CHAPTER 15: ALLOCATION OF SUPPORT DEPARTMENT COSTS,

COMMON COSTS, AND REVENUES

*TRUE/FALSE*

1. The dual cost-allocation method classifies costs into two pools, a budgeted cost pool and an actual cost pool.

*Answer*: False

The dual cost-allocation method classifies costs into two pools, a variable cost pool and a fixed cost pool.

2. Using the single-rate method transforms the fixed costs per hour into a variable cost to users of that facility.

*Answer*: True

3. The single-rate cost-allocation method provides better information for decision making than the dual-rate method.

*Answer*: False

The dual-rate cost-allocation method provides better information for decision making than the single-rate method.

4. When budgeted cost-allocation rates are used, user-division managers face uncertainty about the allocation rates for that budget period.

*Answer*: False

When budgeted cost-allocation rates are used, user-division managers face *no uncertainty* about the allocation rates for that budget period.

5. When budgeted cost-allocation rates are used, managers of the supplier division are motivated to improve efficiency.

*Answer*: True

6. When budgeted cost-allocation rates are used, variations in actual usage by one division affect the costs allocated to other divisions.

*Answer*: False

When *actual* cost-allocations rates are used, variations in actual usage by one division affect the costs allocated to other divisions.

7. The direct allocation method highlights recognition of services rendered by support departments to other support departments.

*Answer*: False

The direct allocation method allows for no recognition of services rendered by support departments to other support departments.

8. The reciprocal allocation method incorporates mutual services provided among all support departments.

*Answer*: True

9. Budgeted amounts for a support department will always exceed complete reciprocated costs for that department.

*Answer*: False

Complete reciprocated costs equal budgeted amounts for the support department plus any interdepartmental cost allocations, therefore, complete reciprocated costs always exceed budgeted amounts.

10. The direct allocation method provides key information for outsourcing decisions regarding support services.

*Answer*: False

*Complete reciprocal costs* of a support department provide key information for outsourcing decisions regarding support services. The direct allocation method does not provide this information.

11. The incremental method of allocating common costs often creates the incentive to be the first-ranked user.

*Answer*: False

The incremental method creates a *disincentive* to be the first-ranked user because the first-ranked user receives the greatest allocation of cost.

12. The stand-alone method of allocating common costs emphasizes fairness and equity among users.

*Answer*: True

13. Under the incremental method, the first incremental user usually receives the highest allocation of the common costs.

*Answer*: False

Under the incremental method of allocating common costs, the *primary* user receives the highest allocation of the common costs.

14. All contracts with U.S. government agencies must comply with the cost accounting standards issued by the Cost Accounting Standards Board.

*Answer*: True

15. Without explicit written cost-plus contracts, producer costs can be passed on to the buyer.

*Answer*: True

16. An example of a bundled product is when a resort hotel charges a single price for lodging, food, and recreational activities.

*Answer*: True

17. Revenue allocation is required to determine the profitability of individual items within a bundled product.

*Answer*: True

18. The stand-alone method may use selling price or unit costs to allocate revenues.

*Answer*: True

19. Under the incremental revenue-allocation method, there is an incentive to be the first-ranked user.

*Answer*: True

20. It is most appropriate to base revenue allocation on the number of physical units when individual products in the bundle are of unequal value.

*Answer*: False

Revenue allocation based on the number of physical units is only appropriate when individual products in the bundle are of *equal* value.

*MULTIPLE CHOICE*

21. The method that allocates costs in each cost pool using the same rate per unit is known as the

a. incremental cost-allocation method.

b. reciprocal cost-allocation method.

c. single-rate cost allocation method.

d. dual-rate cost-allocation method.

*Answer*: c

22. The dual-rate cost-allocation method classifies costs in each cost pool into two pools,

a. a budgeted-cost pool and an actual-cost pool.

b. a variable-cost pool and a fixed-cost pool.

c. a used-capacity-cost pool and a practical-capacity-cost pool.

d. a direct-cost pool and a reciprocal-cost pool.

*Answer*: b

23. The single-rate cost-allocation method may base the denominator choice on

a. master-budget capacity utilization.

b. normal capacity utilization.

c. practical capacity.

d. any of the above.

*Answer*: d

24. When using the single-rate method, fixed cost allocation may be based on

a. actual usage.

b. budgeted usage.

c. incremental cost allocation.

d. either (a) or (b).

*Answer*: d

25. Benefits of the single-rate method include

a. the low cost of implementation.

b. fixed costs that are transformed into variable costs for user decision making.

c. signals regarding how variable and fixed costs behave differently.

d. information that leads to outsourcing decisions that benefit the organization as a whole.

*Answer*: a

26. Benefits of the dual-rate method include

a. variable costs that are transformed into fixed costs for user decision making.

b. the low cost of implementation.

c. avoidance of expensive analysis for categorizing costs as either fixed or variable.

d. information that leads to outsourcing decisions that benefit the organization as a whole.

*Answer*: d

THE FOLLOWING INFORMATION APPLIES TO QUESTIONS 27 THROUGH 30.

The Bonawitz Corporation has a central copying facility. The copying facility has only two users, the Marketing Department and the Operations Department. The following data apply to the coming budget year.

*Budgeted costs of operating the copying facility*

*for 200,000 to 300,000 copies*:

Fixed costs per year $30,000

Variable costs 3 cents (.03) per copy

*Budgeted long-run usage in copies per year*:

Marketing Department 60,000 copies

Operations Department 190,000 copies

Budgeted amounts are used to calculate the allocation rates.

Actual usage for the year by the Marketing Department was 40,000 copies and by the Operations Department was 180,000 copies.

