	70,000	70,000	70,000	210,000
Total expense	80,000	95,000	85,000	260,000
Less noncash expenses				
Cash disburse-ments for selling & admin.				

Selling and Administrative Expense Budget

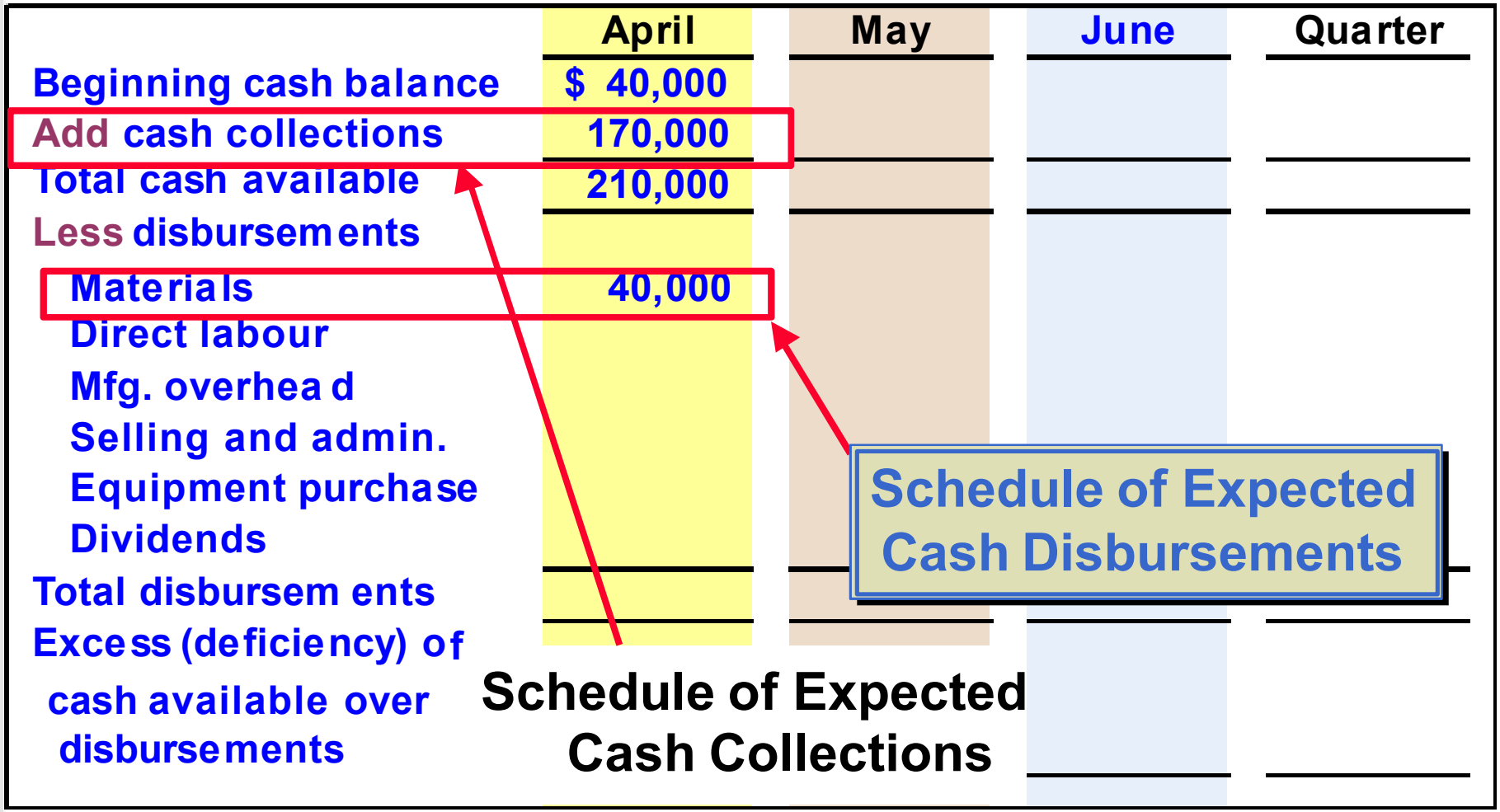
	April	May	June	Quarter
Budgeted sales	20,000	50,000	30,000	100,000
Variable selling and admin. rate	$ 0.50	$ 0.50	$ 0.50	$ 0.50
Variable expense	$10,000	$25,000	$15,000	$ 50,000
Fixed selling and admin. expense	70,000	70,000	70,000	210,000
Total expense	80,000	95,000	85,000	260,000
Less noncash expenses	10,000	10,000	10,000	30,000
Cash disbursements for selling & admin.	$70,000	$85,000	$75,000	$230,000

