Problem 7-8 “Winterton Group”

The Winterton Group is an investment advisory firm specializing in high-income investors in upstate New York. Winterton has offices in Rochester, Syracuse, and Buffalo. Operating as a profit center each office receives central services, including information technology, marketing, accounting, and payroll. Winterton has 20 investment advisors, 7 each in Syracuse and Rochester, and 6 in Bufflao. Each investment advisors in each office is designated as the office manager and is responsible for running the office. The office manager receives 8 percent of the regional office profits instead of 2 percent.

Regional office expenses include commissions paid to investment advisors. The following regional profits are calculated before the 2 percent profit sharing. Firm profits are the sum of the three regional office profits.

This table summarizes the current profits per office after allocation central service costs based on office revenues.

**WINTERTON GROUP**

Profits by Office

Current Year (Millions**)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | *Rochester* | *Syracuse* | *Buffalo* |
| Revenue | $16.00 | $14.00 | $20.00 |
| Operating expenses | (12.67) | (11.20) | (16.30) |
| Central services\* | (1.92) | (1.68) | (2.40) |
|  | $1.41 | $1.12 | $1.30 |
|  |  |  |  |

\*Allocated on the basis of revenue.

The manager of the Buffalo office sent the following e-mail to the other office managers, the president, and the chief financial officer:

One of the primary criteria by which all cost allocation schemes are to be judged is fairness. The costs allocated to those bearing them should view the system as fair. Our current system, which allocates central services using office revenues, fails this important test of fairness. Receiving more allocated costs penalizes those offices generating more revenues. A fairer, and hence more defensible, system would be to allocate these central services based on the number of investment advisors in each office.

*Required:*

1. Recalculate each office’s profits before any profit sharing assuming the Buffalo manager’s proposal is adopted.
2. Do you believe the Buffalo manager’s proposal results in a fairer allocation sheme than the current one? Why or why not?
3. Why is the Buffalo manager concerned about fairness?

Problem 7-23 “Reed Park, Inc.”

Reed Park, Inc., is a bottler/supplier of bottled spring water to both commercial and residential customers. Reed Park’s corporate headquarters is located in Clearwater Springs, Colorado. It operates distribution centers (DC’s) in three territories throughout the metro Clearwater Springs area. The company began by selling to residential areas and small businesses in the region. In recent years, its sales have moved toward larger businesses. The Metro center was the first DC established. The newest center, Metro West, was established four years ago and continues to show great growth potential.

Bottling and distribution operations are treated as separate entities, and the costs associated witheach are easily tracked and charged to the appropriate division. There have been no problems between the two divisions related to the accounting systems. However, the managers in the distribution division have recently begun raising some questions regarding the accounting systems in place within their division.

Distribution center operations are relatively straightforward. Bottled water shipments are taken from the main bottling plant and stored at the DCs for delivery to customers at later dates. Most subscribing customers take delivery once every two weeks. Expenses associated with DC operations can be seen in the quarterly income statement(Table 1). DC overhead includes lease, building maintenance, include salaries of sales and support staff as well as the cost of office supplies used in running the office.

Each distribution center has its own sales staff. The corporate office handles the subscription process and provides the drivers/delivery employees the information regarding delivery type and schedule. The majority of corporate overhead allocated to distribution center results from the processing and maintenance of subscriptions and schedules. Reed Park allocates these overhead costs based upon the proportion of the book value of trucks at each DC facility to the total book value of the entire Reed Park delivery fleet. This allocation method was implemented at the time the company was founded to relate costs to the most significant cost item. Trucks are requested by distribution centers and purchased by the corporate offices under a corporate fleet contract with a major truck manufacturer. (See Table 2 for relevant data). Each DC is treated as a profit center and DC management is evaluated based upon its territory’s net income performance.

The bottled water industry is experiencing strong growth, as is Reed Park. While Reed Park’s business seems to be profitable, all is not well within the ranks of the organization. Corporate has been pressuring DCs to expand their territories and increase delivery volume, but DCs have been reluctant to meet this request. Som DC managers are beginning to question the amount of overhead cost to rise. DC drivers are also unhappy; they complain abouth being overburdened by their ever-expanding routes and the pressure to meet difficult delivery schedules. Steve Austin, assistant to the controller, has been assigned the task of examining the situation and developing alternatives if, indeed, a solution is needed.

