

EXERCISE 12-1 Identifying Relevant Costs [LO1]

A number of costs are listed below that may be relevant in decisions faced by the management of Poulsen & Sonner A/S, a Danish furniture manufacturer:

Item	Case 1		Case 2	
	Relevant	Not Relevant	Relevant	Not Relevant
a. Sales revenue				
b. Direct materials				
c. Direct labor				
d. Variable manufacturing overhead				
e. Book value—Model A3000 machine				
f. Disposal value—Model A3000 machine				
g. Depreciation—Model A3000 machine				
h. Market value—Model B3800 machine (cost)				
i. Fixed manufacturing overhead (general)				
j. Variable selling expense				
k. Fixed selling expense				
l. General administrative overhead				

Required:

Copy the information from the previous page onto your answer sheet and place an X in the appropriate column to indicate whether each item is relevant or not relevant in the following situations. Requirement 1 relates to Case 1, and requirement 2 relates to Case 2. Consider the two cases independently.

- The company chronically runs at capacity and the old Model A3000 machine is the company's constraint. Management is considering the purchase of a new Model B3800 machine to use in addition to the company's present Model A3000 machine. The old Model A3000 machine will continue to be used to capacity as before, with the new Model B3800 being used to expand production. The increase in volume will be large enough to require increases in fixed selling expenses and in general administrative overhead, but not in the general fixed manufacturing overhead.
- The old Model A3000 machine is not the company's constraint, but management is considering replacing it with a new Model B3800 machine because of the potential savings in direct materials cost with the new machine. The Model A3000 machine would be sold. This change will have no effect on production or sales, other than some savings in direct materials costs due to less waste.

EXERCISE 12-2 Dropping or Retaining a Segment [LO2]

Jackson County Senior Services is a nonprofit organization devoted to providing essential services to seniors who live in their own homes within the Jackson County area. Three services are provided for seniors—home nursing, Meals On Wheels, and housekeeping. In the home nursing program, nurses visit seniors on a regular basis to check on their general health and to perform tests ordered by their physicians. The Meals On Wheels program delivers a hot meal once a day to each senior enrolled in the program. The housekeeping service provides weekly housecleaning and maintenance services. Data on revenue and expenses for the past year follow:

	Total	Home Nursing	Meals On Wheels	Housekeeping
Revenues	\$900,000	\$260,000	\$400,000	\$240,000
Variable expenses	490,000	120,000	210,000	160,000
Contribution margin	410,000	140,000	190,000	80,000
Fixed expenses:				
Depreciation	68,000	8,000	40,000	20,000
Liability insurance	42,000	20,000	7,000	15,000
Program administrators' salaries	115,000	40,000	38,000	37,000
General administrative overhead*	180,000	52,000	80,000	48,000
Total fixed expenses	405,000	120,000	165,000	120,000
Net operating income (loss)	\$ 5,000	\$ 20,000	\$ 25,000	\$ (40,000)

* Allocated on the basis of program revenues.

The head administrator of Jackson County Senior Services, Judith Miyama, is concerned about the organization's finances and considers the net operating income of \$5,000 last year to be too small. (Last year's results were very similar to the results for previous years and are representative of what would be expected in the future.) She feels that the organization should be building its financial reserves at a more rapid rate in order to prepare for the next inevitable recession. After seeing the above report, Ms. Miyama asked for more information about the financial advisability of discontinuing the housekeeping program.

The depreciation in housekeeping is for a small van that is used to carry the housekeepers and their equipment from job to job. If the program were discontinued, the van would be donated to a charitable organization. Depreciation charges assume zero salvage value. None of the general administrative overhead would be avoided if the housekeeping program were dropped, but the liability insurance and the salary of the program administrator would be avoided.

Required:

- Should the housekeeping program be discontinued? Explain. Show computations to support your answer.
- Recast the above data in a format that would be more useful to management in assessing the long-run financial viability of the various services.

