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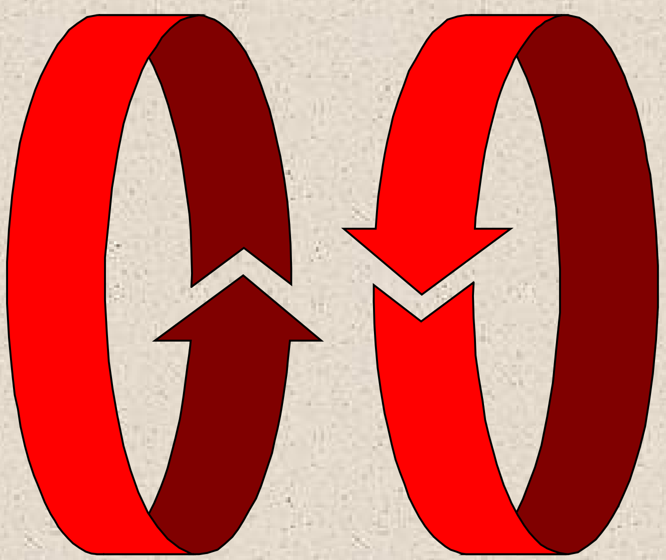
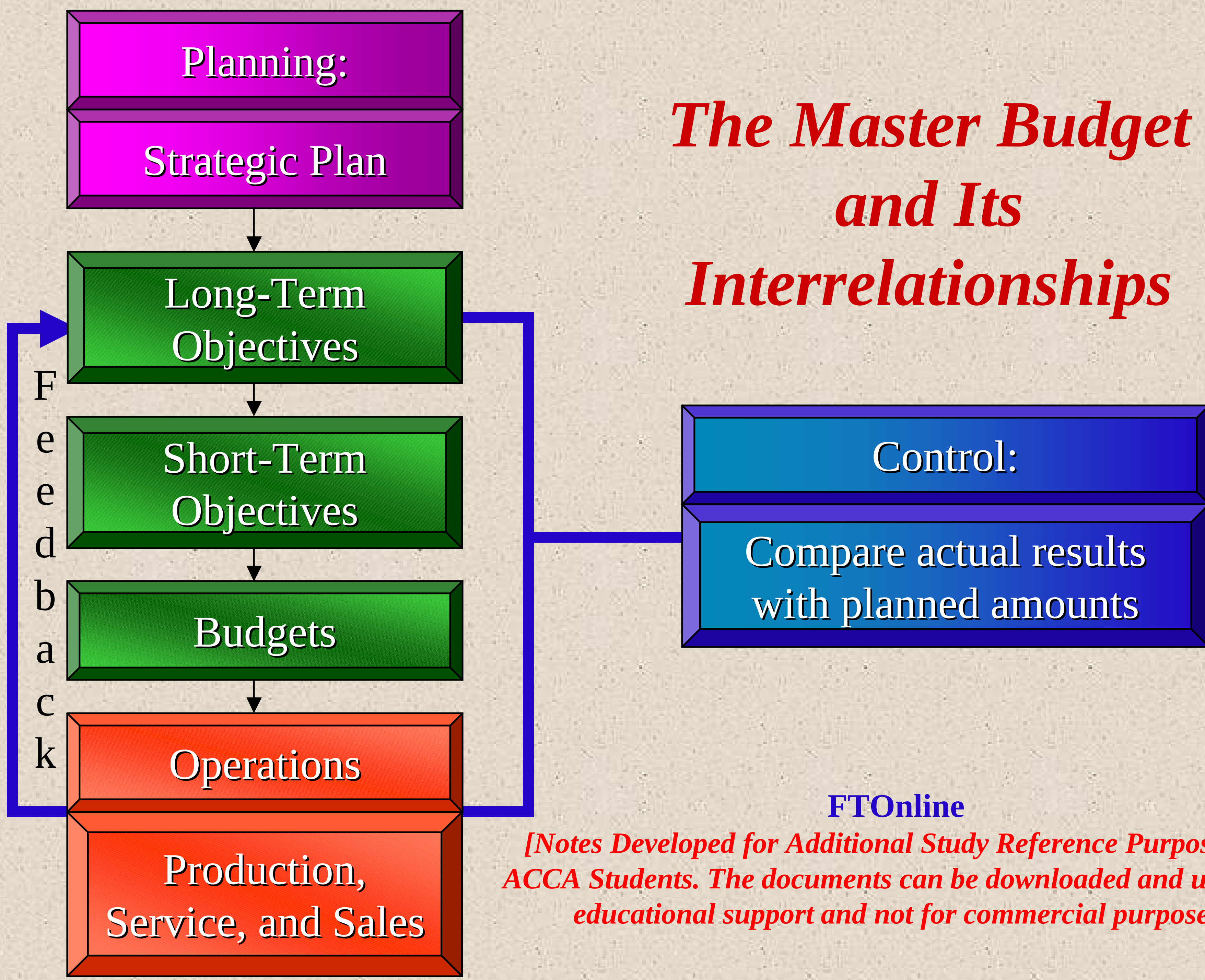
Budgeting for Planning and Control