27. If a single-rate cost-allocation method is used, what amount of copying facility costs will be *budgeted* for the Marketing Department?

a. $9,000

b. $1,800

c. $7,200

d. $8,400

*Answer*: a

[(60,000/250,000) x $30,000] + (60,000 x $0.03) = $9,000

28. If a single-rate cost-allocation method is used, what amount of copying facility costs will be *allocated* to the Marketing Department? Assume actual usage is used to allocate copying costs.

a. $8,400

b. $9,000

c. $6,000

d. $4,800

*Answer*: c

[(60,000/250,000) x $30,000] + (60,000 x $0.03) = $9,000

$9,000/60,000 copies = $0.15 per copy x 40,000 = $6,000

29. If a dual-rate cost-allocation method is used, what amount of copying facility costs will be *budgeted* for the Operations Department?

a. $28,500

b. $28,200

c. $30,245

d. $29,945

*Answer*: a

[(190,000/250,000) x $30,000] + (190,000 x $0.03) = $28,500

30. If a dual-rate cost-allocation method is used, what amount of copying facility costs will be *allocated* to the Operations Department? Assume budgeted usage is used to allocate fixed copying costs and actual usage is used to allocate variable copying costs.

a. $30,245

b. $29,945

c. $28,500

d. $28,200

*Answer*: d

[(190,000/250,000) x $30,000] + (180,000 x $0.03) = $28,200

THE FOLLOWING INFORMATION APPLIES TO QUESTIONS 31 THROUGH 34.

The Borders Corporation operates one central plant that has two divisions, the Flashlight Division and the Night Light Division. The following data apply to the coming budget year.

Budgeted costs of operating the plant for 2,000 to 3,000 hours:

Fixed operating costs per year $900,000

Variable operating costs $1,200 per hour

Budgeted long-run usage per year:

Flashlight Division 2,000 hours

Night Light Division 500 hours

Practical capacity 3,000 hours

Assume that practical capacity is used to calculate the allocation rates.

Actual usage for the year by the Flashlight Division was 1,400 hours and by the Night Light Division was 600 hours.

31. If a single-rate cost-allocation method is used, what amount of operating costs will be *budgeted* for the Flashlight Division?

a. $3,000,000

b. $3,120,000

c. $2,280,000

d. $2,820,000

*Answer*: a

[(2,000/3,000) x $900,000] + (2,000 x $1,200) = $3,000,000

32. If a single-rate cost-allocation method is used, what amount of cost will be *allocated* to the Flashlight Division? Assume actual usage is used to allocate operating costs.

a. $2,280,000

b. $2,400,000

c. $3,000,000

d. $2,100,000

*Answer*: d

$3,000,000/2,000 x 1,400 = $2,100,000

33. If a dual-rate cost-allocation method is used, what amount of operating costs will be *budgeted* for the Night Light Division?

a. $780,000

b. $900,000

c. $750,000

d. $870,000

*Answer*: c

[(500/3,000) x $900,000] + (500 x $1,200) = $750,000

34. If a dual-rate cost-allocation method is used, what amount of cost will be *allocated* to the Night Light Division? Assume budgeted usage is used to allocate fixed operating costs and actual usage is used to allocate variable operating costs.

a. $750,000

b. $870,000

c. $780,000

d. $900,000

*Answer*: b

[(500/3,000) x $900,000] + (600 x $1,200) = $870,000

35. When budgeted cost-allocations rates are used,

a. variations in actual usage by one division affect the costs allocated to other divisions.

b. the manager of the supplier division bears the risk of unfavorable cost variances.

c. user divisions pay for costs that exceed budgeted amounts.

d. user divisions pay for inefficiencies of the supplier department.

*Answer*: b

36. When actual cost-allocations rates are used,

a. user divisions pay for costs that exceed budgeted amounts.

b. managers of the supplier division are motivated to improve efficiency.

c. user divisions do not know allocated amounts until the end of the accounting period.

d. managers of the user divisions may be tempted to underestimate planned usage.

*Answer*: c

37. Under the dual-rate cost-allocation method, when fixed costs are allocated based on actual usage then

a. user-division managers are motivated to make accurate long-run usage forecasts.

b. user-division managers can better plan for the short-run and for the long-run.

c. the costs of unused capacity are highlighted.

d. variations in one division’s usage affect another division’s allocation.

*Answer*: d

38. The costs of unused capacity are highlighted when

a. actual usage based allocations are used.

b. budgeted usage allocations are used.

c. practical capacity-based allocations are used.

d. the dual-rate cost-allocation method allocates fixed costs based on actual usage.

*Answer*: c

39. To discourage unnecessary use of a support department, management might

a. not allocate any support department costs to user departments.

b. allocate support department costs based upon user department usage.

c. allocate a fixed amount of support department costs to each department regardless of use.

d. issue memos on useful services provided by the support department.

*Answer*: b

40. Special cost-allocation problems arise when

a. support department costs exceed budgetary estimates.

b. practical capacity is used as the allocation base.

c. support departments provide reciprocal services to other support departments.

d. there is more than one operating department.

*Answer*: c

41. Which of the following departments is NOT a support department for a boat manufacturing company?

a. Personnel

b. Molding and assembly

c. Data processing

d. Accounting

*Answer*: b

42. The support department allocation method that is the most widely used because of its simplicity is the

a. step-down method.

b. reciprocal allocation method.

c. direct allocation method.

d. sequential allocation method.

*Answer*: c

43. The method that allocates costs by explicitly including all the services rendered among all support departments is

a. the direct method.

b. the step-down method.

c. the reciprocal method.

d. the sequential method.

*Answer*: c

44. Under which allocation method are one-way reciprocal support services recognized?

a. The direct method

b. The artificial cost method

c. The reciprocal method

d. The step-down method

*Answer*: d

45. The direct allocation method

a. partially recognizes the services provided among support departments.

b. is also referred to as the sequential method.

c. is conceptually the most precise method.

d. results in allocating only the support costs used by operating departments.

*Answer*: d

46. The step-down allocation method

a. typically begins with the support department that provides the highest percentage of its total services to other support departments.

b. recognizes the total amount of services that support departments provide to each other.

c. allocates complete reciprocated costs.

d. offers key input for outsourcing decisions.

*Answer*: a

47. The reciprocal allocation method

a. is the most widely used because of its simplicity.

b. requires the ranking of support departments in the order that the allocation is to proceed.

c. is conceptually the most precise.

d. results in allocating more support costs to operating departments than actually incurred.

*Answer*: c

48. Complete reciprocated costs

a. are less than the support department’s own costs.

b. include the support department’s costs plus any interdepartmental cost allocations.

c. are utilized for step-down allocations.

d. are also referred to as budgeted costs.

*Answer*: b

THE FOLLOWING INFORMATION APPLIES TO QUESTIONS 49 THROUGH 51.