The Cash Budget

Royal:

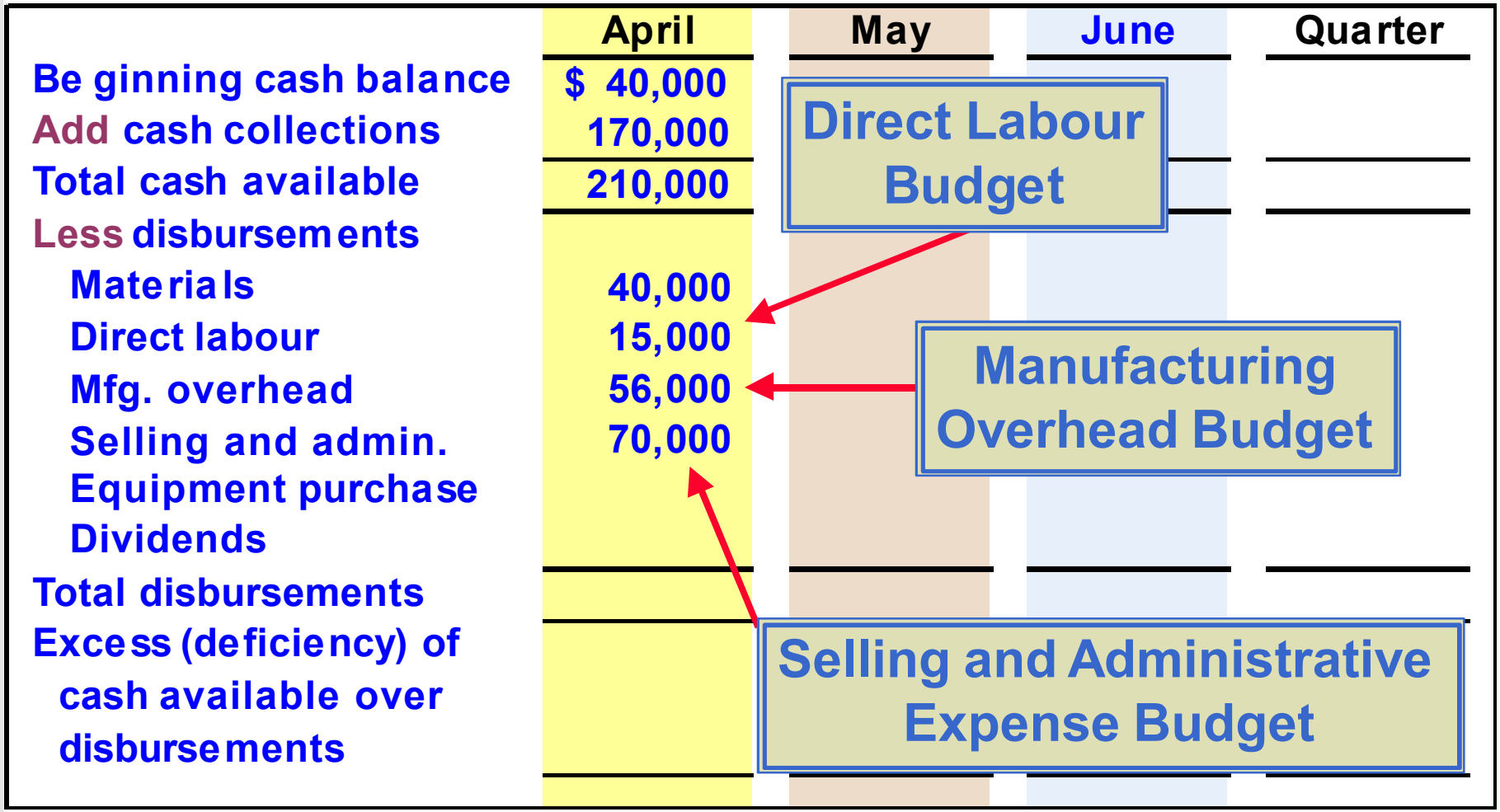
- Maintains a 16% open line of credit for $75,000.
- Maintains a minimum cash balance of $30,000.
- Borrows on the first day of the month and repays loans on the last day of the month.
- Pays a cash dividend of $49,000 in April.
- Purchases $143,700 of equipment in May and $48,300 in June paid in cash.
- Has an April 1 cash balance of $40,000.