EXERCISE 12-3 Make or Buy a Component [LO3]

Climate-Control, Inc., manufactures a variety of heating and air-conditioning units. The company is currently manufacturing all of its own component parts. An outside supplier has offered to sell a thermostat to Climate-Control for \$20 per unit. To evaluate this offer, Climate-Control, Inc. has gathered the following information relating to its own cost of producing the thermostat internally:

	Per Unit	5,000 Units per Year
Direct materials	\$ 6	\$ 90,000
Direct labor	8	120,000
Variable manufacturing overhead	1	15,000
Fixed manufacturing overhead, traceable	5	75,000
Fixed manufacturing overhead, common, but allocated	10	150,000
Total cost	<u>\$30</u>	<u>\$450,000</u>

*40% supervisory salaries; 60% depreciation of special equipment (no resale value)

Required:

- Assuming that the company has no alternative use for the facilities now being used to produce the thermostat, should the outside supplier's offer be accepted? Show all computations.
- Suppose that if the thermostats were purchased, Climate-Control, Inc., could use the freed capacity to launch a new product. The segment margin of the new product would be \$65,000 per year. Should Climate-Control, Inc., accept the offer to buy the thermostats from the outside supplier for \$20 each? Show computations.

EXERCISE 12-4 Evaluating a Special Order [LO4]

Miyamoto Jewelers is considering a special order for 10 handcrafted gold bracelets to be given as gifts to members of a wedding party. The normal selling price of a gold bracelet is \$389.95 and its unit product cost is \$264.00 as shown below:

Direct materials	\$143.00
Direct labor	86.00
Manufacturing overhead	35.00
Unit product cost	<u>\$264.00</u>

Most of the manufacturing overhead is fixed and unaffected by variations in how much jewelry is produced in any given period. However, \$7 of the overhead is variable with respect to the number of bracelets produced. The customer who is interested in the special bracelet order would like special filigree applied to the bracelets. This filigree would require additional materials costing \$6 per bracelet and would also require acquisition of a special tool costing \$465 that would have no other use once the special order is completed. This order would have no effect on the company's regular sales and the order could be fulfilled using the company's existing capacity without affecting any other order.

Required:

What effect would accepting this order have on the company's net operating income if a special price of \$349.95 is offered per bracelet for this order? Should the special order be accepted at this price?

EXERCISE 12-5 Utilizing a Constrained Resource [LO5]

Sport Luggage Inc. makes high-end hard-sided luggage for sports equipment. Data concerning three of the company's most popular models appear below.

	Ski Vault	Golf Caddy	Fishing Clavier
Selling price per unit	\$220	\$300	\$175
Variable cost per unit	\$60	\$120	\$55
Plastic injection molding machine processing time required to produce one unit	4 minutes	5 minutes	2 minutes
Pounds of plastic pellets per unit	5 pounds	6 pounds	5 pounds

Required:

- The total time available on the plastic injection molding machine is the constraint in the production process. Which product would be the most profitable use of this constraint? Which product would be the least profitable use of this constraint?
- A severe shortage of plastic pellets has required the company to cut back its production so much that the plastic injection molding machine is no longer the bottleneck. Instead, the constraint is the total available pounds of plastic pellets. Which product would be the most profitable use of this constraint? Which product would be the least profitable use of this constraint?
- Which product has the largest unit contribution margin? Why wouldn't this product be the most profitable use of the constrained resource in either case?

EXERCISE 12-6 Managing a Constrained Resource [LO6]

Georgian Ambience Ltd. makes fine colonial reproduction furniture. Upholstered furniture is one of its major product lines and the bottleneck on this production line is time in the upholstery shop. Upholstering is a craft that takes years of experience to master and the demand for upholstered furniture far exceeds the company's capacity in the upholstering shop. Information concerning three of the company's upholstered chairs appears below:

	Chippendale Fabric Armchair	Leather Library Chair	Gatlinburg Armchair
Selling price per unit	\$1,400	\$1,800	\$1,300
Variable cost per unit	\$1,000	\$1,200	\$600
Upholstery shop time required to produce one unit	5 hours	12 hours	8 hours

Required:

- More time could be made available in the upholstery shop by asking the employees who work in this shop to work overtime. Assuming that this extra time would be used to produce Leather Library Chairs, up to how much should the company be willing to pay per hour to keep the upholstery shop open after normal working hours?
- A small nearby upholstering company has offered to upholster furniture for Georgian Ambience at a fixed charge of \$45 per hour. The management of Georgian Ambience is confident that this upholstering company's work is high quality and their craftsmen should be able to work about as quickly as Georgian Ambience's own craftsmen on the simpler upholstering jobs such as the Chippendale Fabric Armchair. Should management accept this offer? Explain.