Vol. 2, Chapter 16 – Operations Budgeting

Problem 1: Solution

January 20X7		
Sales	$100,400	
Expenses:		
Labor--fixed	$12,000	
Labor	$18,000	17.93%
Cost of Sales	$36,000	35.86%
Supplies	$ 3,200	3.19%
Energy	$ 2,620	2.61%
Promotion	$ 1,300	1.29%
Maintenance--fixed	$ 2,000	
Maintenance	$ 1,200	1.20%
Property taxes	$ 800	
Depreciation	$ 1,000	
Rent	$ 850	
Insurance	$ 625	
Subtotal	$79,595	
Net Income	$20,805	

1.) Sales Increase = 10%
Fixed costs increase = 5%
Variable costs remain the same.

January 20X8	
Sales	$110,440
Expenses:	
Labor--fixed	$ 12,600
Labor	$ 19,800
Cost of Sales	$ 39,600
Supplies	$ 3,520
Energy	$ 2,882
Promotion	$ 1,430
Maintenance--fixed	$ 2,100
Maintenance	$ 1,320
Property taxes	$ 840
Depreciation	$ 1,050
Rent	$ 893
Insurance	$ 656
Subtotal	$ 86,691
Net Income	$ 23,749

Problem 2: Solution

Rooms Available =		100
Expected Paid Occ % =		80%
Double Room Occ % =		80%
Single Room Occ % =		20%
ADR =		$100
Price of Double Rooms =	$10 more than single rooms	
Room Revenue =	95% of total revenue	
Other Revenue =	5% of total revenue	

Room Expenses:

Fixed	$5,000
Variable	$8 per room sold

Other Expenses:	Fixed	Variable
A&G	$4,000	4%
Sales and marketing	$1,000	5%
Property operation and maintenance	$3,000	
Energy costs	$1,000	2%
Insurance	$2,000	
Property taxes	$2,000	
Depreciation	$2,500	
Interest	$1,800	
Income tax	25% of pretax income	

80 rooms will be sold each night. 16 will be single occupied and 64 will be double occupied:

$8,000(80 rooms × $100 ADR) = 16x + 64(x+$10)
$8,000 = 16x + 64x + $640
$7,360 = 80x
x = $92.00

Revenue:		
Rooms	(64 × $102 + 16 × $92) × 31	$248,000.00
Other Revenue	($248,000 / .95) - $248,000	$ 13,052.63
Total Revenues		$261,052.63
Variable Expenses:		
Rooms	31 days 80 rooms/day × $8	$ 19,840.00
A&G	4% × total revenue	$ 10,442.11
Sales & Marketing	5% × total revenue	$ 13,052.63
Energy costs	2% × total revenue	$ 5,221.05

Problem 2: Solution (continued)

Fixed Expenses:	
Rooms	$ 5,000
A&G	$ 4,000
Sales and Marketing	$ 1,000
Property operation and maintenance	$ 3,000
Energy costs	$ 1,000
Insurance	$ 2,000
Property taxes	$ 2,000
Depreciation	$ 2,500
Interest	$ 1,800
Total Expenses	$ 70,855.79
Earnings Before Tax	$190,196.84
Income Tax (25%)	$ 47,549.21
Net Income	$142,647.63

Problem 3: Solution

Expected trends into 20X4:

Rooms sold: The increase for past two years has been 30 rooms sold per year. Therefore, project 2,190 rooms to be sold during 20X4.

ADR has increased by $2 per year for the past two years. Therefore, project an ADR for 20X4 of $51.

Projected sales for April 20X4:

April sales = projected ADR × expected number of rooms to be sold
= $51 × 2,190 = $111,690

Problem 4: Solution

Breakfast sales:
There are five Mondays during June and four Tuesdays-Saturdays.