Data for Reed Park Analysis

|  |  |  |  |
| --- | --- | --- | --- |
|  | Metro | Metro East | Metro West |
| Delivery employees | 80 | 70 | 50 |
| Delivery employees wages(per hour) | $8 | $8 | $8 |
| Total subscriptions | 8,533 | 7,200 | 5,,040 |
| Deliveries per quarter | 51,198 | 43,200 | 30,200 |
| Bottles delivered per quarter | 75,000 | 68,000 | 62,400 |
| Average miles driven per delivery | 4 | 4.5 | 5.2 |
| New subscriptions this quarter | 400 | 700 | 900 |
| Truck dollar value | $700,000 | $690,000 | $670,000 |
| Accumulated depreciation (dollar value) | 350,000 | 420,000 | 580,000 |
| Allocation base | 350,000 | 420,000 | 580,000 |
| Overhead allocation percentage | 26% | 31% | 43% |

Notes*: Trucks average 15 mpg. Fuel cost + $1.20 per gallon. Delivery charge + $11 per bottle delivered. Subscription fee = $100 per subscription*. Fictitious data, for illustration purposes only

*Required:*

a. Describe the problems, if any, at Reed Park, Specifically, discuss items related to decision making, cost allocation, and incentives.

b. Describe alternative overhead allocation systems.

c. Which allocation system would you choose? What effects do you feel it would have upon Reed Park’s distribution operations?

d. Calculate net incomes for the three DCs under the system you have chosen and compare these results with those found under the present system.

Problem 8-6 “Joint Products, Inc.”

Joint Products, Inc., produces two joint products, X and V, using a common input. These are produced in batches. The common input costs $8,000 per batch. To produce the final products (X and V), additional processing cost beyond the split-off pint must be incurred. There are no beginning inventories. The accompanying data summarize the operations.

Enrollment in local colleges, 2005

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Products  *X* | Y |
|  |  |  |  |
| Quantities produced per batch |  | 200 lbs | 400 lbs |
| Additional processing costs per batch |  |  |  |
| Beyond split-off |  | $1,800 | $3,400 |
| Unit selling prices of completely |  |  |  |
| Processed products |  | $40/lb. | $10/lb |
| Ending inventory |  | 2,000 lbs. | 1,000 lbs. |
|  |  |  |  |

*Required:*

a. Compute the full cost of the ending inventory using net realizable value to allocated joint cost.

b. If the selling prices at the split-off (before further processing) are $35 and $1 per pound of X and V, respectively, what should the firm do regarding further processing? Show calculations.

Problem 8-12 “WWWeb Marketing”

WWWeb Marketing is a decentralized firm specializing in designing and operating Internet marketing Web sites. The firm is four years old and has been growing rapidly, but it only shows a small profit. WWWeb has three profit centers. Design Division, Server Operations, and the Crawler Division. The Design Division devises Internet marketing strategies for external clients, including innovative Web sites and Web-based marketing strategies. Server Operations maintains the clients' Web sites on WWWeb's servers. The Crawler Division operates WWWeb's proprietary search engine that clients for Internet-based marketing research. In addition to these three profit centers, WWWeb has an IT group that maintains WWWeb's servers and telecommunication lines to the Internet.

The IT group is a cost center. The current annual IT budget is $548,000 for personnel, hardware and software leases for the servers, and telecommunication costs. The cost of the IT group is not allocated back to the three divisions. The CEO of WWWeb argues that the IT group is a common (shared) resource and is essentially a fixed cost. Adding another client Web site or performing a Web search does not generate any additional IT cost to the firm because WWWeb's IT group has excess capacity.

WWWeb's CEO argues, "Any charge for IT back to the divisions will cause the division to avoid using our IT resources. As long as we have unused capacity on our systems we should be encouraging our people to use that capacity." WWWeb currently uses about 80 percent of the capacity of its servers, routers, and fiber optic high speed lines to the Internet. The high speed lines are the "pipes" through which all client server Web traffic flows. These high speed lines are so also used by WWWeb's e-mail traffic and the Crawler Divisions marketing research Web searches. Currently, the IT systems are performing well and WWWeb users experience few delays and minimal interference from other users. However, the three profit center managers are projecting growth in their businesses and expect capacity on their servers and communication lines within the next 12 months. When this happens, the managers predict that they will experience significant degradation.

Jose Coronas, head of WWWeb's IT group, has called a meeting of the three division managers to discuss the terrific deals being offered by telecom companies and [hardware](http://www.justanswer.com/questions/2owqt-i-have-to-submit-this-answer-nlt-monday-wwweb-marketing) providers. Given the current slump in the economy, WWWeb can roughly double the capacity of its servers adn high speed access lines and lock in these low rates for two years. The incremental cost of doubling the IT group's capacity is to raise its hardware lease costs and access line costs by 20 percent. IT currently spends $18,000 a month on hardware leases and access lines. If it were to double its existing capacity, the total monthly cost would rise to $21,600. Mr. Coronas believes his existing IT personnel can handle the additional server and line capacity and lock in these attractive rates.

