Sample Answers to In-Text Questions

# Chapter 9 Supplement: Tools for Analyzing, Designing, and Selecting Processes and Layouts

## Discussion Questions

1. How can you use the following process analysis tools to improve or redesign existing processes?
2. An assembly chart
3. A process routing sheet
4. A process chart

Answer: An assembly could be analyzed for better efficiencies, and shortcuts. The routing sheet could be analyzed for better routing efficiencies, locations of workcenters, non-value added items. The process chart could be analyzed for extra steps, and redundancies. These could yield a significant reduction of costs or improved efficiencies.

1. What advantages does a process simulation have over the charting techniques used to analyze a process?

Answer: simulation could provide a dynamic view of what if’s to brainstorm better processes.

1. Discuss service blueprinting and how it’s useful for analyzing service processes?

Answer: It is especially valuable in designing what functions are where, in relationship to the customer. Who the customer interacts with, and what they see are an important part of the design to increase the customer experience.

1. What is a Muther’s grid and how is it used in process layout decisions?

Answer: It assists in viewing the proximity of departments or entities, and their physical relationship to each other. Then they can be re-arranged to meet different objectives.

1. What is line balancing?

Answer: A chief goal in efficiency of a process is the smooth flow of goods. Bottlenecks that create waiting, or faster operations that create idle time result in Herky-Jerky start stop processing. It is a chief objective in lean processing.

1. What is the difference between flow time and cycle time?

Answer: Cycle time is the time to produce one complete unit from start to finish. Flow time is the time to produce one item by itself. You have to consider each in properly achieving line balancing.

1. How does the variability in task times affect balancing a line?

Answer: It makes it more difficult, because you have to mathematically estimate probabilities in the times for each task, considering precedence relationships

1. Why rule-of-thumb approaches are used to analyze layouts?

Answer: There are many heuristics, or rules of thumb used to predict the behavior of a production line to assist managers in better efficiencies.

1. What are some of the constraints that layout analysts have to address in balancing a line?

Answer: You have to understand the precedence and cycle time constraints so that reality is not violated in brainstorming the feasibility of changes.

1. How would you calculate the percentage of idle time in an assembly line that is balanced?

Answer: The balance efficiency is the total time used divided by the total time available.

## Critical Thinking Exercises

1. Suppose you have been hired to improve a hospital layout. Choose any nine departments of the hospital and develop a Muther’s Grid for them. Explain your preferences for rating the relationships between departments. For example, if you chose an “A” rating (Absolutely Necessary) for the relationship between the emergency room and the hospital’s front entrance area, explain why.

Answer: Student examples will vary.

1. Develop a service blueprint for an automobile service shop. Make sure you identify potential service failure points in your service blue print.

Answer: Student examples will vary.