Jake’s Battery Company has two service departments, Maintenance and Personnel. Maintenance Department costs of $160,000 are allocated on the basis of budgeted maintenance-hours. Personnel Department costs of $40,000 are allocated based on the number of employees. The costs of operating departments A and B are $80,000 and $120,000, respectively. Data on budgeted maintenance-hours and number of employees are as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *Support Departments* | | *Production Departments* | |
|  | **Maintenance Department** | **Personnel**  **Department** | **A** | **B** |
| *Budgeted costs* | $160,000 | $40,000 | $80,000 | $120,000 |
| *Budgeted maintenance-hours* | NA | 400 | 480 | 320 |
| *Number of employees* | 20 | NA | 80 | 240 |

49. Using the direct method, what amount of Maintenance Department costs will be allocated to Department B?

a. $48,000

b. $64,000

c. $78,000

d. $96,000

*Answer*: b

320/800 x $160,000 = $64,000

50. Using the direct method, what amount of Personnel Department costs will be allocated to Department B?

a. $10,000

b. $16,000

c. $24,000

d. $30,000

*Answer*: d

240/320 x $40,000= $30,000

51. Using the step-down method, what amount of Maintenance Department cost will be allocated to Department B if the service department with the highest percentage of interdepartmental support service is allocated first? (Round up)

a. $32,000

b. $42,667

c. $57,334

d. $64,000

*Answer*: b

Maintenance provided to Personnel: 400/1,200= .333

Personnel provided to Maintenance: 20/340= .059

Maintenance provides the greatest amount of service to support departments, so it is allocated first. Dept B: 320/1,200 x $160,000 = $42,667

THE FOLLOWING INFORMATION APPLIES TO QUESTIONS 52 THROUGH 54.

Jake’s Battery Company has two service departments, Maintenance and Personnel. Maintenance Department costs of $160,000 are allocated on the basis of budgeted maintenance-hours. Personnel Department costs of $40,000 are allocated based on the number of employees. The costs of operating departments A and B are $80,000 and $120,000, respectively. Data on budgeted maintenance-hours and number of employees are as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *Support Departments* | | *Production Departments* | |
|  | **Maintenance Department** | **Personnel**  **Department** | **A** | **B** |
| *Budgeted costs* | $160,000 | $40,000 | $80,000 | $120,000 |
| *Budgeted maintenance-hours* | NA | 400 | 480 | 320 |
| *Number of employees* | 20 | NA | 80 | 240 |

52. Using the direct method, what amount of Maintenance Department costs will be allocated to Department A?

a. $48,000

b. $64,000

c. $78,000

d. $96,000

*Answer*: d

480/800 x $160,000 = $96,000

53. Using the direct method, what amount of Personnel Department costs will be allocated to Department A?

a. $10,000

b. $16,000

c. $24,000

d. $30,000

*Answer*: a

80/320 x $40,000= $10,000

54. Using the step-down method, what amount of Maintenance Department cost will be allocated to Department A if the service department with the highest percentage of interdepartmental support service is allocated first? (Round up)

a. $32,000

b. $42,667

c. $57,334

d. $64,000

*Answer*: d

Maintenance provided to Personnel: 400/1,200= .333

Personnel provided to Maintenance: 20/340= .059

Maintenance provides the greatest amount of service to support departments, so it is allocated first. Dept A: 480/1,200 x $160,000 = $64,000

THE FOLLOWING INFORMATION APPLIES TO QUESTIONS 55 THROUGH 57.

Alfred, owner of Hi-Tech Fiberglass Fabricators Inc. is interested in using the reciprocal allocation method. The following data from operations were collected for analysis:

*Budgeted manufacturing overhead costs*:

Plant Maintenance PM (Support Dept) $350,000

Data Processing DP (Support Dept) $ 75,000

Machining M (Operating Dept) $225,000

Capping C (Operating Dept) $125,000

*Services furnished*:

By Plant Maintenance (budgeted labor-hours):

to Data Processing 3,500

to Machining 5,000

to Capping 8,200

By Data Processing (budgeted computer time):

to Plant Maintenance 600

to Machining 3,500

to Capping 600

55. Which of the following linear equations represents the complete reciprocated cost of the Data Processing Department?

a. DP= $75,000 + (600/4,700) PM

b. DP= $75,000 + (3,500/16,700) PM

c. DP= $75,000 x (600/4,700) + $350,000 x (3,340/16,700)

d. DP= $350,000 + (600/16,700) DP

*Answer*: b

56. What is the complete reciprocated cost of the Plant Maintenance Department?

a. $393,750

b. $369,459

c. $365,000

d. $375,773

*Answer*: b

DP = $75,000 + (3,500/16,700) PM

PM= $350,000 + (600/4,700) DP

PM= $350,000 + (600/4,700) x [$75,000 + (3,500/16,700) PM]

PM= $350,000 + $9,574 + (0.026755)PM

0.973245 PM = $359,574

PM= $369,459

57. What is the complete reciprocated cost of the Data Processing Department?

a. $90,000

b. $118,750

c. $122,971

d. $152,432

*Answer*: d

PM= $369,459 (see above question); DP = $75,000 + (3,500/16,700) PM

DP= $75,000 + (3,500/16,700) $369,459 = $152,432

58. A cost of operating a facility, department, activity area, or like cost object that is shared by two or more users is called a

a. direct cost.

b. joint cost.

c. fixed cost.

d. common cost.

*Answer*: d

59. Under the stand-alone method of allocating common costs

a. a ranking is used to allocate costs among the users.

b. disputes can arise over who is the primary user.

c. each party bears a proportionate share of the total costs in relation to their individual stand-alone costs.

d. an incentive is created to be the first-ranked user.

*Answer*: c

60. Under the incremental method of allocating common costs

a. the parties are interested in being viewed as primary users.

b. each party bears a proportionate share of the total costs in relation to their individual stand-alone costs.

c. fairness and equity are emphasized.

d. there is a disincentive to be titled the primary user.

*Answer*: d

THE FOLLOWING INFORMATION APPLIES TO QUESTIONS 61 AND 62.

The Sturgeon Bay Corporation currently utilizes a manufacturing facility costing $400,000 per year; 80% of the facility’s capacity is currently being used. A start-up business has proposed a plan that would utilize the other 20% of the facility and increase the overall costs of maintaining the space by 5%.