*Required:*

a. Analyze WWWeb's current policy of how the three divisions are charged for IT costs and whether WWWeb should acquire the additional capacity.

b. Should WWWeb change its policy of how it charges IT costs to the divisions? If so, what changes would you recommend?

Problem 8-19 “Ferguson Metals”

Ferguson Metals is a decentralized mining, smelting and metals company with three divisions: mining, lead, and copper. The mining division owns the ore mines that produces the lead and copper that occur in the vein. Mining removes the ore, crushes it and smelts it to separate the metals from the crushed rock. It then sells the two products to the other two divisions: lead and copper. Each batch mined yeilds 50 tons of lead and 25 tons of copper. One ton is 2,000 pounds. The metals are transferred from mining to the lead and copper division at cost plus a small profit to give mining an incentive to produce.

**Mining Division Income Statement per Batch**



**\****Based on a normal volume of 100 batches per year.*

**Metal Division Income Statement ($000s)**

*\*The metal costs exceed the costs of the mining division because some metals are purchased on the open market to expand capacity and to smooth production of the downstream industrial products.*

The current market price for copper is roughly $0.60 per pound; for leads it is $0.30 per pound. But these prices are for substantially purer copper and lead than the mining division has the ability to produce. Mining could sell its lead in the market at its current purity level for $0.17 per pound. Since the metal divisions are currently incurring the cost to refine the metals to the purity levels they require, management does not believe it is equitable to charge the divisions the current market prices for the unrefined metals. If the metals were transferred at market prices, the lead and copper divisions would be paying twice for the refining process and the mining division would be rewarded for a level of purity it is not providing.

Table 1 shows the mining division’s income statement per batch.

The variable mining and smelting cost per ton of lead and copper are based on the fixed yields of the two metals. Production last year at mining was 100 batches and both the lead and copper divisions had no change in inventory levels.

The lead and copper divisions further process the two metals into industrial products. Because of increasing foreign competition, the lead division has been showing a negligible [return on investment](http://www.justanswer.com/questions/2y1mo-simple-accounting-question). Table 2 shows income statements for the two metal divisions for last year

All of the fixed costs in both the lead and copper divisions represent separable annual cash outflows to maintain current capacity. They are not common costs. Ferguson's top management has the opportunity to [invest](http://www.justanswer.com/questions/2y1mo-simple-accounting-question) in what appears to be a highly profitable joint mining venture, which promises very high returns. Ferguson's share of the net present value of the venture is around $30 million, discounted at the firm's before-tax cost of capital of 12 percent. To finance this project, the company is considering divestiture of the lead division. A foreign company is looking to gain a foothold in the U.S. market has offered $5 million for this division. While Ferguson's net [investment](http://www.justanswer.com/questions/2y1mo-simple-accounting-question) in this division is $10 million, management reasons it can use the proceeds to undertake the joint venture.

Required Should management sell the lead division to the foreign company? Present an analysis supporting your conclusion.

Problem 9-3 “Densain Water”

The Densain Water plant in Naples, Florida, bottles purified and flavored waters in a variety of sizes (20, 36, 48, and 64 ounces) for sale through vending machines and retail stores.  Volume is measured as bottled ounces. The plant's annual budgeted fixed manufacturing overhead amounts to $1.8 million, and variable manufacturing overhead is projected at $0.005 per bottled ounce. Projected volume in the Naples plant next year is 200 million ounces. Actual volume for the year accumulated to 210 million ounces and total manufacturing overhead incurred (both fixed and variable) was $2.85 million.

*Required:*

a. Calculate the Densain Naples plant overhead rate.

b. How much overhead was absorbed to products in the Naples plant?

c. Calculate the Densain Naples plant's over- or under-absorbed overhead.

d. Describe the effect on income when the over- or under-absorbed overhead calculated in (c) is written off to cost of goods sold

Problem 9-4 “MacGiver Brass”

MacGiver Brass is a brass plating firm with sales of $8 million and profits before taxes of $625,000. MacGiver has a loan outstanding at its local bank for working capital purposes. As the loan officer reviewing MacGiver's loan application, you are charged with making a recommendation as to whether the $608,000 loan should be renewed for another year. Upon reviewing MacGiver's most recent annual report, you find the following footnote:

Under-absorbed overhead of $462,000 was prorated to inventories (2/3) and cost of goods sold (1/3).

*Required:*

a. How should you evaluate MacGiver's annual report in light of this footnote? In particular, how does this footnote affect your recommendation regarding the loan?

b. In preparing for your meeting with MacGiver's president and chief financial officer, what questions do you want to ask regarding this footnote?