The Cash Budget



The Cash Budget

	April	May	June	Quarter
Be ginning cash balance	$ 40,000			
Add cash collections	170,000			
Total cash available	210,000			
Less disbursements				
Materials	40,000			
Direct labour	15,000			
Mfg. overhead	56,000			
Selling and admin.	70,000			
Equipment purchase				
Dividends				
Total disbursements				
Excess (deficiency) of cash available over disbursements				



The Cash Budget

	April	May	June	Quarter
Beginning cash balance	$ 40,000			
Add cash collections	170,000			
Total cash available	210,000			
Less disbursements				
Materials	40,000			
Direct labour	15,000			
Mfg. overhead	56,000			
Selling and admin.	70,000			
Equipment purchase	-			
Dividends	49,000			
Total disbursements	230,000			
Excess (deficiency) of cash available over disbursements	$ (20,000)			

Because Royal maintains a cash balance of $30,000, the company must borrow on its line-of-credit

Financing and Repayment

	April	May	June	Quarter
Excess (deficiency) of Cash available over disbursements	$(20,000)			
Financing:				
Borrowing	50,000			
Repayments	-			
Interest	-			
Total financing	50,000			
Ending cash balance	$ 30,000	$30,000	$ -	$ -

Ending cash balance for April is the beginning May balance.

The Cash Budget

	April	May	June	Quarter
Beginning cash balance	$ 40,000	$ 30,000		
Add cash collections	170,000	400,000		
Total cash available	210,000	430,000		
Less disbursements				
Materials	40,000	72,300		
Direct labour	15,000	23,000		
Mfg. overhead	56,000	76,000		
Selling and admin.	70,000	85,000		
Equipment purchase	-	143,700		
Dividends	49,000	-		
Total disbursements	230,000	400,000		
Excess (deficiency) of cash available over disbursements	$ (20,000)	$ 30,000		

Financing and Repayment

	April	May	June	Quarter
Excess (deficiency) of Cash available over disbursements	$(20,000)	$30,000		
Financing:				
Borrowing	50,000	-		
Repayments	-	-		
Interest	-	-		
Total financing	50,000	-		
Ending cash balance	$ 30,000	$30,000		

Because the ending cash balance is exactly $30,000, Royal will not repay the loan this month.

The Cash Budget

	April	May	June	Quarter
Beginning cash balance	$ 40,000	$ 30,000	$ 30,000	$ 40,000
Add cash collections	170,000	400,000	335,000	905,000
Total cash available	210,000	430,000	365,000	945,000
Less disbursements				
Materials	40,000	72,300	72,700	185,000
Direct labour	15,000	23,000	15,000	53,000
Mfg. overhead	56,000	76,000	59,000	191,000
Selling and admin.	70,000	85,000	75,000	230,000
Equipment purchase	-	143,700	48,300	192,000
Dividends	49,000	-	-	49,000
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