61. If the stand-alone method were used, what amount of cost would be allocated to the start-up business?

a. $20,000

b. $100,000

c. $80,000

d. $84,000

*Answer*: d

$400,000 x 1.05 = $420,000; $420,000 x.2= $84,000

62. If the incremental method were used, what amount of cost would be allocated to the start-up business?

. a. $20,000

b. $100,000

c. $80,000

d. $84,000

*Answer*: a

$400,000 x 0.05 = $20,000

THE FOLLOWING INFORMATION APPLIES TO QUESTIONS 63 AND 64.

The Egg Harbor Corporation currently leases a corporate suite in an office building for a cost of $90,000 a year. Only 70% of the corporate suite is currently being used. A start-up business has proposed a plan that would utilize the other 30% of the suite and increase the overall costs of maintaining the space by $10,000.

63. If the stand-alone method were used, what amount of cost would be allocated to the start-up business?

a. $10,000

b. $27,000

c. $30,000

d. $37,000

*Answer*: c

$100,000 x 0.30 = $30,000

64. If the incremental method were used, what amount of cost would be allocated to the start-up business?

a. $10,000

b. $27,000

c. $30,000

d. $37,000

*Answer*: a

$10,000, the increased cost of maintaining the space

65. All contracts with U.S. government agencies must comply with cost accounting standards issued by

a. FASB.

b. SEC.

c. IRS.

d. CASB.

*Answer*: d

66. Contract disputes with regard to cost allocation can be reduced by

a. defining the cost items allowed.

b. defining the terms used, such as what constitutes direct labor.

c. defining permissible cost-allocation bases.

d. defining all of the above.

*Answer*: d

67. Cost-based prices

a. are one way of setting prices in a competitive market.

b. provide an inherit incentive for the producer to control costs.

c. pass the majority of risk to the buyer.

d. are required in all government contracts.

*Answer*: c

68. \_\_\_\_\_\_\_\_\_\_ is a cost that the contract parties agree to include in the costs to be reimbursed.

a. An allowable cost

b. An unallowable cost

c. An incremental cost

d. A stand-alone cost

*Answer*: a

69. In certain high-cost defense contracts involving new weapons and equipment, contracts are rarely subject to competitive bidding because

a. the government is concerned that one firm might monopolize defense contracts.

b. there is an implicit agreement among defense contractors to “share contracts.”

c. all defense contractors have essentially the same cost structure.

d. of none of the above.

*Answer*: d

70. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs where revenues, related but not traceable to individual products, are assigned to those individual products.

a. Revenue tracing

b. Revenue allocation

c. Stand-alone pricing

d. Reciprocal pricing

*Answer*: b

71. An example of a revenue object is

a. a customer.

b. a specific product.

c. a division of a company.

d. all of the above.

*Answer*: d

72. AAA offers towing services, auto routing, travel brochures, and other travel services for one annual fee. This is an example of

a. revenue tracing.

b. revenue allocation.

c. a bundled product.

d. a joint product.

*Answer*: c

73. Businesses offer bundled products

a. to increase customer exposure.

b. to increase overall company profitability.

c. to avoid the problems of revenue allocation.

d. both (a) and (b).

*Answer*: d

74. The method LEAST likely to cause disputes among product managers is

a. stand-alone revenue-allocation method.

b. incremental revenue-allocation method.

c. the direct revenue-allocation method.

d. (a), (b), and (c) are all likely to result in the same disputes among product managers.

*Answer*: a

75. The method that ranks individual products in a bundle for revenue allocation is the

a. stand-alone revenue-allocation method.

b. incremental revenue-allocation method.

c. unit-cost weighting method.

d. physical-unit weighting method.

*Answer*: b

76. Approaches used to rank products for revenue allocation might include

a. surveying customers on the importance of each product.

b. using recent data on stand-alone sales performance.

c. having managers use their knowledge and intuition.

d. any of the above.

*Answer*: d

77. To give more weight to the product that most likely drives the sales of the bundled product, the revenue allocation should be weighted using

a. selling prices.

b. unit costs.

c. physical units.

d. stand-alone product revenues.

*Answer*: d

78. The revenue allocation may be weighted using physical units when

a. the individual products within the bundle have approximately the same value.

b. selling prices are unstable and unit costs are difficult to calculate.

c. other methods cannot be used for various reasons.

d. any of the above conditions exist.

*Answer*: d

THE FOLLOWING INFORMATION APPLIES TO QUESTIONS 79 THROUGH 82.

Elmo's Educational Software Outlet sells two or more of the video games as a single package. Managers are keenly interested in individual product-profitability figures. Information pertaining to three bundled products and the stand-alone prices is as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Stand-Alone**  **Selling Price** | **Cost** |  | **Package** | **Packaged**  **Price** |
| *Reading Fun* | $50 | $7.20 |  | 1. *Reading Fun & Math Fun* | $88 |
| *Math Fun* | $60 | $8.00 |  | 2. *Reading Fun & Analysis* | $112 |
| *Analysis* | $90 | $10.00 |  | 3. *All three* | $152 |

79. Using the stand-alone method with selling price as the weight for revenue allocation, what amount of revenue will be allocated to Reading Fun in the first package (Reading Fun & Math Fun)?

a. $40

b. $44

c. $38

d. $50

*Answer*: a

[$50 / ($50 + $60)] x $88 = $40

80. Using the incremental method for revenue allocation, what amount of revenue will be allocated to Reading Fun in the first package (Reading Fun & Math Fun)? Assume Reading Fun is the primary product, followed by Math Fun, and then Analysis.

a. $40

b. $44

c. $38

d. $50

*Answer*: d

$50 since Reading Fun is the primary product.

81. Using the stand-alone method with selling price as the weight for revenue allocation, what amount of revenue will be allocated to Math Fun in the package that contains all three products?

a. $48.25

b. $60.00

c. $45.60

d. $50.67

*Answer*: c

[$60 / ($50 + $60 + $90)] x $152 = $45.60

82. Using the incremental method, what amount of revenue will be allocated to Math Fun in the package that contains all three products?

a. $48.25

b. $60.00

c. $45.60

d. $50.67

*Answer*: b

$152 - $50 primary product = $102 revenues remaining to be allocated to other products; $60 since there are revenues remaining to cover the selling price of Reading Fun, the first incremental product.