Problem 9-12 “Rick’s Bags”

Rick's Bags manufactures both golf bags and tennis totes. Fixed manufacturing overhead is budgeted to be $187,200, variable manufacturing overhead is budgeted to be $1.10 per direct labor hour, and fixed selling and administration costs are budgeted to be $346,000. Each golf bag is expected to use 2.5 direct labor hours and each tennis tote is expected to use 1.8 direct labor hours. Planned production consists of 12,000 golf bags and 18,000 tennis totes. During the year, 34,060 direct labor hours are used to make golf bags and 16,250 direct labor hours are used to make tennis totes. Manufacturing overhead incurred during the year was $207,500. Overhead is absorbed into products using actual direct labor hours.

Required:

a. Calculate the manufacturing overhead rate used to absorb overhead to golf bags and tennis totes.

b. A batch of tennis totes is produced in May. The batch uses 1,900 direct labor hours. How much overhead is charged to this batch of tennis totes?

c. Calculate the amount of over/under-absorbed overhead at the end of the year.

d. Describe in nontechnical terms what the over/under-absorbed overhead calculated in part (c) means.

Problem 9-22 “Kitchen Rite”

Kitchen Rite is considering outsourcing the production of a steel chassis that is used in a kitchen appliance' Two thousand chassis are produced per month. An outside vendor will supply an identical chassis for $9.90. The chassis is manufactured in two steps. A stamping press punches out the part from sheet metal, bends the sides, and cuts holes in it, all in one operation. Then a welding machine welds the corners. Both the welding and stamping machines are used to produce only this one chassis model. The following job order cost sheet summarizes the costs of producing a single chassis



The stamping machine is old and has little economic value. A used equipment dealer is willing to remove the machine and haul it away at no cost. The stamping machine was purchased 13 years ago for $1,728,000. For both tax and reporting purposes, it is being depreciated using a20-year life, straight-line method, and it has zero salvage value. The welding machine is leased for $4,300 per month, and the lease can be canceled at any time and the machine returned. However, an early termination penalty of $1,800 per month for the next 42 months must be paid.

General plant overhead consists primarily of the allocated cost of depreciation on the plant, property taxes, and fire insurance on the plant. Kitchen Rite currently has excess plant space. The manufacturing space freed up if the chassis is outsourced has no other use.

Employees are unionized and have a clause in their contract that prevents the firm from firing them if their jobs are eliminated due to outsourcing. The employees working on the stamping machine will be placed on indefinite furlough at75 percent of their current pay. The employees operating the welding machine can be reassigned to other positions in the firm as job openings occur. Given the high demand for welders, these reassignments will occur within a few weeks of outsourcing the chassis.

Kitchen Rite has a tax loss for the current and the previous two years.

*Required:*

Should Kitchen Rite outsource the chassis? Support your recommendation with a clear financial analysis of the facts

Problem 9-24 “Hurst Mats”

Hurst Mats manufactures custom replacement floor mats for automobiles. The floor mats are made of spun nylon on highly automated, expensive machinery. Hurst manufactures two mat styles: Plush and Deluxe. Hurst's unionized work force makes it difficult for Hurst to compete on price. So far it has been able to successfully compete on quality, innovative design, and delivery schedule. However, the leaders of Hurst's union are aggressive and are seeking additional work-related job guarantees. Hurst management would like to reduce its dependence on unionized labor.

Hurst's manufacturing process is overhead-driven; most of the overhead arises from the common machinery that produces the Plush and Deluxe floor mats. Non-unionized engineers and technicians maintain the equipment. Expensive lubricants and filters are required to operate the machines, which require large amounts of electricity and natural gas. Each mat style is produced in batches that consist of 10 mats per batch. Plush and Deluxe do not put differential demands on the equipment other than through the amount of machine time required to produce each batch of mats. The following table summarizes the operating data for each mat style:



Overhead is allocated to the two mat styles using a predetermined overhead rate estimated from a flexible budget at the beginning of the year. Fixed overhead is estimated to be $680,000, and variable overhead is estimated to be $ 1.50 per machine minute. Management is debating whether to use machine minutes or direct labor cost as the overhead allocation base to allocate overhead to the two mat styles.

Required:

a. Calculate two overhead rates. The first uses machine minutes as the allocation base, and the second overhead rate uses direct labor cost as the allocation base. Round both overhead rates to two decimals.

b. Calculate the total product cost per batch of Plush and Deluxe mats using the two overhead rates calculated in (a).

c. Discuss the advantages and disadvantages of using machine minutes or direct labor cost as the allocation base for assigning overhead to the two mat styles.