The Master Budget and Its Interrelationships



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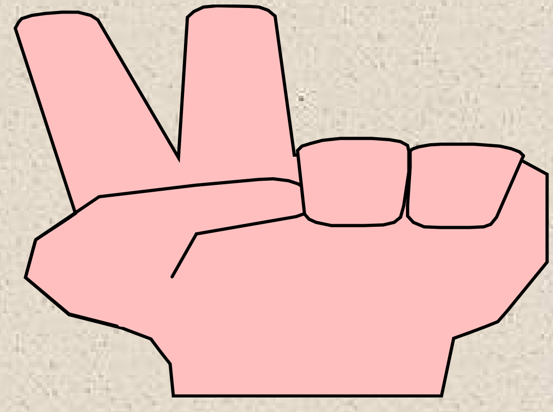
Purposes of Budgeting

- It forces managers to plan.
- It provides resource information that can be used to improve decision making.
- It provides a standard for performance evaluation.
- It improves communication and coordination.

Two Dimensions of Budgeting



There are two dimensions to budgeting:

1. **How is the budget prepared?**
2. **How is the budget used to implement the organization's plan.**

Master Budget

A *master budget* can be divided into operating and financial budgets.

***Operating budgets* describe the income-generating activities of a firm: sales, production, and finished goods inventories.**

***Financial budgets* detail the inflows and outflows of cash and the overall financial position.**

Preparing the Operating Budget

1. Sales budget
2. Production budget
3. Direct materials purchases budget
4. Direct labor budget
5. Overhead budget
6. Ending finished goods inventory budget
7. Cost of goods sold budget
8. Marketing expense budget
9. Research and development budget
10. Administrative expense budget
11. Budgeted income statement

Preparing the Sales Forecast

	1st Qtr.	2nd Qtr	3rd Qtr.	4th Qtr.	Total
Sales (units)	50,000	75,000	90,000	80,000	295,000
*Sales ($)	$1,500,000	$2,250,000	$2,700,000	$2,400,000	$8,850,000

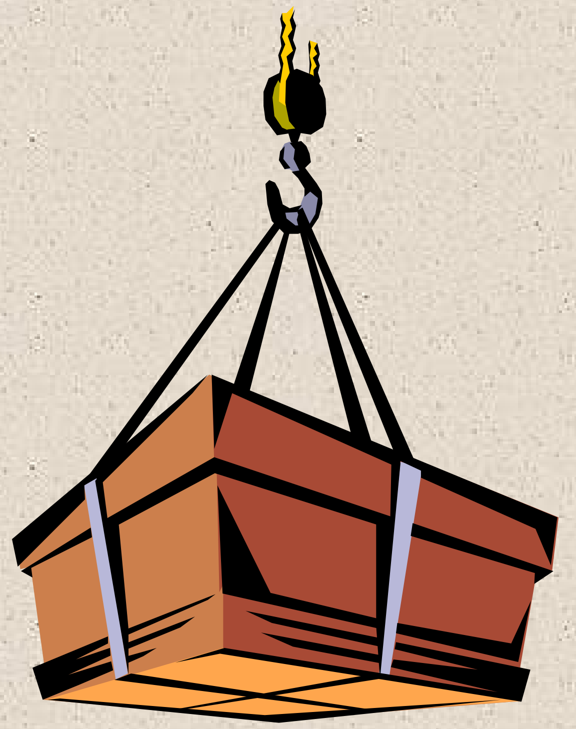
*Sales price of $30 per unit

What techniques are used to forecast sales?

The sales forecast is the basis for the sales budget. The accuracy of the sales forecast strongly affects the soundness of the entire master budget.

Computing Units to be Produced

Units to be produced = Expected unit sales + Units, ending inventory – Units, beginning inventory



Preparing the Production Budget

	1st Qtr.	2nd Qtr	3rd Qtr.	4th Qtr.	Total
Sales (units)	50,000	75,000	90,000	80,000	295,000
*Desired EI	15,000	18,000	16,000	12,000	12,000
Total needs	65,000	93,000	106,000	92,000	307,000
**Less: BI	(10,000)	(15,000)	(18,000)	(16,000)	(10,000)
Production	55,000	78,000	88,000	76,000	297,000

*Assume company wants to maintain an inventory level equal to 20% of next quarter's sales. Projected sales for 1st quarter of the following year are projected to be 60,000 units.