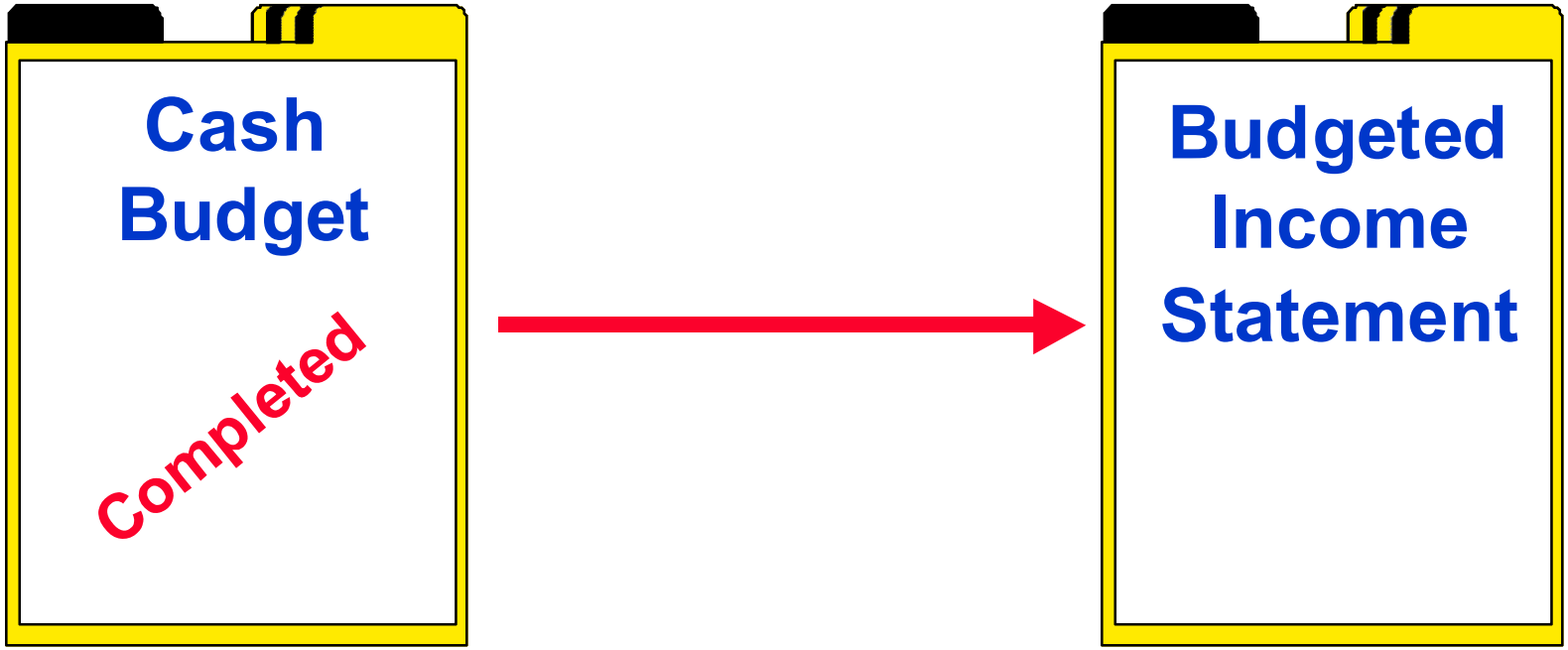
Financing and Repayment

	April	May	June	Quarter
Excess (deficiency) of Cash available over disbursements	$(20,000)	$30,000	$95,000	$45,000
Financing:				
Borrowing	50,000	-	-	50,000
Repayments	-	-	(50,000)	(50,000)
Interest	-	-	(2,000)	(2,000)
Total financing	50,000	-	(52,000)	(2,000)
Ending cash balance	$ 30,000	$30,000	$43,000	$43,000

$50,000 × 16% × 3/12 = $2,000

Borrowings on April 1 and repayment of June 30.

The Budgeted Income Statement



After we complete the cash budget, we can prepare the budgeted income statement for Royal.

The Budgeted Income Statement

Royal Company
Budgeted Income Statement
For the Three Months Ended June 30

Sales (100,000 units @ $10)	$1,000,000
Cost of goods sold (100,000 @ $4.99)	499,000
Gross margin	501,000
Selling and administrative expenses	260,000
Operating income	241,000
Interest expense	2,000
Net income	$ 239,000

The Budgeted Balance Sheet

Royal reported the following account balances on June 30 prior to preparing its budgeted financial statements:

- Land - $50,000
- Building (net) - $175,000
- Common stock - $200,000
- Retained earnings - $146,150

Royal Company Budgeted Balance Sheet June 30	
Current assets	
Cash	$ 43,000
Accounts receivable	75,000
Raw materials inventory	4,600
Finished goods inventory	24,950
Total current assets	147,550
Property and equipment	
Land	50,000
Building	175,000
Equipment	192,000
Total property and equipment	417,000
Total assets	$ 564,550
Accounts payable	$ 28,400
Common stock	200,000
Retained earnings	336,150
Total liabilities and equities	$ 564,550

25% of June sales of $300,000

11,500 kg at $0.40/kg

5,000 units at $4.99 each

50% of June purchases of $56,800

Royal Company
Budgeted Balance Sheet
June 30

Current assets		
Cash	$	43,000
Accounts receivable		
Raw materials inventory		
Finished goods inventory		
Total current assets		
Property and equipment		
Land		50,000
Building		175,000
Equipment		192,000
Total property and equipment		417,000
Total assets	$	564,550
Accounts payable	$	28,400
Common stock		200,000
Retained earnings		336,150
Total liabilities and equities	$	564,550

Beginning balance	$146,150
Add: net income	239,000
Deduct: dividends	(49,000)
Ending balance	$336,150

Zero-Base Budgeting

Managers are required to justify all budgeted expenditures, not just changes in the budget from the previous year. The baseline is zero rather than last year's budget.

