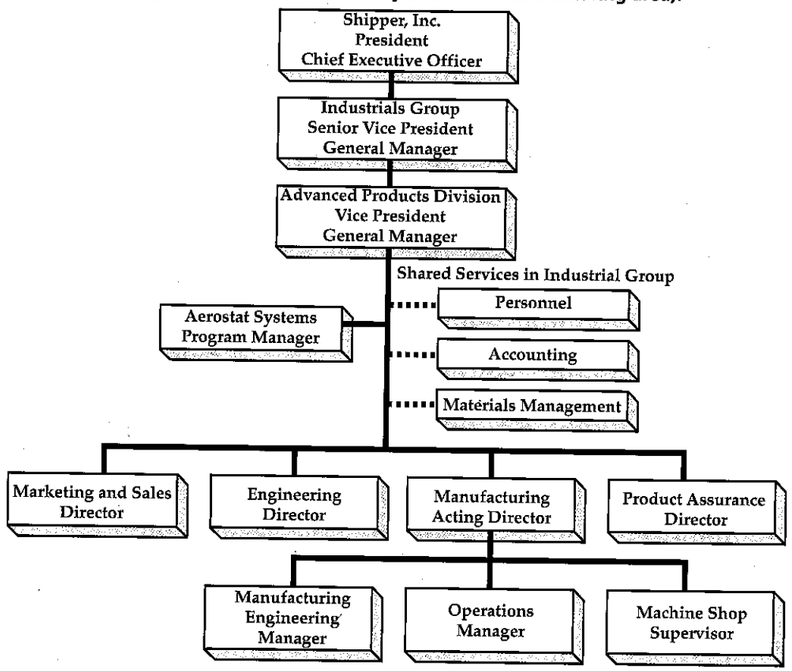
EXHIBIT 3 Organization chart (detail only shown in manufacturing area).



transferred from the storeroom and the production floor. They have been trained on the job, and they have evolved a manual system of record keeping and production planning. The system appears to work quite well for the present situation, but constant expediting and stock chasing are necessary to keep production moving.

Inventory stock status is computerized by the data processing department. Receipts and disbursements are sent to data processing and then entered into the computer. Because of time lags and problems of record accuracy, the production and inventory control people also keep manual records on the most important parts.

The Shipper Company recently signed a contract with Hewlett-Packard for a new computer, which will arrive in the fall and replace the current IBM equipment. As part of the new computer conversion, the company has investigated software packages available from Hewlett-Packard. The production and inventory control (MRP) software package appears quite good, but conversion of existing computer software will have priority over new systems. The first priority, after the new computer is installed, will be the conversion of existing accounting and financial systems.

In viewing the situation, Wallace wondered what the manufacturing strategy over the next five years should be and how the strategy should be implemented. He knew that manufacturing should support the new divisional business strategy but was unsure about exactly what direction manufacturing should take.

Discussion Questions

1. What objectives should be adopted in manufacturing with respect to cost, delivery, quality, and flexibility?
2. How should the objectives in manufacturing be achieved through process, organization, equipment, workforce, capacity, scheduling, quality management, and production and inventory control systems?

Case Study FHE, Inc.

In March 2009, Lum Donaldson, product development engineering manager at FHE, Inc., was reviewing the process his company used to introduce new products. Donaldson was responsible for the technical direction of all new-product development and revisions of existing products. He wondered whether the procedures, organization, and project control systems used at FHE might be improved to make new-product introductions go more smoothly.

FHE is a manufacturer of pumps and related fluid-handling equipment. The company supplies products used to transfer liquids of all types, including paint, adhesives, and food products. The pumps supplied by the company are used by the automobile and appliance industries, in vehicle servicing, in home construction, and in other ways. In 2008, sales were $105,200,000 and profit after tax was $5,470,000. Over the last five years, the company has been improving both sales and profits through aggressive new-product introductions.

ORGANIZATION

The organization of the engineering, marketing, and manufacturing departments at FHE is shown in Exhibit 1. Phil Thomas, vice president of corporate development and marketing, has responsibility for both marketing and design engineering functions in the company. This arrangement is intended to facilitate cooperation between marketing and engineering, particularly on new-product introductions. Manufacturing is responsible for producing the product once it has been released to production.

