

Course Code: ACT4050-8

Course Start Date: 08/11/2014

Section: Standard Costs, Performance Evaluation, Analysis and Capital Investment

Week: 4

Activity: Examine Standards of Budgeting in Managerial Accounting

Activity Due Date: 09/07/2014

Activity Description

Complete the following problems:

Chapter 7: 7-1A, 7-3A, 7-4A

Chapter 8: 8-2A, 8-3A, 8-5A

Chapter 9: 9-1A, 9-2A, 9-5A

In addition to the problem documentation, prepare a 2-3 page summary in which you analyze your results. Support your paper with minimum of one (1) scholarly resource. In addition to these specified resources, other appropriate scholarly resources, including older articles, may be included.

Length: 3-5 pages not including title and reference pages

Your paper should demonstrate thoughtful consideration of the ideas and concepts presented in the course and provide new thoughts and insights relating directly to this topic. Your response should reflect scholarly writing and current APA standards where appropriate. Be sure to adhere to Northcentral University's Academic Integrity Policy.

Upload your assignment using the Upload Assignment button below.

Learning Outcomes

- 3.0 Interpret the cost impact of activity changes on business planning and performance.
- 4.0 Analyze cost information to support operating decisions and process improvements.

Resources

Books	
Reference	Instruction
Warren, C. S., Reeve, J. M., & Duchac, J. (2012) Managerial accounting.	Read Chapters 7, 8 and 9

- Average computer response time to customer "clicks"
- Dollar amount of returned goods
- Elapsed time between customer order and product delivery
- Maintenance dollars divided by hardware investment
- Number of customer complaints divided by the number of orders
- Number of misfilled orders divided by the number of orders
- Number of orders per warehouse employee
- Number of page faults or errors due to software programming errors
- Number of software fixes per week
- Server (computer) downtime
- Training dollars per programmer

- a. For each performance measure, identify it as either an input or output measure related to the "order placement and delivery" process.
- b. Provide an explanation for each performance measure.

OBJ. 6

EX 7-24 Nonfinancial performance measures

Lake Area College wishes to monitor the efficiency and quality of its course registration process.

- a. Identify three input and three output measures for this process.
- b. Why would Lake Area College use nonfinancial measures for monitoring this process?

Problems Series A

OBJ. 2, 3

✓ c. Direct labor time variance, \$2,900 U

PR 7-1A Direct materials and direct labor variance analysis

Oasis Faucet Company manufactures faucets in a small manufacturing facility. The faucets are made from zinc. Manufacturing has 50 employees. Each employee presently provides 36 hours of labor per week. Information about a production week is as follows:

Standard wage per hr.	\$14.50
Standard labor time per faucet	12 min.
Standard number of lbs. of zinc	1.8 lbs.
Standard price per lb. of zinc	\$12.00
Actual price per lb. of zinc	\$11.75
Actual lbs. of zinc used during the week	15,100 lbs.
Number of faucets produced during the week	8,000
Actual wage per hr.	\$15.10
Actual hrs. per week	1,800 hrs.

Instructions

Determine (a) the standard cost per unit for direct materials and direct labor; (b) the price variance, quantity variance, and total direct materials cost variance; and (c) the rate variance, time variance, and total direct labor cost variance.

OBJ. 1, 2, 3

✓ 1. a. Direct materials quantity variance, \$350 F



PR 7-2A Flexible budgeting and variance analysis

Belgian Chocolate Company makes dark chocolate and light chocolate. Both products require cocoa and sugar. The following planning information has been made available

	Standard Amount per Case		Standard Price per Pound
	Dark Chocolate	Light Chocolate	
Cocoa	10 lbs.	7 lbs.	\$4.50
Sugar	8 lbs.	12 lbs.	0.65
Standard labor time	0.35 hr.	0.40 hr.	
	Dark Chocolate	Light Chocolate	
Planned production	4,200 cases	10,500 cases	
Standard labor rate	\$14.50 per hr.	\$14.50 per hr.	

Belgian Chocolate does not expect there to be any beginning or ending inventories of cocoa or sugar. At the end of the budget year, Belgian Chocolate had the following actual results:

	Dark Chocolate	Light Chocolate
Actual production (cases)	4,000	11,000
	Actual Price per Pound	Actual Pounds Purchased and Used
Cocoa	\$4.60	117,500
Sugar	0.60	160,000
	Actual Labor Rate	Actual Labor Hours Used
Dark chocolate	\$13.90 per hr.	1,270
Light chocolate	14.90 per hr.	4,500

Instructions

- Prepare the following variance analyses for both chocolates and total, based on the actual results and production levels at the end of the budget year:
 - Direct materials price, quantity, and total variance.
 - Direct labor rate, time, and total variance.
- Why are the standard amounts in part (1) based on the actual production for the year instead of the planned production for the year?