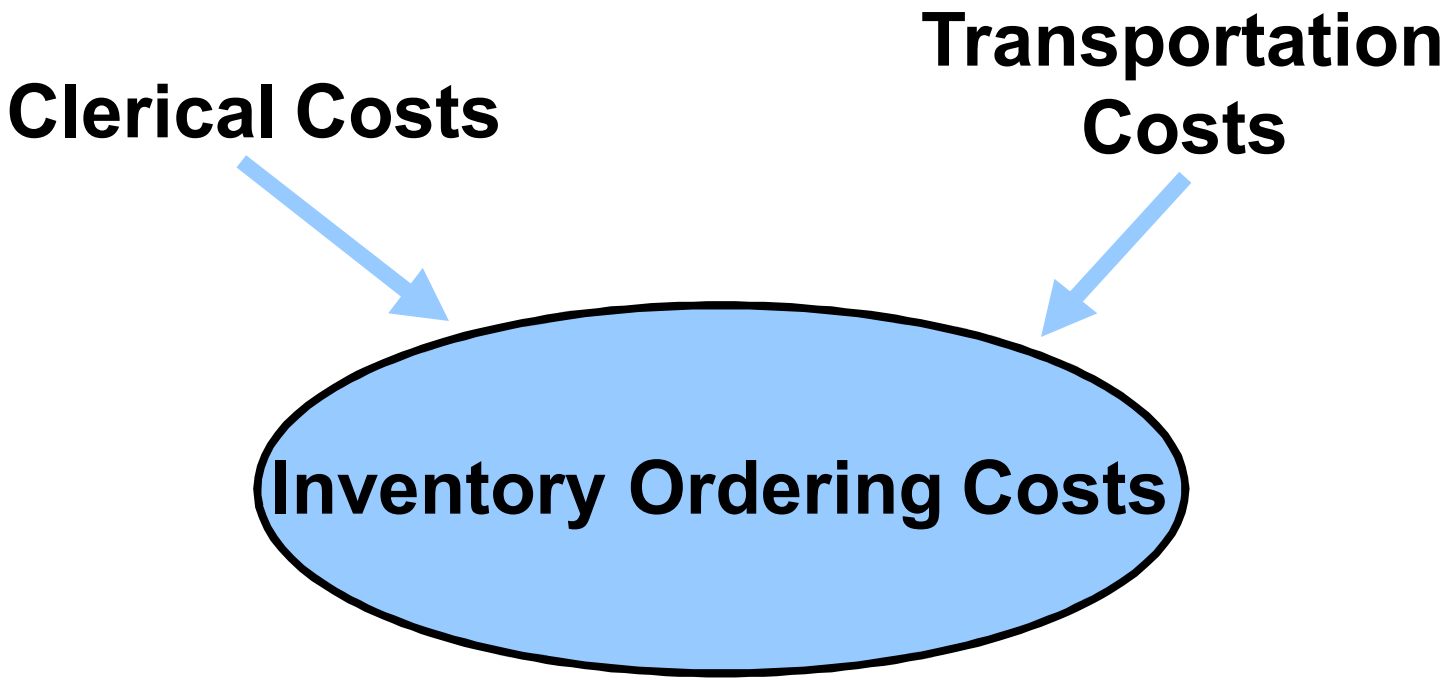
International Aspects of Budgeting

Multinational companies face special problems when preparing a budget.

