

How many minutes of setup time should she have her plant manager aim for regarding this component?

•••**16.9** Given the following information about a product at Michael Gibson's firm, what is the appropriate setup time?

Annual demand = 39,000 units

Daily demand = 150 units

Daily production = 1,000 units

Desired lot size = 150 units

Holding cost per unit per year = \$10

Setup labor cost per hour = \$40

•••**16.10** Rick Wing has a repetitive manufacturing plant producing automobile steering wheels. Use the following data

to prepare for a reduced lot size. The firm uses a work year of 305 days.

Annual demand for steering wheels	30,500
Daily demand	100
Daily production (8 hours)	800
Desired lot size (2 hours of production)	200
Holding cost per unit per year	\$10

- What is the setup cost, based on the desired lot size?
- What is the setup time, based on \$40 per hour setup labor?

Refer to MyOMLab for these additional homework problems: 16.11–16.12.

CASE STUDIES

★ Mutual Insurance Company of Iowa

Mutual Insurance Company of Iowa (MICI) has a major insurance office facility located in Des Moines, Iowa. The Des Moines office is responsible for processing all of MICI's insurance claims for the entire nation. The company's sales have experienced rapid growth during the last year, and as expected, record levels in claims followed. Over 2,500 forms for claims a day are now flowing into the office for processing. Unfortunately, fewer than 2,500 forms a day are flowing out. The total time to process a claim, from the time it arrives to the time a check is mailed, has increased from 10 days to 10 weeks. As a result, some customers are threatening legal action. Sally Cook, the manager of Claims Processing, is particularly distressed, as she knows that a claim seldom requires more than 3 hours of actual work. Under the current administrative procedures, human resources limitations, and facility constraints, there appear to be no easy fixes for the problem. But clearly, something must be done, as the workload has overwhelmed the existing system.

MICI management wants aggressive, but economical, action taken to fix the problem. Ms. Cook has decided to try a JIT approach to claim processing. With support from her bosses, and as a temporary fix, Cook has brought in part-time personnel from MICI sales divisions across the country to help. They are to work down the claims backlog while a new JIT system is installed.

Meanwhile, Claims Processing managers and employees are to be trained in JIT principles. With JIT principles firmly in mind, managers will redesign jobs to move responsibilities for quality control activities to each employee, holding them responsible for quality work and any necessary corrections. Cook will also initiate worker-training programs that explain the entire claim processing flow, as well as provide comprehensive training on each step in the process. Data-entry skills will also be taught to both employees and managers in an effort to fix responsibility for data accuracy on the processor rather than on data entry clerks. Additionally, cross-training will be emphasized to enable workers within departments to process a variety of customer claim applications in their entirety.

Cook and her supervisors are also reexamining the insurance and claim forms currently in use. They want to see if standardization of forms will cut processing time, reduce data-entry time, and cut work-in-process.

They hope the changes will also save training time. Making changes in work methods and worker skills leads logically to a need for change in the layout of the Claims Processing Department. This

potential change represents a major move from the departmental layout of the past and will be a costly step. To help ensure the successful implementation of this phase of the changeover, Cook established a team made up of supervisors, employees, and an outside office layout consultant. She also had the team visit the Kawasaki motorcycle plant in Lincoln, Nebraska, to observe their use of work cells to aid JIT.

The team concluded that a change in the office facilities was necessary to successfully implement and integrate JIT concepts at MICI. The team believes it should revise the layout of the operation and work methods to bring them in line with "group technology cell" layouts. An example of the current departmental layout and claim processing flow pattern is presented in Figure 16.9 (on page 646). As can be seen in this figure, customer claims arrive for processing at the facility and flow through a series of offices and departments to eventually complete the claim process. Although the arrangement of the offices and workers in Figure 16.9 is typical, the entire facility actually operates 20 additional flows, each consisting of the same three departments. However, not all of the 20 flows are configured the same. The number of employees, for example, varies depending on the claim form requirements (larger claims have to be approved by more people). So while all forms must pass through the same three departments (Customer Claim Entry, Accounting, and Customer Claim Approval), the number of workers for each claim may vary from two to four. For this reason, the MICI facility currently maintains a staff of over 180 office workers just to process and route claims. All these people work for Ms. Cook.

Discussion Questions

- Identify the attributes you would expect the Claims Processing Department at MICI to have once the new JIT system is in place.
- What will the restructured cell layout for claim processing in Figure 16.9 look like? Draw it.
- What assumptions are you making about personnel and equipment in the new group technology cell layout?
- How will the new JIT oriented system benefit the MICI operation? Explain.

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