THE FOLLOWING INFORMATION APPLIES TO QUESTIONS 83 THROUGH 86.

The Appliance Store sells a refrigerator and a freezer as a single package for $1,000. Other data are in the chart below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Refrigerator** | **Full-size Freezer** | **Packaged Price** |
| *Selling price* | $825 | $375 | $1,000 |
| *Manufacturing cost per unit* | $620 | $180 |  |
| *Stand-alone product revenues* | $1,225,000 | $775,000 |  |

83. Using the stand-alone method with selling price as the weight for revenue allocation, what amount will be allocated to the refrigerator?

a. $500.00

b. $825.00

c. $687.50

d. $625.00

*Answer*: c

Refrigerator $825/$1,200 x $1,000 = $687.50

84. Using the stand-alone method with stand-alone product revenues as the weight for revenue allocation, what amount will be allocated to the refrigerator?

a. $687.50

b. $612.50

c. $625.00

d. $825.00

*Answer*: b

Refrigerator $1,225,000/ $2,000,000 x $1,000 = $612.50

85. Using the stand-alone method with manufacturing cost per unit as the weight for revenue allocation, what amount will be allocated to the refrigerator?

a. $500.00

b. $612.50

c. $620.00

d. $775.00

*Answer*: d

Refrigerator $620/$800 x $1,000 = $775

86. Using the stand-alone method with physical units as the weight for revenue allocation, what amount will be allocated to the refrigerator?

a. $500

b. $20

c. $775

d. $825

*Answer*: a

(1 / 2) x $1,000 = $500

*EXERCISES AND PROBLEMS*

87. The fixed costs of operating the maintenance facility of General Hospital are $4,500,000 annually. Variable costs are incurred at the rate of $30 per maintenance-hour. The facility averages 40,000 maintenance-hours a year. Budgeted and actual hours per user for 20x3 are as follows:

**Budgeted hours Actual hours**

Building and grounds 10,000 12,000

Operating and emergency 8,000 8,000

Patient care 21,000 22,000

Administration 1,000 1,200

Total 40,000 43,200

Assume that budgeted maintenance-hours are used to calculate the allocation rates.

**Required:**

a. If a single-rate cost-allocation method is used, what amount of maintenance cost will be budgeted for each department?

b. If a single-rate cost-allocation method is used, what amount of maintenance cost will be allocated to each department based on actual usage? Based on budgeted usage?

c. If a dual-rate cost-allocation method is used, what amount of maintenance cost will be budgeted for each department?

d. If a dual-rate cost-allocation method is used, what amount of maintenance cost will be allocated to each department based on actual usage? Based on budgeted usage for fixed operating costs and actual usage for variable operating costs?

**Answer:**

a. Total costs + $4,500,000 + ($30 x 40,000) = $5,700,000

Single rate = $5,700,000 / 40,000 mh = $142.50 per maintenance-hour

*Single-rate budgeted amounts*:

Building and grounds $142.50 x 10,000 = $1,425,000

Operating and emergency $142.50 x 8,000 = $1,140,000

Patient care $142.50 x 21,000 = $2,992,500

Administration $142.50 x 1,000 = $ 142,500

b. Total costs + $4,500,000 + ($30 x 40,000) = $5,700,000

Single rate = $5,700,000 / 40,000 mh = $142.50 per maintenance-hour

*Single-rate allocated amounts*:

Building and grounds $142.50 x 12,000 = $1,710,000

Operating and emergency $142.50 x 8,000 = $1,140,000

Patient care $142.50 x 22,000 = $3,135,000

Administration $142.50 x 1,200 = $ 171,000

87. (continued)

c. *Dual-rate budgeted amounts*:

Building and grounds:

Fixed ($4,500,000 x 10/40) $1,125,000

Variable ($30 x 10,000) 300,000

Total $1,425,000

Operating and emergency:

Fixed ($4,500,000 x 8/40) $ 900,000

Variable ($30 x 8,000) 240,000

Total $1,140,000

Patient care:

Fixed ($4,500,000 x 21/40) $2,362,500

Variable ($30 x 21,000) 630,000

Total $2,992,500

Administration:

Fixed ($4,500,000 x 1/40) $112,500

Variable ($30 x 1,000) 30,000

Total $142,500

d. *Dual-rate allocated amounts*:

Building and grounds:

Fixed ($4,500,000 x 10/40) $1,125,000

Variable ($30 x 12,000) 360,000

Total $1,485,000

Operating and emergency:

Fixed ($4,500,000 x 8/40) $ 900,000

Variable ($30 x 8,000) 240,000

Total $1,140,000

Patient care:

Fixed ($4,500,000 x 21/40) $2,362,500

Variable ($30 x 22,000) 660,000

Total $3,022,500

Administration:

Fixed ($4,500,000 x 1/40) $112,500

Variable ($30 x 1,200) 36,000

Total $148,500

88. The Alex Miller Corporation operates one central plant that has two divisions, the Flashlight Division and the Night Light Division. The following data apply to the coming budget year:

*Budgeted costs of the operating the plant*

*for 10,000 to 20,000 hours:*

Fixed operating costs per year $240,000

Variable operating costs $10 per hour

*Practical capacity* 20,000 hours per year

*Budgeted long-run usage per year:*

Lamp Division 800 hours x 12 months = 9,600 hours per year

Flashlight Division 450 hours x 12 months = 5,400 hours per year

Assume that practical capacity is used to calculate the allocation rates. Further assume that actual usage of the Lamp Division was 700 hours and the Flashlight Division was 400 hours for the month of June.

***Required***:

a. If a single-rate cost-allocation method is used, what amount of operating costs will be budgeted for the Lamp Division each month? For the Flashlight Division each month?

b. For the month of June, if a single-rate cost-allocation method is used, what amount of cost will be allocated to the Lamp Division? To the Flashlight Division? Assume actual usage is used to allocate operating costs.

c. If a dual-rate cost-allocation method is used, what amount of operating costs will be budgeted for the Lamp Division each month? For the Flashlight Division each month?

d. For the month of June, if a dual-rate cost-allocation method is used, what amount of cost will be allocated to the Lamp Division? To the Flashlight Division? Assume budgeted usage is used to allocate fixed operating costs and actual usage is used to allocate variable operating costs.