Breakfast turnover × number of days × average food service check × number of seats = breakfast sales

Breakfast sales = [(1.3 × 5) + (1.2 + 1.4 + 1.4 + 1.3 + .5) × 4] × 4.25 × 50
= $6,311.25

Lunch sales = [(1.5 × 5) + (1.3 + 1.4 + 1.2 + 1.3 + .8) × 4] × 6.85 × 50
= $10,788.75

Dinner sales = [(.5 × 5) + (.6 + .6 + .5 + 1 + 1.5) × 4] × 10.50 × 50
= $10,132.50

Problem 5: Solution

1. Budget variance = actual sales - budgeted sales

	Meals	Price	Total
Budget	3,000	$5.50	$16,500.00
Actual	3,200	5.75	18,400.00
Budget variance			$ 1,900.00

2. Volume variance = difference in meals × budgeted price
   Volume variance = 200 × $5.50 = $1,100.00

3. Price variance = diff. in price × budgeted meals to be sold
   Price variance = $.25 × 3,000 = $750.00

Problem 6: Solution

Budget	$5,000 and 4%
Fixed Expenses	$100 only
Variable Expenses	$500 and 2%

	Budget	Actual	$ Variance	% Variance	S/NS
Room Sales	$200,000	$196,000	-$4,000	- 2.00%	NS
Food Sales	$ 50,000	$ 56,000	$6,000	12.00%	S
Cost of Food Sold (V)	$ 15,000	$ 16,000	-$1,000	- 6.67%	S
Labor (F)	$ 10,000	$ 9,700	$ 300	3.00%	S
Labor (V)	$ 15,000	$ 15,200	-$ 200	- 1.33%	NS
Supplies (V)	$ 2,500	$ 2,700	-$ 200	- 8.00%	NS
Franchise Fees (V)	$ 4,000	$ 4,480	-$ 480	-12.00%	NS
Depreciation (F)	$ 6,000	$ 6,000	$ 0	0.00%	NS
Insurance (F)	$ 2,000	$ 2,050	-$ 50	- 2.50%	NS
Property taxes (F)	$ 3,000	$ 3,000	$ 0	0.00%	NS

Problem 7: Solution

1. Budget Variance
   Budgeted $ 8,400.00
   Actual $ 8,892.00
   Variance $ (492.00) (U)

2. The budget variance is significant. Variable wages were 5.8% higher than budgeted and were $492 over the budgeted amount.

3. John did a good job managing the room attendants because the room attendants averaged 2.0175 rooms per hour worked and were paid $0.20 less per hour than budgeted. This translates into savings of $310 in variable wages for the month of June.

Calculations:
   RV = (8.00-7.80)(1150) = 230 (F)
   EV = (1150-1140)(8.0) = 80 (F)
   Total = $310 (F)

Problem 8: Solution

1.

Waverly Motor Hotel
Rooms Department Budget
For the year of 20X6

Sales		$1,368,750[1]
Labor: Variable	$136,875[2]	
Fixed	100,000	236,875
Other operating expenses[3]		68,438
Department Income		$1,063,437

[1].75 × 100 × 365 × 50 = $1,368,750
[2].75 × 100 × 365 × 5 = $136,875
[3].75 × 100 × 365 × 2.50 = 68,437.50 (use $68,438)

2. $\frac{1,063,437}{1,368,750} = 77.69\%$

Based on the dual criteria of departmental income of at least $1,000,000 and a contribution margin of at least 75%, Ms. Jackson's budget is acceptable.

Problem 9: Solution

		Solutions	Calculations
1.	Room sales for June 20X1		
	Doubles	$147,000	49 × 30 × $100
	Singles	43,200	18 × 30 × $80
	Total	$190,200	
2.	Breakfast sales for June 20X1		
	Doubles	$2,568.96	2,676 × .2 × $4.80
	Singles	1,036.80	18 × .4 × 30 × $4.80
	Total	$3,605.76	
3.	Lunch sales for June 20X1		
	Monday	$1,875	50 × 1.25 × $6 × 5
	Tuesday	1,875	50 × 1.25 × $6 × 5
	Wednesday	1,500	50 × 1.25 × $6 × 4
	Thursday	1,500	50 × 1.25 × $6 × 4
	Friday	1,500	50 × 1.25 × $6 × 4
	Saturday	650	50 × .5 × $6.50 × 4
	Sunday	2,100	50 × 1.5 × $7 × 4
	Total	$11,000	

Calculations for Part 2 Doubles:

Rooms sold: (49 × 30)+(18 × 30)	2,010
Average number of guests per room:	× 1.6
Total number of guests:	3,216
Guests: Staying in singles (18 × 30)	- 540
Guests: Staying in doubles	2,676