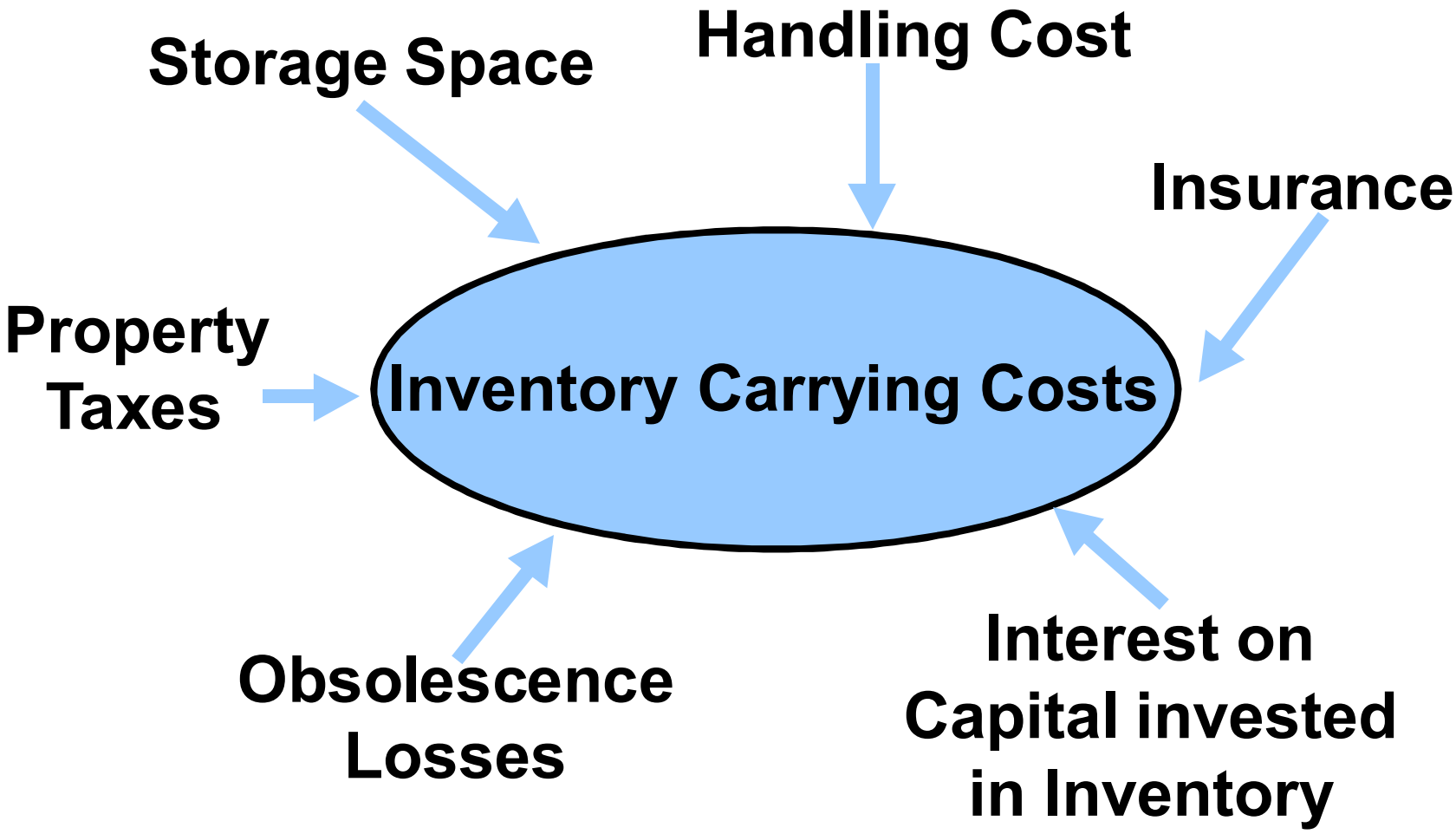
- Fluctuations in foreign currency exchange rates.
- High inflation rates in some foreign countries.
- Differences in local economic conditions.
- Local governmental policies.