On the engineering side of the organization, three technical program managers (TPMs) report to Donaldson. These program managers are generally responsible for the technical direction of the projects assigned to them. Detailed responsibilities of the TPM are shown in Exhibit 2.

On the marketing side of the organization, three product managers report to Vince Kramer, the U.S. marketing manager. These product managers are responsible for developing new-product ideas and managing the business impact of new products. Detailed responsibilities of the product manager are shown in Exhibit 3.

Manufacturing managers are responsible for designing the production process, ordering materials, scheduling production, and processing materials and components into finished products. Product specifications are given to manufacturing by engineering. Manufacturing is expected to adhere to these specifications in making the product.

A great deal of coordination is required between the product managers in marketing, the TPMs in engineering, and manufacturing to introduce a new product successfully. When problems arise, it is not always clear who has the primary responsibility for resolving them. As a result, product managers, manufacturing managers, and TPMs must work closely together during the development process.

NEW-PRODUCT DEVELOPMENT PROCESS

The new-product development process begins with a formal marketing request, which specifies in general terms the type of product needed and the market it will serve. As a result of the marketing request, a concept conference is conducted between marketing and engineering to determine whether to proceed, and if so, how. If the decision is made to proceed, a technical specification action report (TSAR) is prepared by engineering. The TSAR contains a great deal of detail on development costs, product costs, schedules, and product technical specifications. If the TSAR is approved, the project is formally authorized and engineering development begins. The project then proceeds through a series of steps, as summarized in Exhibit 4 for a typical project. These steps include actual design of the physical product, major design reviews, testing, and finally release to production if the product is developed successfully.

Although the new-product development process is well defined at FHE, Donaldson has several reservations about its operation. First, he continually encounters problems in coordinating the technical program managers and the product managers. Perhaps the division of responsibility is not as clear as it might be. Second, he is concerned about the fluctuating workload in the engineering services department.

ENGINEERING SERVICES

The engineering services department, managed by Al Hanson, includes drafting services, the model shop, testing facilities, and technical documentation services. Because all projects use these services, the workload for engineering services is unpredictable and bottlenecks frequently occur in this department. At any one time, as many as 20 new-product development projects may be in progress, and they all seem to require the same engineering services at the same time. Hanson has continually asked the technical program managers to give him more advanced notice, but due to uncertainties in project schedules, requirements are often unknown until the last minute.

This case was prepared as a basis for class discussion, not to illustrate either effective or ineffective handling of an administrative situation.

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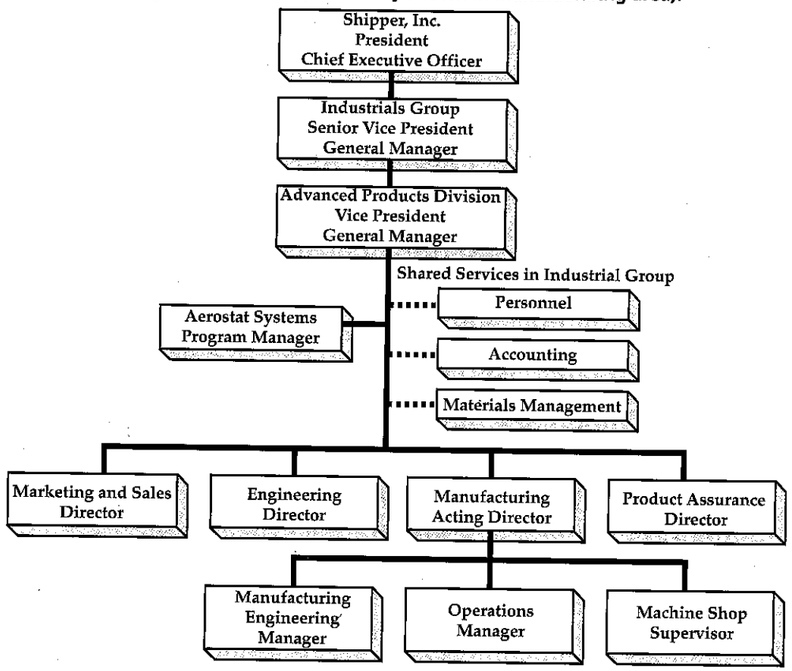

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