OBJ. 3, 4
 ✓ c. Controllable variance, \$260 F



PR 7-3A Direct materials, direct labor, and factory overhead cost variance analysis

Specialty Polymers, Inc., processes a base chemical into plastic. Standard costs and actual costs for direct materials, direct labor, and factory overhead incurred for the manufacture of 19,000 units of product were as follows:

	Standard Costs	Actual Costs
Direct materials	2,500 lbs. at \$8.10	2,440 lbs. at \$8.30
Direct labor	3,800 hrs. at \$17.50	3,750 hrs. at \$17.68
Factory overhead	Rates per direct labor hr., based on 100% of normal capacity of 3,900 direct labor hrs.:	
	Variable cost, \$2.20	\$8,100 variable cost
	Fixed cost, \$3.50	\$13,650 fixed cost

Each unit requires 0.2 hour of direct labor.

Instructions

Determine (a) the price variance, quantity variance, and total direct materials cost variance; (b) the rate variance, time variance, and total direct labor cost variance; and (c) variable factory overhead controllable variance, the fixed factory overhead volume variance, and total factory overhead cost variance.

OBJ. 4
 ✓ Controllable variance, \$280 U



PR 7-4A Standard factory overhead variance report

Tiger Equipment Inc., a manufacturer of construction equipment, prepared the following factory-overhead cost budget for the Welding Department for May 2012. The company expected to operate the department at 100% of normal capacity of 7,000 hours.

Variable costs:	
Indirect factory wages	\$22,050
Power and light	12,600
Indirect materials	<u>10,500</u>
Total variable cost	\$45,150

OBJ. 5
 ✓ b. \$500,000

EX 8-21 Decision on transfer pricing

Based on Goldman Motors' data in Exercise 8-20, assume that a transfer price of \$290 has been established and that 25,000 units of materials are transferred, with no reduction in the Components Division's current sales.

- How much would Goldman Motors' total income from operations increase?
- How much would the Truck Division's income from operations increase?
- How much would the Components Division's income from operations increase?
- If the negotiated price approach is used, what would be the range of acceptable transfer prices and why?

Problems Series A

OBJ. 2



PR 8-1A Budget performance report for a cost center

World-Tec Company sells electronics over the Internet. The International Division is organized as a cost center. The budget for the International Division for the month ended March 31, 2012, is as follows (in thousands):

Customer service salaries	\$ 325,500
Insurance and property taxes	68,250
Distribution salaries	519,250
Marketing salaries	612,125
Engineer salaries	498,125
Warehouse wages	348,800
Equipment depreciation	109,400
Total	<u>\$2,481,450</u>

During March, the costs incurred in the International Division were as follows:

Customer service salaries	\$ 416,700
Insurance and property taxes	66,200
Distribution salaries	514,000
Marketing salaries	685,500
Engineer salaries	488,100
Warehouse wages	334,900
Equipment depreciation	109,375
Total	<u>\$2,614,775</u>

Instructions

- Prepare a budget performance report for the director of the International Division for the month of March.
- For which costs might the director be expected to request supplemental reports?

OBJ. 3

✓ 1. Income from operations, Central Division, \$390,000



PR 8-2A Profit center responsibility reporting

Johnson Products Inc. has three regional divisions organized as profit centers. The chief executive officer (CEO) evaluates divisional performance, using income from operations as a percent of revenues. The following quarterly income and expense accounts were provided from the trial balance as of December 31, 2012:

Revenues—East	\$ 720,000
Revenues—West	860,000
Revenues—Central	1,560,000
Operating Expenses—East	456,150
Operating Expenses—West	511,700
Operating Expenses—Central	943,550
Corporate Expenses—Shareholder Relations	112,000
Corporate Expenses—Customer Support	385,000
Corporate Expenses—Legal	152,000
General Corporate Officers' Salaries	240,000

The company operates three service departments: Shareholder Relations, Customer Support, and Legal. The Shareholder Relations Department conducts a variety of services for shareholders of the company. The Customer Support Department is the company's point of contact for new service, complaints, and requests for repair. The department believes that the number of customer contacts is an activity base for this work. The Legal Department provides legal services for division management. The department believes that the number of hours billed is an activity base for this work. The following additional information has been gathered:

	East	West	Central
Number of customer contacts	4,375	5,250	7,875
Number of hours billed	950	1,520	1,330

Instructions

1. Prepare quarterly income statements showing income from operations for the three divisions. Use three column headings: East, West, and Central.
2. Identify the most successful division according to the profit margin.
3. ~~Provide~~ Provide a recommendation to the CEO for a better method for evaluating the performance of the divisions. In your recommendation, identify the major weakness of the present method.