Inventory Decisions

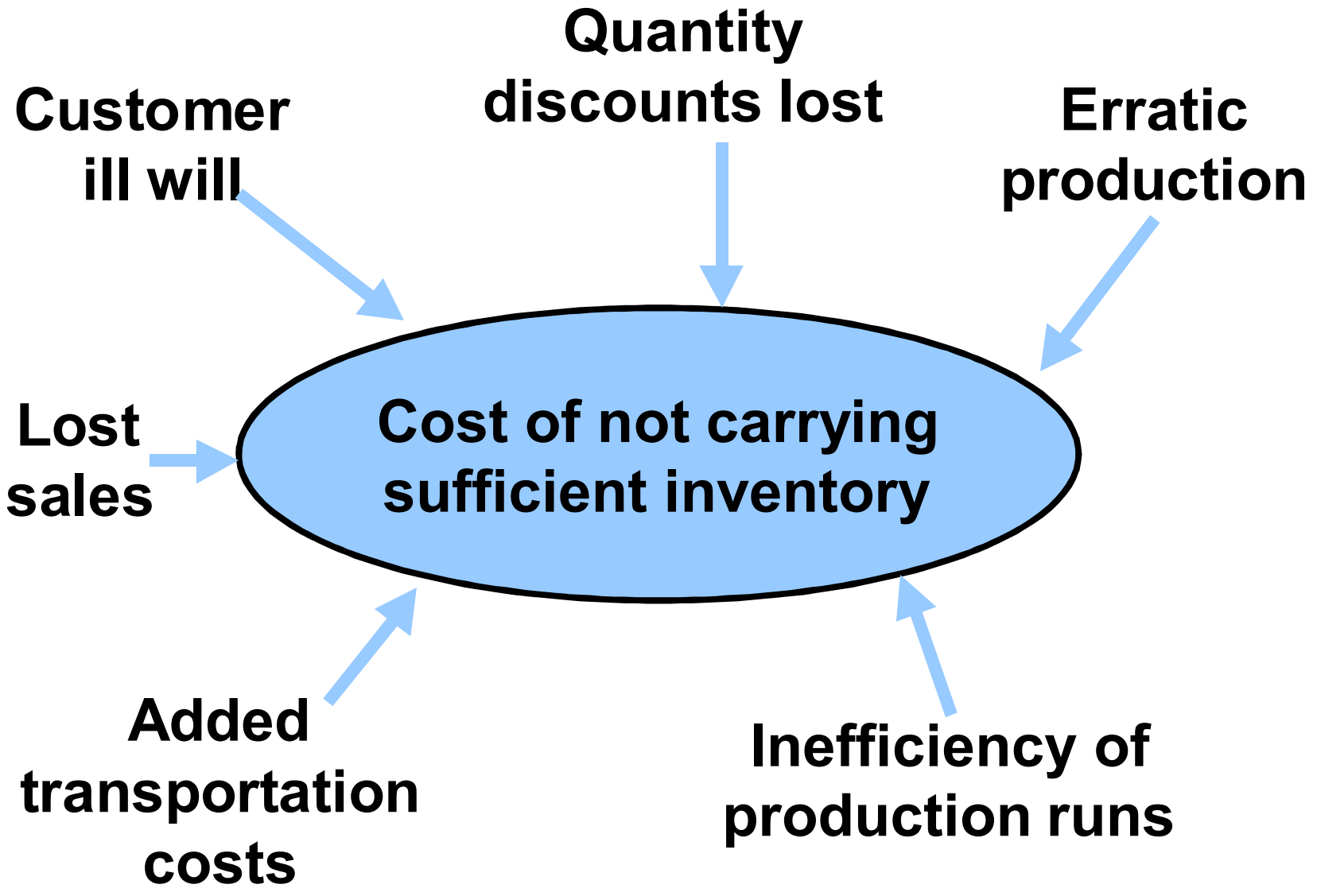
Costs Associated with Inventory



Costs Associated with Inventory



Costs Associated with Inventory



Inventory Problems

- How much to order - Economic Order Quantity (EOQ)

and

- When to order - Reorder Point

Economic Order Quantity (EOQ)

- Tabular approach
  - Tabulates total cost at various order sizes.
  - Lowest cost indicates EOQ.
  - Requires trial and error to determine exact order quantity.

Economic Order Quantity (EOQ)

- Graphic approach
  - Graph cost relationships between total cost, annual carrying cost and annual purchase order cost.
  - Total cost is minimized where annual carrying cost equals annual purchase order cost

Economic Order Quantity (EOQ)

- Formula approach

$$E = \sqrt{\frac{2QP}{C}}$$

where

E= order size in units

Q= annual quantity used in units

P= cost of placing one order

C= annual cost of carrying one unit in stock

Reorder Point/ Safety Stock

- Reorder Point - tells manager when to place an order
  - Depends on economic order quantity, lead times and rate of usage during lead time
- Safety Stock - provides a buffer to protect against a stock-out
  - Reorder point is then calculated by adding the safety stock to the average usage during the lead time

End of Chapter 9