***Answer***:

a. Fixed costs $240,000 / 20,000 practical capacity hours = $12 / hour

Single-rate cost-allocation = $12 + $10 = $22 per hour

*Lamp Division* 800 x $22 / hour = $17,600 per month

*Flashlight Division* 450 x $22 / hour = $9,900 per month

b. *Lamp Division* 700 x $22 / hour = $15,400 per month

*Flashlight Division* 400 x $22 / hour = $8,800 per month

c. Fixed costs $240,000 / 20,000 practical capacity hours = $12 / hour

Budgeted costs - Lamp Division

(800 x $12 / hour) + (800 x $10/hour) = $17,600 per month

Budgeted costs - Flashlight Division

(450 x $12 / hour) + (450 x $10/hour) = $9,900 per month

88. (continued)

d. Allocated costs for June - Lamp Division

(800 x $12 / hour) + (700 x $10/hour) = $16,600 per month

Allocated costs for June - Flashlight Division

(450 x $12 / hour) + (400 x $10/hour) = $9,400 per month

89. Blaster Drive-In is a fast-food restaurant that sells burgers and hot dogs in a 1950s environment. The fixed operating costs of the company are $5,000 per month. The controlling shareholder, interested in product profitability and pricing, wants all costs allocated to either the burgers or the hot dogs. The following information is provided for the operations of the company:

Burgers Hot Dogs

Sales for January 4,000 2,400

Sales for February 6,400 2,400

Required:

a. What amount of fixed operating costs is assigned to the burgers and hot dogs when actual sales are used as the allocation base for January? For February?

b. Hot dog sales for January and February remained constant. Did the amount of fixed operating costs allocated to hot dogs also remain constant for January and February? Explain why or why not. Comment on any other observations.

Answer:

a. *January sales*:

Burgers $5,000 x 4,000/6,400 = $3,125

Hot dogs $5,000 x 2,400/6,400 = $1,875

*February sales*:

Burgers $5,000 x 6,400/8,800 = $3,636.36

Hot dogs $5,000 x 2,400/8,800 = $1,363.64

b. Even though hot dog sales remained constant for both months, the allocation of fixed operating costs decreased by more than $500. The reason is that fixed overhead costs are allocated based on actual sales. The dollar amount is fixed, and since burger sales increased, more of the fixed costs were allocated to the burgers.

Another observation is that burger sales increased by more than 50% from January to February, while the fixed operating costs assigned to burgers increased by only 16%.

90. Gotham University offers only high-tech graduate-level programs. Gotham has two principal operating departments, Engineering and Computer Sciences, and two support departments, Facility and Technology Maintenance and Enrollment Services. The base used to allocate facility and technology maintenance is budgeted total maintenance hours. The base used to allocate enrollment services is number of credit hours for a department. The Facility and Technology Maintenance budget is $350,000, while the Enrollment Services budget is $950,000. The following chart summarizes budgeted amounts and allocation-base amounts used by each department.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Budget | *Services Provided: (Annually)* | | | |
| Engineering | Computer Sciences | F&T Maintenance | Enrollment Service |
| *F&T Maintenance*  (in hours) | $350,000 | 2,000 | 5,000 | Zero | 1,000 |
| *Enrollment Service*  (in credit hrs) | $950,000 | 24,000 | 36,000 | 2,000 | Zero |

Required:

Use the direct method to allocate support costs to each of the two principal operating departments, Engineering and Computer Sciences. Prepare a schedule showing the support costs allocated to each department.

Answer:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Engineering | Computer Science |
| *F&T Maintenance* | $350,000 x 2/7 = | $100,000 |  |
| $350,000 x 5/7 = |  | $250,000 |
| *Enrollment Service* | $950,000 x 24/60 = | $380,000 |  |
| $950,000 x 36/60 = |  | $570,000 |
| Total |  | $480,000 | $820,000 |

91. Gotham University offers only high-tech graduate-level programs. Gotham has two principal operating departments, Engineering and Computer Sciences, and two support departments, Facility and Technology Maintenance and Enrollment Services. The base used to allocate facility and technology maintenance is budgeted total maintenance hours. The base used to allocate enrollment services is number of credit hours for a department. The Facility and Technology Maintenance budget is $350,000, while the Enrollment Services budget is $950,000. The following chart summarizes budgeted amounts and allocation-base amounts used by each department.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Budget | *Services Provided: (Annually)* | | | |
| Engineering | Computer Sciences | F&T Maintenance | Enrollment Service |
| *F&T*  *Maintenance*  (in hours) | $350,000 | 1,000 | 2,000 | Zero | 5,000 |
| *Enrollment Service*  (in credit hrs) | $950,000 | 24,000 | 36,000 | 2,000 | Zero |

Required:

Prepare a schedule, which allocates service department costs using the step-down method with the sequence of allocation based on the highest-percentage support concept. Compute the total amount of support costs allocated to each of the two principal operating departments, Engineering and Computer Sciences.

Answer:

F&T Maintenance provided to enrollment services = 5,000/8,000

Enrollment services provided to maintenance = 2,000/62,000

F&T Maintenance provides the greatest amount of service to support departments, so it is allocated first.

F&T Maintenance $350,000 to Enrollment Services = $350,000 x 5/8= $218,750

to Engineering = $350,000 x 1/8= $ 43,750

to Computer Science = $350,000 x 2/8= $ 87,500

Enrollment Service costs of $950,000 + $218,750 = $1,168,750

are allocated to Engineering and Computer Science

to Engineering = $1,168,750 x 24/60 = $467,500

to Computer Science = $1,168,750 x 36/60 = $701,250

|  |  |  |  |
| --- | --- | --- | --- |
| F&T Maintenance | Enrollment Service | Engineering | Computer Science |
| $350,000  ($350,000) | $950,000  $218,750 | $ 43,750 | $ 87,500 |
| $ 0 | ($1,168,750) | $467,500 | $701,250 |
| Totals | $ 0 | $511,250 | $788,750 |

92. Gotham University offers only high-tech graduate-level programs. Gotham has two principal operating departments, Engineering and Computer Sciences, and two support departments, Facility and Technology Maintenance and Enrollment Services. The base used to allocate facility and technology maintenance is budgeted total maintenance hours. The base used to allocate enrollment services is number of credit hours for a department. The Facility and Technology Maintenance budget is $350,000, while the Enrollment Services budget is $950,000. The following chart summarizes budgeted amounts and allocation-base amounts used by each department.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Budget | *Services Provided: (Annually)* | | | |
| Engineering | Computer Sciences | F&T Maintenance | Enrollment Service |
| Engineering | $3,500,000 |  |  |  |  |
| Computer Sciences | $1,400,000 |  |  |  |  |
| F&T Maintenance  (in hours) | $350,000 | 2,000 | 1,000 | Zero | 5,000 |
| Enrollment Service  (in credit hrs) | $950,000 | 24,000 | 36,000 | 2,000 | Zero |

**Required:**

a. Set up algebraic equations in linear equation form for each activity.

b. Determine total costs for each department by solving the equations from part (a) using the reciprocal method.

