PGDM (IB), 2019-21
Operations Management
IB-304
Trimester – III, End-Term Examination: June 2020

Roll No: _____

Time allowed: 1 Hrs and 30 Min
Max Marks: 30

CASE STUDY

In March 2003. 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 2002, 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 successfully introduce a new product. 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 specifics 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 successfully developed.

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 also concerned about the fluctuating workload in the engineering services department

ENGINEERING SERVICES

The engineering services department, managed by At Hanson, includes drafting services. the model shop, testing facilities, and technical documentation services. Because all projects use these services, the work-load 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 a\\ seem to require the same engineering services at the same time. Hanson has continually asked the technical pro- gram 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 basis for class discussion, not to illustrate either effective or ineffective handling of an administrative situation

EXHIBIT 1
Organization chart.

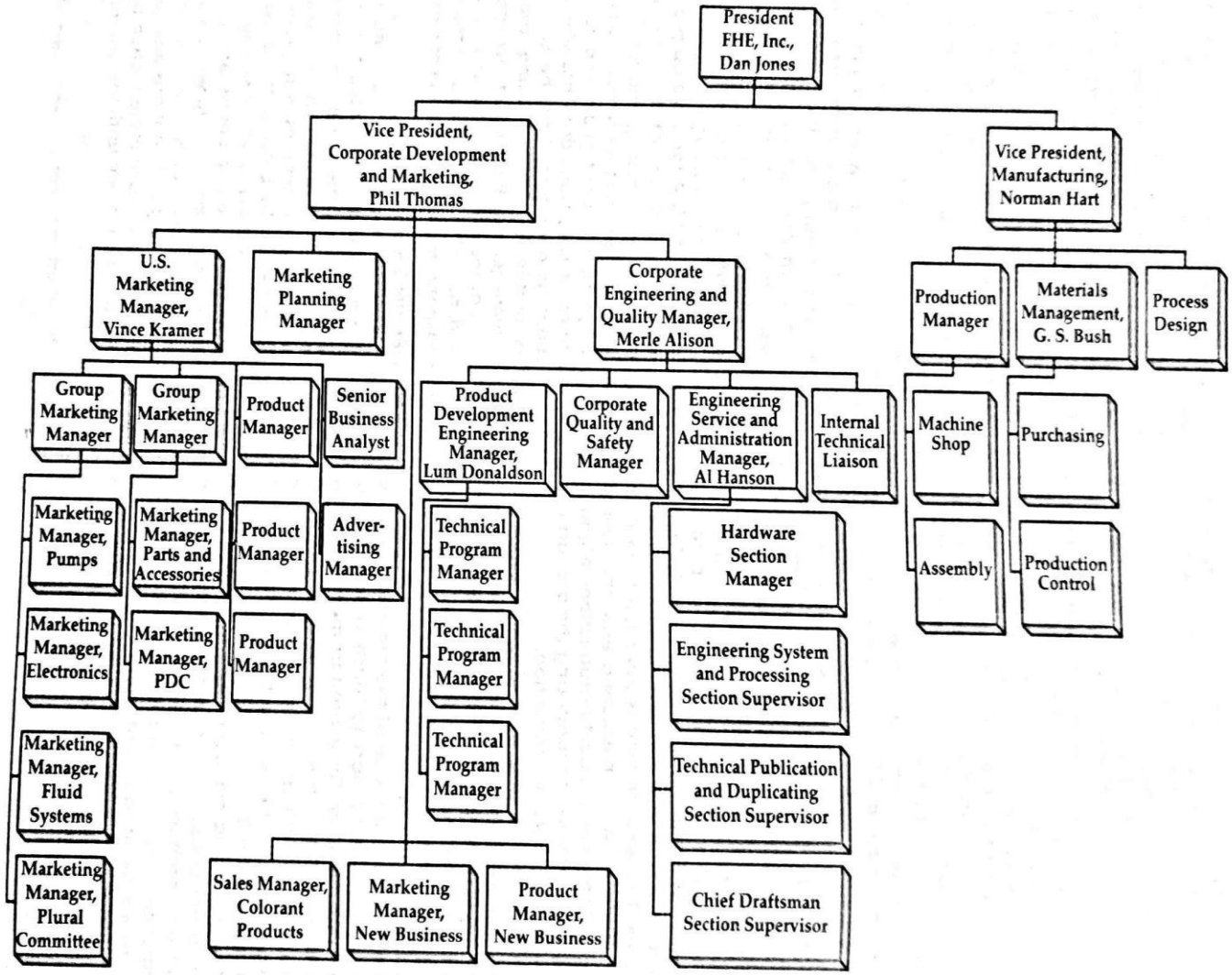

EXHIBIT 2

Position description.

TECHNICAL PROGRAM MANAGER – NEW – PRODUCT DEVELOPMENT

General Summary Statement

The technical program manager – new – product department reports to the manager of product engineering and is responsible for planning, coordinating, and directing the activities of project in the program are(s) assigned to him or her. (A "program area" is composed of one or more projects related to a particular product application area, such as sanitary, plural components, and hydraulics.) The technical program manager – new – products department is responsible for personnel assignments and the administration and control of all design personnel reporting to him or her.

Typical Duties and Responsibilities

Assigns Technical staff to maintain development schedules for all projects within his or her areas of program responsibility. Maintains the communication between development sections to ensure usage of critical skills and keep the state-of-the-art awareness with all personnel assigned.

Directs the design activities of a specific program area or areas to develop the design, select materials, prepare
technical descriptions, conduct tests, meet performance, schedule, and cost objectives; IS responsible for the program costs and status and presents timely reports and technical conclusions when directed; communicates with product managers, development engineers, and other design personnel; and maintains technical project files.

Coordinates with product management in defining technical customer specifications of currently planned product and product which is contemplated for future effort.

Reviews and directs the detail analysis prepared by development engineers, and is responsible for testing pro-