Problem 10: Solution

Part 1

Shives
Condensed Budget

Revenue	$700,000	$1,000,000	$1,300,000
Cost of food sold	315,000	450,000	585,000
Labor:			
Variable	161,000	230,000	299,000
Fixed	80,000	80,000	80,000
Other operating expenses	56,000	80,000	104,000
Income before fixed charges	88,000	160,000	232,000
Fixed charges	100,000	100,000	100,000
Income before income taxes	(12,000)	60,000	132,000
Income taxes	-0-	18,000	39,600
Net income (loss)	$(12,000)	$ 42,000	$ 92,400

Part 2

When sales are $750,000, Shives breaks even based on CVP analysis. When sales are $700,000, the bottom line is a $12,000 loss, while sales of $1,000,000 and $1,300,000 result in projected net incomes of $42,000 and $92,400, respectively.

Problem 11: Solution

Revenues:

Saturday:		
[53 × .5 × 100 × (8.2 × 1.1)] + [53 × 1.5 × 100 × (12.2 × 1.1)] =		$130,592
Sunday:		
[53 × 1.5 × 100 × (8.2 × 1.1)] + [53 × .5 × 100 × (12.2 × 1.1)] =		$107,272
Monday–Friday:		
52 × 5 × 1.5 × 100 × (8.2 × 1.1) + 52 × 5 × .75 × 100 × (12.2 × 1.1) =		$613,470
Total		$851,334

Departmental Expenses		
Food Cost	32%	$272,427
Labor	32%	$272,427
Controllable	15%	$127,700
Total		$672,554
Income Before Fixed Charges		$178,780
Fixed Charges		$150,000
Income Before Taxes		$ 28,780
Income Taxes	30%	$ 8,634
Net Income		$ 20,146

Problem 12: Solution

Mica Motel
Operating Budget

	Revenue	Cost of Sales	Payroll & Related Exp.	Other Expenses	Income (Loss)
Rooms	$507,204[1]	$ -0-	$101,441	$50,720	$355,043
Food	367,344[2]	128,570	117,550	44,081	77,143
	$874,548	$128,570	$218,991	$94,801	432,186

Undistributed operating expenses	187,455[3]
Income before fixed charges	244,731
Property taxes	30,000
Interest expense	50,000
Depreciation	60,000
Income before income taxes	104,731
Income taxes	31,419
Net income	$ 73,312

Note: All numbers are rounded to the nearest $1.

Selected Calculations

(1) Rooms revenue:

Doubles	$404,712[4]
Singles	102,492[5]
	$507,204

(2) Food revenue:

Breakfast	$ 27,474[6]
Lunch	114,975[7]
Dinner	224,895[8]
	$367,344

(3) U.O.E.:

fixed	$100,000
variable: 874,548 × .1	87,455
	$187,455

(4) Doubles: 365 × 60 × .84 × 22 = 404,712

(5) Singles: 365 × 20 × .78 × 18 = 102,492

Problem 12: Solution (continued)

(6) Guests eating breakfast

Singles: 20 × 365 × .78 =		5,694
Doubles: 60 × 365 × .84 =		18,396
Rooms sold		24,090
Average occupancy per room		× 1.8
Hotel guests		43,362
Guests staying in singles	- 5,694	
Guests staying in doubles	37,668	
Guests in singles who eat breakfast: 5,694 × .40 =		2,278
Guests in doubles who eat breakfast: 37,668 × .20 =		7,534
Total guests eating breakfast		9,812
Average check		× 2.80
Total breakfast sales		$27,474

(7) Lunch sales

Lunch	Days	Seats	Turnover	Average Check	Subtotal
M	53	60	1.25	4.20	$ 16,695
T	52	60	1.25	4.20	16,380
W	52	60	1.25	4.20	16,380
Th	52	60	1.25	4.20	16,380
F	52	60	1.25	4.20	16,380
S	52	60	.5	4.50	7,020
Su	52	60	1.5	5.50	25,740
	365			Total	$114,975

(8) Dinner sales

M-F	10.75 × 60[(52 × 4) + 53]	=	$168,435
S	12.50 × 60 × 52	=	39,000
Su	11.25 × 30 × 52	=	17,550
	Total		$224,895

Problem 13: Solution

Seats Available =	150	
Meal Price Increase =	5%	
Increase in Seat t/o =	0.1	
Appetizers =	4%	Of total sales
Desserts =	6%	Of total sales