OBJ. 4

✓ 2. Mutual Fund Division, ROI, 18%



PR 8-3A Divisional income statements and rate of return on investment analysis

Edward Baird Company is a diversified investment company with three operating divisions organized as investment centers. Condensed data taken from the records of the three divisions for the year ended June 30, 2012, are as follows:

	Mutual Fund Division	Electronic Brokerage Division	Investment Banking Division
Fee revenue	\$3,450,000	\$2,800,000	\$3,800,000
Operating expenses	2,415,000	2,632,000	2,850,000
Invested assets	5,750,000	800,000	4,750,000

The management of Edward Baird Company is evaluating each division as a basis for planning a future expansion of operations.

Instructions

1. Prepare condensed divisional income statements for the three divisions, assuming that there were no service department charges.
2. Using the DuPont formula for rate of return on investment, compute the profit margin, investment turnover, and rate of return on investment for each division.
3. ~~If available funds permit the expansion of operations of only one division, which of the divisions would you recommend for expansion, based on parts (1) and (2)? Explain.~~

OBJ. 4

✓ 1. ROI, 15.6%



PR 8-4A Effect of proposals on divisional performance

A condensed income statement for the Golf Division of Rewind Sports Inc. for the year ended December 31, 2012, is as follows:

Sales	\$2,400,000
Cost of goods sold	1,663,000
Gross profit	\$ 737,000
Operating expenses	425,000
Income from operations	\$ 312,000
Invested assets	\$2,000,000

Assume that the Golf Division received no charges from service departments. The president of Rewind Sports has indicated that the division's rate of return on a \$2,000,000

investment must be increased to at least 18% by the end of the next year if operations are to continue. The division manager is considering the following three proposals:

Proposal 1: Transfer equipment with a book value of \$400,000 to other divisions at no gain or loss and lease similar equipment. The annual lease payments would exceed the amount of depreciation expense on the old equipment by \$72,000. This increase in expense would be included as part of the cost of goods sold. Sales would remain unchanged.

Proposal 2: Purchase new and more efficient machining equipment and thereby reduce the cost of goods sold by \$264,000. Sales would remain unchanged, and the old equipment, which has no remaining book value, would be scrapped at no gain or loss. The new equipment would increase invested assets by an additional \$1,000,000 for the year.

Proposal 3: Reduce invested assets by discontinuing a product line. This action would eliminate sales of \$425,000, cost of goods sold of \$284,250, and operating expenses of \$125,000. Assets of \$1,012,500 would be transferred to other divisions at no gain or loss.

Instructions

1. Using the DuPont formula for rate of return on investment, determine the profit margin, investment turnover, and rate of return on investment for the Golf Division for the past year.
2. Prepare condensed estimated income statements and compute the invested assets for each proposal.
3. Using the DuPont formula for rate of return on investment, determine the profit margin, investment turnover, and rate of return on investment for each proposal.
4. Which of the three proposals would meet the required 18% rate of return on investment?
5. If the Golf Division were in an industry where the profit margin could not be increased, how much would the investment turnover have to increase to meet the president's required 18% rate of return on investment? Round to one decimal place.

OBJ. 4

✓ 2. Business Division ROI, 24.0%



PR 8-5A Divisional performance analysis and evaluation

The vice president of operations of Avigi IQ Company is evaluating the performance of two divisions organized as investment centers. Invested assets and condensed income statement data for the past year for each division are as follows:

	Business Division	Consumer Division
Sales	\$1,800,000	\$1,850,000
Cost of goods sold	940,000	950,000
Operating expenses	572,000	493,000
Invested assets	1,200,000	2,312,500

Instructions

1. Prepare condensed divisional income statements for the year ended December 31, 2012, assuming that there were no service department charges.
2. Using the DuPont formula for rate of return on investment, determine the profit margin, investment turnover, and rate of return on investment for each division.
3. If management desires a minimum acceptable rate of return of 18%, determine the residual income for each division.
4. Discuss the evaluation of the two divisions, using the performance measures determined in parts (1), (2), and (3).

