

and many other industries. The company sells its products through its catalog and industry outlets. The company has its manufacturing facility, warehouse, and distribution center in Youngstown, Ohio where it employs 160 sales, clerical, and manufacturing staff.

Hercules employs batch processing and has a centralized computer system with distributed terminals in the departments. Recently, they have been having quality control and budgeting problems, so their CEO has hired you to review the company's operations and internal control procedures. The following describes their manufacturing process.

The production process is triggered by a three-month marketing forecast of expected sales, which goes to the production planning and control clerk. From her terminal, the clerk updates the digital Production Schedule to include the batches of ladders and scaffolding to be produced during the next quarter. Drawing upon data in the BOM and routing sheet files, the system automatically prepares weekly the digital work orders move tickets, and material requisitions, which it sends to the work center supervisor's terminal.

The work center supervisor accesses the digital documents and prints hard-copy work orders, move tickets, and materials requisitions. The supervisor distributes the move tickets and two copies of the purchase requisitions to each work center in the production process.

Employees submit the two copies of the material requisitions to storekeeping in exchange for raw materials such as aluminum stock and steel pipes. If additional raw materials are needed beyond the standard quantity, the supervisor issues additional material requisitions. As the production is completed in each work center, the employees send the move ticket to cost accounting to mark the completion of that phase of the batch. Employees also record labor time spent on each batch on hard-copy job cards, which they send to cost accounting. Finally, upon completion of the batch the supervisor closes the open work order file.

The storekeeping clerk files one copy of the material requisition and updates the raw materials inventory file from the terminal in his office. The clerk then sends the second copy of the material requisition to cost accounting. At the end of the day the clerk prepares a digital journal voucher and posts it to the general ledger control accounts.

The cost accounting clerk accesses the digital work orders and sets up a WIP account for the batch. The clerk also receives move tickets, job tickets, and materials requisitions throughout the production

process, which she uses to post to WIP subsidiary ledger. At the end of each day, the cost accounting clerk prepares a digital journal voucher and posts to GL control accounts to reflect the status of WIP and to record transfers of WIP to finished good inventory.

### Required

- Create a data flow diagram of the current system.
- Create a system flowchart of the existing system.
- What risks exist in the system as it is currently designed?
- Describe the changes needed to reduce the risks.

## 5. VOLTEC WELDING MACHINES, INC. (CENTRALIZED SYSTEM WITH DISTRIBUTED TERMINALS)

Voltec Welding Machines is a manufacturer of welding machines of various types including TIG, MIG, and arc welders and other electric tools. The company's primary markets are commercial and do-it-yourself enthusiasts. It reaches its customers through trade magazines and publishes an industry catalog of welders, plasma cutters, and electric generators. They sell direct to wholesalers and through supply houses and home improvement centers. Their manufacturing facility and distribution center are in Tulsa, Oklahoma, where they employ 120 manufacturing and clerical staff.

Voltec employs a centralized computer system with distributed terminals in the departments. Recently they have been having manufacturing problems and cost overruns. Voltec has hired your auditing firm to assess its operations and internal control procedures.

Voltec's conversion cycle is triggered by a report from the finished goods warehouse. The warehouse clerk periodically reviews the inventory records in a search for low stock items. When the quantity on hand of an inventory item in the finished goods warehouse falls below its pre-establish minimum, the warehouse clerk sends a digital inventory status report from the warehouse terminal to production planning and control advising them to schedule a production batch run for the item in question.

Upon receipt of the report, the production planning and control department clerk accesses the digital bill of materials and the route sheet files for that item to be produced and adds the production details to the digital production schedule. The system automatically adds a record to the open work order file and sends a digital work order to the work-center

supervisor's terminal and to the cost accounting clerk's terminal.

The work-center supervisor accesses the work order from his terminal and prints hard-copy move tickets and material requisitions for each stage in the production process. Production employees take the materials requisitions to the store keeper and secure the components, subassemblies, and raw materials needed to perform their production tasks. If excess materials beyond the standard amount are needed, the supervisor prepares additional materials requisitions. The employees also complete job time tickets after each stage in the process to reflect the time spent on the job. When the employees complete their tasks they send the move tickets and time tickets to the cost accounting department.

The storekeeper receives the materials requisitions and releases the materials into production. He then updates the raw material inventory records and sends the requisition to cost accounting. When inventories of component parts and raw materials fall to their reorder points, the storekeeper prepares purchase orders and sends them to the respective vendors. Vendors deliver raw material inventories directly to the storeroom, at which time the storeroom clerk

inspects them and updates the digital raw materials subsidiary ledger. Each day the storekeeper prepares a journal voucher and posts to the general ledger raw material control account.

The cost accounting clerk receives the digital work order and initiates a new WIP account for the batch. During the production process, the clerk receives hard-copy move tickets, materials requisitions, and job tickets from the work centers, which the clerk uses to update WIP account. When production is complete the clerk closes the WIP account for the batch and transfers it to the finished good inventory subsidiary ledger.

At the day's end, the cost accounting clerk prepares a digital journal voucher reflecting the WIP status and any transfers from WIP to finished goods inventory. The clerk then posts the journal voucher to the WIP and FG general ledger control accounts.

#### *Required*

- a. Create a data flow diagram of the current system.
- b. Create a system flowchart of the existing system.
- c. What risks exist in the system as it is currently designed?
- d. Describe the changes needed to reduce the risks.