(Engineering= Eng; Computer Sciences = CS; Facility and Technical Maintenance = FTM; Enrollment Service = ES)

Answer:

a. Eng = $1,400,000 + 2/8 (FTM) + 24/62 (ES)

CS = $3,500,000 + 1/8 (FTM)+ 36/62 (ES)

FTM = $350,000 + 2/62 (ES)

ES = $950,000 + 5/8 (FTM)

b. *Enrollment Service* = $950,000 + 0.625 (FTM)

ES = $950,000 + .625 (350,000 + 2/62 ES)

ES = $950,000 + $218,750 + .02 ES

0.98 ES = $1,168,750

ES = $1,192,602

*FTM* = $350,000 + 2/62 ($1,192,602) = $388,471

*Engineering* = $1,400,000 + 2/8 ($388,471) + 24/62 ($1,192,602)

$1,400,000 + 97,118 + 461,652 = $1,958,770

*CS* = $3,500,000 + 1/8 ($388,471) + 36/62 ($1,192,602)

= $3,500,000 + $48,559 + $692,479

= $4,241,038

93. Campaign Printing has two service departments, S1 and S2, and two production departments, P1 and P2.

The data for May were as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | *Services provided to:* | | | |
| Activity | Costs | S1 | S2 | P1 | P2 |
| S1 | $90,000 |  | 10% | 40% | 50% |
| S2 | $60,000 | 20% |  | 55% | 25% |
|  | Fixed Costs |  |  |  |  |
| P1 | $360,000 |  |  |  |  |
| P2 | $520,000 |  |  |  |  |

Required:

a. Set up algebraic equations in linear form for each activity.

b. Determine total costs for each department by solving the equations from part (a) using the reciprocal method.

Answer:

a. S1= $90,000 + 0.20 (S2)

S2= $60,000 + 0.10 (S1)

P1=$360,000 + 0.40 (S1) + 0.55 (S2)

P2= $520,000 + 0.50 (S1) + 0.25 (S2)

b. S1 = $90,000 + 0.20 ($60,000 + 0.10 (S1))

S1 = $90,000 + $12,000 + 0.02 (S1)

0.98 (S1) = $102,000

= $104,082

S2 = $60,000 + (0.10 X $104,082) = $70,408

P1 = $360,000 + (0.40 x $104,082) + (0.55 x $70,408) = $440,357

P2 = 520,000 +(0.50 x $104,082) + (0.25 x $70,408) = $589,643

94. The Maintenance Department has been servicing Gizmo Production for four years. Beginning next year, the company is adding a Scrap-Processing Department to recycle the materials from Gizmo Production. As a result, maintenance costs are expected to increase from $480,000 per year to $500,000 per year. The Scrap-Processing Department will utilize 25% of the maintenance efforts.

Required:

a. Using the stand-alone cost-allocation method, identify the amount of maintenance cost that will be allocated to Gizmo Production and the Scrap-Processing Department next year.

b. Using the incremental cost-allocation method, identify the amount of maintenance cost that will be allocated to Gizmo Production and the Scrap-Processing Department next year.

Answer:

a. Gizmo Production = $500,000 x 0.75 = $375,000

Scrap-Processing Department = $500,000 x 0.25 = $125,000

b. Gizmo Production would receive $480,000.

Scrap-Processing Department would receive $20,000, the incremental amount

95. Give examples of bundled products for each of the following industries:

a. Resort hotel

b. Bank

c. Restaurant

d. Computer store

e. Gasoline service station/convenience store

f. Software manufacturer

Answer:

a. Hotel room plus meals, free drinks, use of athletic facilities, morning newspaper

b. Checking account, safe deposit box, wire transfers, certified checks, travelers checks

c. Fixed-price meal includes a beverage, appetizer, entree, and dessert

d. Computer, keyboard, monitor, printer, software, 1-year contract for the repair and maintenance of the computer

e. Gasoline, car wash, coffee

f. Two (or more) software products

96. Max's Movie Store encounters revenue-allocation decisions with its bundled product sales. Here, two or more of the movie videos are sold as a single package. Managers at Max's are keenly interested in individual product-profitability figures. Information pertaining to its three bundled products and the stand-alone selling prices of its individual products is as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Stand-Alone Selling Price** | **Cost** |  | **Package** | **Packaged**  **Price** |
| *New Releases* | $15 | $2.00 |  | *New & Older* | $20 |
| *Older Releases* | $10 | $1.50 |  | *New & Classics* | $17 |
| *Classics* | $8 | $1.25 |  | *All three* | $25 |

Required:

a. With selling prices as the weights, allocate the $25 packaged price of “All Three” to the three videos using the stand-alone revenue-allocation method.

b. Allocate the $25 packaged price of “All Three” to the three types of videos using the incremental revenue-allocation method. Assume New Releases is the primary product, followed by Older Releases, and then Classics.

Answer:

a. New $15 + Older $10 + Classics $8 = $33.00

New $15 / $33 x $25 = $11.36

Old $10 / $33 x $25 = $ 7.58

Classics $8 / $33 x $25 = $ 6.06

Total $25.00

b.

|  |  |  |
| --- | --- | --- |
| **Product** | **Revenue Allocated** | **Revenue Remaining To Be Allocated** |
| *New Releases* | $15 | $25-15 = $10 |
| *Older Releases* | $10 | $25 - $15 - $10 = $0 |
| *Classics* | $ 0 | none |
| Total revenue allocated | $25 |  |

97. Software For You encounters revenue-allocation decisions with its bundled product sales. Here, two or more units of the software are sold as a single package. Managers at Software For You are keenly interested in individual product-profitability figures. Information pertaining to its three bundled products and the stand-alone selling prices of its individual products is as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Stand-Alone Selling Price** | **Cost** |  | **Package** | **Packaged**  **Price** |
| *Word Processing*  *(WP)* | $125 | $18 |  | *WP & SS* | $220 |
| *Spreadsheet*  *(SS)* | $150 | $20 |  | *WP & AS* | $280 |
| *Accounting Software*  *(AS)* | $225 | $25 |  | *All three* | $380 |

Required:

a. Using the stand-alone revenue-allocation method, allocate the $380 packaged price of “All Three” to the three software products

1. with selling prices as the weights.

