ABSTRACT

The Dynamic Manufacturing Company is a management simulation that enables participants to better understand the dynamics of traditional manufacturing. The goal is to sensitize participants to the decisions and problems that managers must make daily to assure the manufacturing goals of any company are achieved. The Dynamic Manufacturing Company manufactures two subassemblies that are later assembled by the end user. The products are in high demand and the wholesalers have stated that they are willing to purchase all of the product that TDMC is able to produce, given they are in balanced quantities. This balance is required due to the fact that customers must use both types of units in tandem. The wholesaler has stipulated that they will accept an imbalance of \(+1\) piece per week. Units in excess of the imbalance will not be purchased by the wholesaler and cannot be stored for use in subsequent weeks. The role of management in the simulation is to maintain equilibrium of the product mix by implementing various managerial strategies.

The environment in which TDMC operates is somewhat turbulent and as a result the company may experience unexpected events. Systemic problems, such as randomness of the quality of raw materials received from the vendor or a lack of qualified labor, are not unusual. However, the participants are not at the mercy of these random events. There are a number of managerial strategies that can be implemented. Management may decide to purchase additional machines, add overtime, purchase buffers or acquire slack resources.

The internal operating environment of TDMC is characterized by high interdependence between subsystems in the cycle. The conditions in the operating environment are such that the elements in the production system are “tightly coupled”.

The manufacturing process is best described as sequentially linked and is structured around five workstations. Each workstation is equipped with one machine that adds value to each unit. The next workstation pulls Work-In-Process from the previous workstation, adds value and so on. Workstation output is determined by the roll of a die. A low roll simulates a day plagued with machine breakdowns or high absenteeism, while a high roll represents a day when everything is running as planned.