Solutions Manual

# Chapter 8: Supply Chain Design and Location Planning

1.



Arlington has the highest factor rating score.

Cognitive Domain: Knowledge

Difficulty Level: Easy

2a.



Brazil has the highest factor rating score.

2b. The change in Chile’s rating will not affect Johnson’s decision.

Cognitive Domain: Knowledge

Difficulty Level: Easy

3a. Bangalore has the highest score.



3b. Bangalore is still the choice; it is the only city with all scores above 5.

Cognitive Domain: Knowledge

Difficulty Level: Easy

4a.



Singapore has the highest score.

4b. The Philippines would then have a score of 3.8, and Singapore and Malaysia would be tied at 3.3. John would select Philippines instead of Singapore.

Cognitive Domain: Knowledge

Difficulty Level: Easy

5a.



Singapore has the highest overall score.

5b. If communication infrastructure has a weight of zero, then India has the highest score at 6.0.

Cognitive Domain: Knowledge

Difficulty Level: Easy

6a.

Pontianak is the location with the highest score. It’s a lovely place this time of year!

6b. Pontianak is the best choice if all weights are equal; the sum of its score is 610.

Cognitive Domain: Knowledge

Difficulty Level: Easy

7. Answers will vary. If all factors are equally weighted, Mahabalipuram will have the highest score.

Cognitive Domain: Analysis

Difficulty Level: Medium

8a. The location with the lowest fixed cost is initially optimal, and the location with the lowest variable cost is ultimately optimal. Intersection points among the locations are as follows:



Erie: 0 to 10,000; Dallas: 10,001 to 20,000; Chicago: 20,001 and up.

8b.



Erie is the lowest cost alternative at an output of 5,000 units.

Cognitive Domain: Comprehension

Difficulty Level: Medium

9a.

9b. The location with the lowest fixed cost is initially optimal and the location with the lowest variable cost is ultimately optimal. Intersection points among the locations are:



Zagreb: 0 to 6,250; Brussels: 6,251 and up.

9c. At 8,000 units, Brussels has the lowest total cost of $132,000.

Cognitive Domain: Comprehension

Difficulty Level: Medium

10a.



From 0 to 6,111 units, A is best. From 6,112 and beyond, Site C is best.

10b. At 20,000 units, Site C has the lowest total cost of $47,000,000.

Cognitive Domain: Comprehension

Difficulty Level: Medium

11.



Cognitive Domain: Knowledge

Difficulty Level: Easy

12.



Cognitive Domain: Knowledge

Difficulty Level: Easy

13.



Cognitive Domain: Knowledge

Difficulty Level: Easy

14.



Cognitive Domain: Knowledge

Difficulty Level: Easy

15a.



15b.



Frankfurt is the closest.

15c. Answers will vary. If the center of gravity yields a feasible location, then it presents a minimal total distance traveled.

Cognitive Domain: Analysis

Difficulty Level: Medium

16.



Cognitive Domain: Knowledge

Difficulty Level: Easy

17a.



17b.



Tumkur is the closest town to the DC.

17c. Answers will vary, depending on infrastructure and assumptions inherent in the center of gravity method.

Cognitive Domain: Comprehension

Difficulty Level: Medium

18a.



18b.



18c.



Cognitive Domain: Comprehension

Difficulty Level: Medium

19a.



Raleigh has the highest score.

19b.



Raleigh has the highest score if all weights are equal.

19c.



Raleigh has the highest score when the financial incentive weight is lowered to 50.

Cognitive Domain: Comprehension

Difficulty Level: Medium

20.



Cognitive domain: Application

Difficulty Level: Hard