**Ending inventory for previous year was 10,000 units

Preparing the Direct Materials Budget

	1st Qtr.	2nd Qtr	3rd Qtr.	4th Qtr.	Total
Production	55,000	78,000	88,000	76,000	297,000
*Pounds	110,000	156,000	176,000	152,000	594,000
**Desired EI	15,600	17,600	15,200	12,000	12,000
Total needs	125,600	173,600	191,200	164,000	606,000
Less: BI	(11,000)	(15,600)	(17,600)	(15,200)	(11,000)
(lb.)	114,600	158,000	173,600	148,800	595,000
Cost($1.50)	$171,900	$237,000	$260,400	$223,200	$892,500

*2 lb of raw materials are needed for each unit.

**Production for the 1st quarter of next year is projected to be 60,000 units. Ending inventory for the previous year was projected at 11,000 lb. Ending inventory is estimated at 10% of next quarter's production needs.

Preparing the Direct Labor and Overhead Budget

	1st Qtr.	2nd Qtr	3rd Qtr.	4th Qtr.	Total
Production	55,000	78,000	88,000	76,000	297,000
Direct labor hours (1/2 hr.)	27,500	39,000	44,000	38,000	148,500
Total($5/hr.)	$137,500	$195,000	$220,000	$190,000	$742,500
Variable overhead cost(150%)	$206,250	$292,500	$330,000	$285,000	$1,113,750
Fixed overhead	200,000	200,000	200,000	200,000	800,000
Total	$406,250	$492,500	$530,000	$485,000	$1,913,750

Fixed overhead rate = $800,000/$742,500 or 107.7%

Ending Finished Goods Inventory Budget

Unit cost calculation:	
Direct Materials (2 lb.. x $1.50)	= $3.00
Direct Labor (1/2 hour x $5.00)	= 2.50
Variable Overhead ($2.50 x 1.50)	= 3.75
Fixed Overhead ($2.50 x 1.077)	= 2.69
Total unit cost	$11.94

	1st Qtr.	2nd Qtr	3rd Qtr.	4th Qtr.	Total
EI (units)	15,000	18,000	16,000	12,000	12,000
@ $11.94	$179,100	$214,920	$191,040	$143,280	$143,280

Budgeted Cost of Goods Sold

Unit cost calculation:

Direct Materials (2 lb.. x $1.50)	= $3.00
Direct Labor (1/2 hour x $5.00)	= 2.50
Variable Overhead ($2.50 x 1.50)	= 3.75
Fixed Overhead ($2.50 x 1.077)	= 2.69
Total unit cost	$11.94

	1st Qtr.	2nd Qtr	3rd Qtr.	4th Qtr.	Total
Sales (units)	50,000	75,000	90,000	80,000	295,000
@ $11.94	$597,000	$895,500	$1,074,600	$955,200	$3,522,300

Cost of Goods Sold

Preparing the Selling and Administrative Expense Budget

	1st Qtr.	2nd Qtr	3rd Qtr.	4th Qtr.	Total
Sales (units)	50,000	75,000	90,000	80,000	295,000
Sales ($)	$1,500,000	$2,250,000	$2,700,000	$2,400,000	$8,850,000
Variable					
Exp. (8%)	$120,000	$180,000	$216,000	$192,000	$708,000
Fixed					
Expenses:					
Salaries	$200,000	$200,000	$200,000	$200,000	$800,000
Advertising	50,000	50,000	50,000	50,000	200,000
Other	100,000	100,000	100,000	100,000	400,000
Total	$470,000	$530,000	$566,000	$542,000	$2,108,000

Preparing the Budgeted Income Statement

Sales		$8,850,000
Cost of goods sold		3,522,300
Gross Margin		$5,327,700
Operating expenses:		
Variable	$708,000	
Fixed	$1,400,000	2,108,000
Net income before taxes and interest		$3,219,700
Interest[1]		559,905
		2,659,795
Taxes @ 40%		1,063,918
Net Income		$1,595,877

[1]Interest expense derived from cash budget

The Financial Budgets

The usual financial budgets prepared are:

- ***The cash budget***
- ***The budgeted balance sheet***
- ***The budgeted statement of cash flows***
- ***The budget for capital expenditures***