	Seat Turnover		Average Meal Prices		**1. Budgeted Sales**	
Day of Week	Lunch	Dinner	Lunch	Dinner	**Lunch**	**Dinner**
Sunday	1.0	0.5	$12.40	$15.00	$2,148.30	$1,417.50
Monday	2.2	1.0	$10.95	$14.20	$3,966.64	$2,460.15
Tuesday	2.1	1.1	$10.80	$14.30	$3,742.20	$2,702.70
Wednesday	2.0	1.2	$10.70	$14.40	$3,539.03	$2,948.40
Thursday	2.1	1.3	$10.80	$14.50	$3,742.20	$3,197.25
Friday	2.2	0.8	$10.95	$16.90	$3,966.64	$2,395.58
Saturday	0.5	0.4	$9.50	$15.20	$ 897.75	$1,197.00

2. April budgeted sales= 5 × Monday sales + 5 × Tuesday sales + 4 × Wednesday sales + 4 × Thursday sales + 4 × Friday sales + 4 × Saturday sales + 4 × Sunday sales = 90 %, not including appetizers or desserts = $163,277.89

Meal sales = $163,277.89 / .90 = $181,419.88

Appetizer sales = 4% × meal sales =	$ 7,256.80
Dessert sales = 6% × meal sales =	$10,885.19

Problem 14: Solution

1. Budget Variance

	Rooms	Hours	Rate	Total
Budget	1,000	600	$3.40	$2,040
Actual	1,050	660	3.30	2,178
				$ 138(U)

2. Volume Variance

Volume Variance = BR(BT - ATAO)
= $3.40(600 - 630)
= $102 (U)

3. Efficiency Variance

Efficiency Variance = BR(ATAO - AT)
= $3.40(630 - 660)
= $102 (U)

4. Rate Variance

Rate Variance = BT(BR - AR)
= 600($3.40 - $3.30)
= $60 (F)

Problem 15: Solution

Budgeted:
Servers work standards = 10 meals per hour
Average wage rate per hour = $12.00
Variable wages budget = $4,800
Members served = 4,000

Actual:
Average wage rate paid per hour = $11.50
Variable wages paid = $5,200
Members served = 4,200

1. Budget variance for server variable wage expense:
= $4,800 - 5,200
= $400 (U)

2. Is the budget variance significant? Explain:

Dollar variance = $400
% variance = 8.33%

The variance is probably significant, because even though the dollar amount is not high, it represents is nearly 10%. Significance is also affected by the size of the operation.

3. Rate Bill Smith's performance in managing servers. Support with specific numbers:

Management's performance is based on rate variance and efficiency variance.

Rate variance = Budgeted hours(Budgeted rate - actual rate)
Efficiency variance = Budgeted rate(Allowable time for actual output - Actual time)

Budgeted hours = 4,000 / 10 = 400
ATAO = 4,200 / 10 = 420
Actual time = $5,200 / $11.50 = 452.17 hours

RV =400($12 - $11.50) = $200.00 (F)
EV = $12(420 - 452.17) = -$386.09 (U)
= ($186.09) (U)

Overall, Bill Smith fell short of the desired objective by $186.09

Problem 16: Solution

1.

	Covers	Members/ Hour	Total Hours	Hourly Wage	Total
Budget	28,800	12	2,400	$ 6.00	$14,400
Actual	29,200	11.68	2,500	$ 6.24	$15,600
Difference	(400)	0.32	(100)	$(0.24)	$(1,200)

2. The $1,200 variance represents an 8.3% difference from the budget. With budget expenses of $14,400, 8.3% would be significant.

3. Amy's performance has not been very good. An unfavorable volume variance of -198 is not her responsibility; however, the unfavorable rate variance of -576 reflects negatively on her ability to manage labor costs. The unfavorable efficiency variance of -402 suggests that the workers are doing less work than was forecasted. Finally, the unfavorable rate to total variance of 7.92 suggests that she has been paying more money for less productivity.