OBJ. 5

✓ 3. Total income from operations, \$1,092,000



PR 8-6A Transfer pricing

Eccles, Inc., manufactures electronic products, with two operating divisions, the Electronics and Instruments divisions. Condensed divisional income statements, which involve no intracompany transfers and which include a breakdown of expenses into variable and fixed components, are as follows:

tion, which is a pressurized heat treatment. The autoclave is a production bottleneck. Total fixed costs are \$85,000 for the company as a whole. In addition, the following information is available about the three products:

	Large	Medium	Small
Unit selling price	\$140	\$115	\$100
Unit variable cost	110	94	88
Unit contribution margin	<u>\$ 30</u>	<u>\$ 21</u>	<u>\$ 12</u>
Autoclave hours per unit	4	2	1
Total process hours per unit	8	6	3
Budgeted units of production	3,000	3,000	3,000

- Determine the contribution margin by glass type and the total company income from operations for the budgeted units of production.
- Prepare an analysis showing which product is the most profitable per bottleneck hour.

OBJ. 3
 ✓ Medium, \$118

EX 9-22 Product pricing under bottlenecked operations

Based on the data presented in Exercise 9-21, assume that Pennsylvania Glass wanted to price all products so that they produced the same profit potential as the highest profit product. Thus, determine the prices for each of the products so that they would produce a profit equal to the highest profit product.

✓ b. 8.41%

Appendix EX 9-23 Total cost concept of product pricing

Based on the data presented in Exercise 9-17, assume that Voice Com, Inc., uses the total cost concept of applying the cost-plus approach to product pricing.

- Determine the total costs and the total cost amount per unit for the production and sale of 5,000 units of cellular phones.
- Determine the total cost markup percentage (rounded to two decimal places) for cellular phones.
- Determine the selling price of cellular phones. Round to the nearest dollar.

✓ a. Cost amount per unit, \$160

Appendix EX 9-24 Variable cost concept of product pricing

Based on the data presented in Exercise 9-17, assume that Voice Com, Inc., uses the variable cost concept of applying the cost-plus approach to product pricing.

- Determine the variable costs and the variable cost amount per unit for the production and sale of 5,000 units of cellular phones.
- Determine the variable cost markup percentage for cellular phones.
- Determine the selling price of cellular phones. Round to the nearest dollar.

Problems Series A

OBJ. 1



PR 9-1A Differential analysis involving opportunity costs

On August 1, Matrix Stores Inc. is considering leasing a building and purchasing the necessary equipment to operate a retail store. Alternatively, the company could use the funds to invest in \$150,000 of 6% U.S. Treasury bonds that mature in 16 years. The bonds could be purchased at face value. The following data have been assembled:

Cost of store equipment	\$150,000
Life of store equipment	16 years
Estimated residual value of store equipment	\$18,000
Yearly costs to operate the store, excluding depreciation of store equipment	\$56,000
Yearly expected revenues—years 1–8	\$75,000
Yearly expected revenues—years 9–16	\$70,000

Instructions

1. Prepare a differential analysis as of August 1, 2012, presenting the proposed operation of the store for the 16 years (Alternative 1) as compared with investing in U.S. Treasury bonds (Alternative 2).
2. Based on the results disclosed by the differential analysis, should the proposal be accepted?
3. If the proposal is accepted, what would be the total estimated income from operations of the store for the 16 years?

OBJ. 1

**PR 9-2A Differential analysis for machine replacement proposal**

Franklin Printing Company is considering replacing a machine that has been used in its factory for four years. Relevant data associated with the operations of the old machine and the new machine, neither of which has any estimated residual value, are as follows:

Old Machine	
Cost of machine, 10-year life	\$108,000
Annual depreciation (straight-line)	10,800
Annual manufacturing costs, excluding depreciation	38,600
Annual nonmanufacturing operating expenses	12,300
Annual revenue	95,000
Current estimated selling price of machine	35,900
New Machine	
Cost of machine, six-year life	\$138,000
Annual depreciation (straight-line)	23,000
Estimated annual manufacturing costs, exclusive of depreciation	18,200

Annual nonmanufacturing operating expenses and revenue are not expected to be affected by purchase of the new machine.