2. with individual product costs as the weights.

3. based on physical units.

b. Allocate the $380 packaged price of “All Three” to the three software products using the incremental revenue-allocation method. Assume Word Processing is the primary product, followed by Spreadsheet, and then Accounting Software.

Answer:

a1. WP $125 + SS $150 + AS $225 = $500

WP $125 / $500 x $380 = $ 95

SS $150 / $500 x $380 = $114

AS $225 / $500 x $380 = $171

Total $380

a2. WP $18 + SS $20 + AS $25 = $63

WP $18 / $63 x $380 = $108.57

SS $20 / $63 x $380 = $120.64

AS $25 / $63 x $380 = $150.79

Total $380.00

a3. 1 / (1+ 1 + 1) x $380 = $126.67 per software package

97. (continued)

b.

|  |  |  |
| --- | --- | --- |
| **Product** | **Revenue Allocated** | **Revenue Remaining To Be Allocated** |
| *WP* | $125 | $380-125 = $255 |
| *SS* | $150 | $380 - $125 - $150 = $105 |
| *AS* | $105 | none |
| Total revenue  allocated | $380 |  |

*CRITICAL THINKING*

98. The Pitt Corporation has been outsourcing data processing in the belief that such outsourcing would reduce costs and increase corporate profitability. In spite of this, there has been no meaningful increase in corporate profitability.

Previously, Pitt used a single-rate method to allocate data processing costs. A per unit cost for data processing was computed and compared to the price of the outside supplier. The price of the outside supplier was lower, so the outside bid was accepted.

**Required:**

Formulate a possible reason why Pitt’s profitability has not shown improvement in terms of the cost allocation method used.

**Answer:**

The single-rate cost allocation method groups fixed and variable costs together within each cost pool. The deficiency of this comparison is that the fixed costs included in the cost pool will continue. Therefore, Pitt may be spending more funds in total than if the work was still performed in-house.

99. Van Meter Fig Company has substantial fluctuations in its production costs because of the seasonality of figs.

Would you recommend an actual or budgeted allocation base? Why? Would you recommend calculating monthly, seasonal, or annual allocation rates? Why?

Answer:

The company should use a long-term budget amount for the allocation base. Neither an actual amount nor a budgeted monthly amount will provide the company with reliable allocation amounts because of the variability in the supply of figs. With long-term budgeted usage, the user departments will know their allocated costs in advance and should help them in their planning.

100. Jonathan has managed a downtown store in a major metropolitan city for several years. The firm has ten stores in varying locations. In the past, senior management noticed Jonathan’s work and he has received very good annual evaluations for his management of the store.

This year his store has generated steady growth in sales, but earnings have been deteriorating. After examining the monthly performance report generated by the company budgeting department, he noticed that increasing fixed costs is what is causing the decrease in earnings.

Administrative corporate costs, primarily fixed costs, are allocated to individual stores each month based on actual sales for that month. Two of these stores are currently growing at a rapid pace, while four other stores are having operating difficulties.

Required:

From the information presented, what do you think is the cause of Jonathan’s reported decrease in earnings? How can this be corrected?

Answer:

The variations in reporting are probably caused by the growth fluctuations of the other branches. When fixed costs are involved in an allocation process based on actual usage, one unit receiving the allocation can have changes even when it doesn't change itself. This is caused by the other stores causing changes in the allocation base, thereby causing everyone to receive different allocation amounts, even those who don't have changes in their base. Because Jonathan’s sales have been increasing, his allocation of corporate fixed costs has also increased.

To correct the problem, the corporation should change to using budgeted performance as the allocation base and use a denominator level that reflects expected performance over the long run. An allocation base other than sales may also want to be considered.

101. Why would businesses want to sell bundled products? What benefits, if any, are there for the consumer?

Answer:

Businesses seek to sell bundled products as a means of increasing total revenues and spreading fixed costs across a larger dollar amount of revenues. The result is usually an increase in overall corporate profitability.

In order to sell more goods, customers must believe that they are getting value for their money.

101. (continued)

Receiving additional goods or services for what is likely only a marginal increase in price over the price of the primary product could entice consumers to buy the bundled package rather than forgoing the purchase altogether. While not strictly a bundled product, an automobile provides a good example.

Car dealers sell cars that are "loaded with options." The price is less than the basic car with the options added separately. Consumers feel they are getting a benefit even though the car might have more options than they would have purchased. The manufacturer has greater revenue than would be the case without the "bundle."

A benefit for the consumer is an extra product for only a marginal increase in price that is probably less than the separate price of the products.

102. Describe and discuss the two methods of allocating revenues of a bundled package to the individual products in that package. Describe any special problems associated with the method.

Answer:

Method 1. The stand-alone revenue-allocation method allocates bundled revenues using product-specific information on the bundle of products as the weights to allocate the bundled revenues to the individual products. When allocating bundled revenues, the proportion of revenues is allocated on four alternative bases: (1) individual product unit selling prices, (2) individual product unit costs, (3) physical units, or (4) stand-alone product revenues. It is preferable to allocate common revenues based on unit revenues, since this best reflects customers' willingness to pay for the different products. However, if the products are never sold separately, unit-selling prices are unavailable, so revenues are allocated based on unit costs (which should be available in the firm's accounting records), or simply by the number of physical units that comprise the bundle.

Method 2. The incremental revenue-allocation method ranks the individual products in the bundled product according to criteria determined by management. This ranking is then used to allocate the bundled revenues to individual products. One problem is how to determine the ranking. Individual product managers want to ranked first so that as much of the revenue as possible is allocated to their product. This can result in disputes between managers.