VV = 6.00(2,400 - 2,433) = -198

RV = 2,400(6.00 - 6.24) = -576

EV = 6(2,433 - 2,500) = -402

R-TV = (2,400 - 2,500) × (6.00 - 6.24) = 24

4. Efficiency variance = $(402)

Problem 17: Solution

Part I

Budget variance/revenue analysis

	Rooms	Rate	Total
Budget	800	$18.50	$14,800
Actual	720	20.35	14,652
Difference	(80)	$ 1.85	-$ 148 (U)

Budget variance = $148 (U)

VV = (720 - 800) × 18.50 = -$1,480 (U)
PV = (20.35 - 18.50) × 800 = +1,480 (F)
P-VV = -80 × 1.85 = - 148 (U)
Total -$ 148 (U)

Part II

Expense variance analysis

	Rooms	Hourly Hours	Rates	Total
Budget	800	400	$4.00	$1,600
Actual	720	380	3.80	1,444
Difference	80	20	$0.20	$ 156 (F)

1. Efficiency variance

   EV = (360 - 380) × 4 = -$80 (U)

   No, the room attendants were inefficient.

2. Rate variance

   RV = (4.00 - 3.80) × 400 = $80 (F)

3. The head housekeeper should be rated based on the efficiency and rate variances. Any difference in budget and actual due to volume differences should not be used to measure the head housekeeper's performance. Therefore, based on efficiency and rate, the head housekeeper has just met the budget.

Problem 18: Solution

1.	Covers	Price	Total
Budget	15,000	$6.6667	$100,000
Actual	16,000	6.875	110,000
			$ 10,000 (F)

Volume Variance

VV = (16,000 - 15,000) ($6.6667)
= $6,666.70 (F)

Price Variance

PV = ($6.875 - $6.6667) (15,000)
= $3,124.50 (F)

2.	Covers	Average Cost/ Cover	Total
Budget	15,000	$ 2.40	$36,000
Actual	16,000	2.55	40,800
			$ 4,800 (U)

Cost Variance

CV = 15,000 × ($2.40 - $2.55)
= -$2,250 (U)

Volume Variance

VV = $2.40 × (15,000 - 16,000)
= -$2,400 (U)

Cost-Volume Variance

C-VV = 1,000 × ($.15)
= $150 (U)

Problem 19: Solution

Dwight Inn
Rooms Department Schedule
For the years 20X5-20X9

	20X5	20X6	20X7	20X8	20X9
Room Sales:					
Singles	$ 602,250	$ 629,351	$ 656,818	$ 684,649	$ 712,845
Doubles	1,779,375	1,846,353	1,914,060	1,982,498	2,051,665
Suites	1,022,000	1,057,770	1,093,905	1,130,405	1,167,270
Total	$3,403,625	$3,533,474	$3,664,783	$3,797,552	$3,931,780
Payroll & Related Expenses:					
Fixed Labor	120,000	127,200	134,832	142,922	151,497
Variable Labor	408,435	424,772	441,763	459,434	477,811
Total	$ 528,435	$ 551,972	$ 576,595	$ 602,356	$ 629,308
Other Expenses					
Commissions	68,073	70,669	73,296	75,951	78,636
Laundry	68,073	70,669	73,296	75,951	78,636
Oper. Supplies	102,109	106,004	109,943	113,927	117,953
Linen	17,018	17,667	18,324	18,988	19,659
Uniforms	17,018	17,667	18,324	18,988	19,659
Other	51,054	53,002	54,972	56,963	58,977
Total	851,779	887,650	924,750	963,123	1,002,828
Rooms Dept. Income	$2,551,846	$2,645,824	$2,740,033	$2,834,428	$2,928,952

Problem 20: Solution

Flexible Room Operating Budget
Mustang Ranch
For the year 20X4

	Activity Levels—Occupancy Percentage		
	78%	80%	82%
Revenue	$5,124,600	$5,256,000	$5,387,400
Payroll Costs:			
Salaries (fixed)	240,000	240,000	240,000
Wages (variable)	640,575	657,000	673,425
Payroll taxes	88,058	89,700	91,343
Fringe benefits	177,738	181,680	185,622
Total Payroll Costs	$1,146,371	$1,168,380	$1,190,390
Other Costs:			
Reservations	$128,115	$131,400	$134,685
Commissions	153,738	157,680	161,622
Linen	102,492	105,120	107,748
Supplies	213,525	219,000	224,475
Other	262,230	268,800	275,370
Total Other Costs	$860,100	$882,000	$903,900
Rooms Department Income	$3,118,130	$3,205,620	$3,293,111