Instructions

1. Prepare a differential analysis as of February 29, 2012, comparing operations using the present equipment (Alternative 1) with operations using the new equipment (Alternative 2). The analysis should indicate the total differential income that would result over the six-year period if the new machine is acquired.
2. List other factors that should be considered before a final decision is reached.

OBJ. 1

✓ 1. Moisturizer income, \$330,000

**PR 9-3A Differential analysis for sales promotion proposal**

L'Essence Cosmetics Company is planning a one-month campaign for June to promote sales of one of its two cosmetics products. A total of \$150,000 has been budgeted for advertising, contests, redeemable coupons, and other promotional activities. The following data have been assembled for their possible usefulness in deciding which of the products to select for the campaign:

	Moisturizer	Perfume
Unit selling price	\$50	\$55
Unit production costs:		
Direct materials	\$ 9	\$12
Direct labor	3	4
Variable factory overhead	2	3
Fixed factory overhead	5	6
Total unit production costs	\$19	\$25
Unit variable selling expenses	16	15
Unit fixed selling expenses	9	5
Total unit costs	\$44	\$45
Operating income per unit	\$ 6	\$10

No increase in facilities would be necessary to produce and sell the increased output. It is anticipated that 24,000 additional units of moisturizer or 20,000 additional units of perfume could be sold without changing the unit selling price of either product.

Instructions

1. Prepare a differential analysis as of June 15, 2012, to determine whether to promote moisturizer (Alternative 1) or perfume (Alternative 2).
2. ~~Prepare~~ The sales manager had tentatively decided to promote perfume, estimating that operating income would be increased by \$50,000 (\$10 operating income per unit for 20,000 units, less promotion expenses of \$150,000). The manager also believed that the selection of moisturizer would reduce operating income, (\$6,000) (\$6 operating income per unit for 24,000 units, less promotion expenses of \$150,000). State briefly your reasons for supporting or opposing the tentative decision.

OBJ. 1

- ✓ 1. Raw sugar income, \$16,200

PR 9-4A Differential analysis for further processing

The management of Jamaican Sugar Company is considering whether to process further raw sugar into refined sugar. Refined sugar can be sold for \$2.15 per pound, and raw sugar can be sold without further processing for \$1.20 per pound. Raw sugar is produced in batches of 36,000 pounds by processing 90,000 pounds of sugar cane, which costs \$0.30 per pound of cane. Refined sugar will require additional processing costs of \$0.45 per pound of raw sugar, and 1.2 pounds of raw sugar will produce 1 pound of refined sugar.

Instructions

1. Prepare a differential analysis as of January 30, 2012, to determine whether to sell raw sugar (Alternative 1) or process further into refined sugar (Alternative 2).
2. ~~Prepare~~ Briefly report your recommendations.

- OBJ. 1,2, and Appendix
- ✓ 2. b. Markup percentage, 50%

PR 9-5A Product pricing using the cost-plus approach concepts; differential analysis for accepting additional business

Display Labs Inc. recently began production of a new product, flat panel displays, which required the investment of \$1,800,000 in assets. The costs of producing and selling 9,000 units of flat panel displays are estimated as follows:

Variable costs per unit:		Fixed costs:	
Direct materials	\$ 90	Factory overhead	\$360,000
Direct labor	20	Selling and administrative expenses	180,000
Factory overhead	40		
Selling and administrative expenses	35		
Total	<u>\$185</u>		

Display Labs Inc. is currently considering establishing a selling price for flat panel displays. The president of Display Labs has decided to use the cost-plus approach to product pricing and has indicated that the displays must earn a 20% rate of return on invested assets.

Instructions

1. Determine the amount of desired profit from the production and sale of flat panel displays.
2. Assuming that the product cost concept is used, determine (a) the cost amount per unit, (b) the markup percentage, and (c) the selling price of flat panel displays.
3. **Appendix:** Assuming that the total cost concept is used, determine (a) the cost amount per unit, (b) the markup percentage (rounded to two decimal places), and (c) the selling price of flat panel displays (rounded to nearest whole dollar).
4. **Appendix:** Assuming that the variable cost concept is used, determine (a) the cost amount per unit, (b) the markup percentage (rounded to two decimal places), and (c) the selling price of flat panel displays (rounded to nearest whole dollar).
5. ~~Prepare~~ Comment on any additional considerations that could influence establishing the selling price for flat panel displays.