The Cash Budget

Beginning cash balance
+ Cash receipts

Cash available
- Cash disbursements
- Minimum cash balance

Excess or deficiency of cash
- Repayments
+ Loans
+ Minimum cash balance

Ending cash balance

The Cash Forecast

Data related to preparation of cash budget:

1. The company experiences a 3 quarter collection cycle. All sales are for credit with 60 percent collected in the quarter of sale, 30 percent collected in the quarter following the sale, and 10 percent collected 2 quarters after the sale. Sales for 3rd and 4th quarters of last year were $1,750,000 and $2,000,000.
2. Fifty percent of material purchases are paid in current quarter; 50 percent the following quarter.
3. Capital expenditures were estimated at $10,000,000 (during the first quarter) and to be financed by a 10,000,000 mortgage at 6% interest. Repayments are made in increments of $1,000.
4. A $50,000 minimum balance of cash is maintained.

The Cash Forecast (Collections)

	1st Qtr.	2nd Qtr	3rd Qtr.	4th Qtr.	Total
Collections:					
3rd qtr.	$175,000				
4th qtr.	600,000				
1st qtr.	900,000				
4th qtr.		200,000			
1st qtr.		450,000			
2nd qtr.		1,350,000			
1st qtr.			150,000		
2nd qtr.			675,000		
3rd. qtr.			1,620,000		
2nd qtr.				225,000	
3rd qtr.				810,000	
4th qtr				1,440,000	
	$1,675,000	$2,000,000	$2,445,000	$2,475,000	$8,595,000

The Cash Forecast (Payments)

	1st Qtr.	2nd Qtr	3rd Qtr.	4th Qtr.	Total
Purchases:					
4th qtr.	$70,000 *				$70,000
1st qtr.	85,950	85,950			171,900
2nd qtr.		118,500	118,500		237,000
3rd qtr.			130,200	130,200	260,400
4th qtr.				111,600	111,600
	$155,950	$204,450	$248,700	$241,800	$850,900

* given

The Cash Forecast (Disbursements)

	1st Qtr.	2nd Qtr	3rd Qtr.	4th Qtr.	Total
Payments (DM)	$155,950	$204,450	$248,700	$241,800	$850,900
Direct labor	137,500	195,000	220,000	190,000	742,500
Variable overhead	206,250	292,500	330,000	285,000	1,113,750
Fixed overhead	200,000	200,000	200,000	200,000	800,000
V. sell. & admin.	120,000	180,000	216,000	192,000	708,000
F. sell. & admin.	350,000	350,000	350,000	350,000	1,400,000
Capital outlays	10,000,000	-----	-----	-----	10,000,000
Total	$11,169,700	$1,421,950	$1,564,700	$1,458,800	$15,615,150

The Cash Forecast

	1st Qtr.	2nd Qtr	3rd Qtr.	4th Qtr.	Total
Beginning bal.	$50,000	$50,300	$50,675	$50,795	$50,000
Collections	1,675,000	$2,000,000	$2,445,000	$2,475,000	$8,595,000
Cash available	$1,725,000	$2,050,300	$2,495,675	$2,525,795	$8,645,000
Disbursements	$11,169,700	$1,421,950	$1,564,700	$1,458,800	$15,615,150
Financing:					
Borrowing	10,000,000				10,000,000
Debt Payment	355,000	433,000	742,000	889,000	2,419,000
Interest	[1]150,000	[2]144,675	[3]138,180	[4]127,050	559,905
Ending balance	$50,300	$50,675	$50,795	$50,945	$50,945

[1]$10,000,000 x .06 x 3/12 [2] ($10,000,000 - $355,000) x .06 x 3/12

[3]$10,000,000-$355,000-$433,000) x .06 x 3/12

[4] ($10,000,000-$355,0000-$433,000-742,000) X .06 X 3/12)

The Forecasted Balance Sheet

Assets		Liabilities	
Cash	$50,945	Accounts Payable[4]	$111,600
Accounts Receivable[1]	1,230,000	Mortgage Payable[5]	7,581,000
Inventories[2]	161,280		$7,692,600
Equipment (net)[3]	16,000,000	Stockholders Equity	
Total Assets	$17,442,225	Common Stock[6]	8,000,000
		Retained Earnings[7]	1,749,625
			$9,749,625
		Total Equity	$17,442,225

[1] (.10 x $2,700,000 + .40 x $2,400,000)

[2] Includes ending raw materials and finished goods inventories

[3] $6,000,000 + $10,000,000 of new purchases

[4] 1/2 of 4th quarter purchases

[5] $10,000,000 - $2,419,000

[6] From ending balance sheet of previous year

[7] Beginning balance of $153,748 + net income of $1,595,877