grams to ensure overall product design conformance to specifications. Reviews all cost inputs and directs completion of cost estimates.

Interfaces with all departments in the company to coordinate product design completion; negotiates work schedules with hardware and software groups, purchasing, ete.

Identifies technical problem areas which will result in altered time, cost, and/or performance schedules; defines alternative courses of action to meet same; and/or makes visible to management these problems so that proper corrective management action can be taken.

Maintains continuing contact with product management, manufacturing, fluid systems, ete., where appropriate in obtaining the best technical solutions to the problems associated with his or her program area and in ensuring that product resulting from his or her team's efforts can be economically produced.

MANUFACTURING COORDINATION

Donaldson acknowledged that once a new product is developed, it is often "thrown over the wall" to manufacturing. While manufacturing is consulted regarding technical feasibility and possible production constraints, little manufacturing input is received during product design. Donaldson commented, "Manufacturing has enough problems to worry about with today's products without bringing new products into the picture too. We try to anticipate manufacturing problems for them before release to production. Of course, there is never enough time and inevitably some problems occur after the product is released. "FHE has been considering a new CAD-CAM system as a way of coordinating marketing, engineering, and manufacturing, According to the software supplier, the new-product configuration would be entered directly into the computer and then transmitted automatically to manufacturing. This approach promised to eliminate many of the errors encountered in translation from engineering to manufacturing, After the CAD system is installed, the CAM system will be designed to interface with it. FHE felt the computer would speed up the new-product introduction cycle and eliminate many of the production problems it was currently encountering.

Attend any four questions (all carries 6 marks)

1. Elaborate based on your own understanding the term and the process of “New Product Development”?
2. What steps should Donaldson take to improve the new-product development process at FHE?
3. What could be done to clarify the organizational relationship between product managers, technical program managers, and manufacturing managers?
4. What can be done to better manage the work- load of the engineering services department?
5. Evaluate the plans and the expected results from the new CAD-CAM system?

EXHIBIT 3

Job description.

Product Manager Responsibility profile

A product manager's basic responsibility is to the development of new products and to ensuring that the entire product line is properly servicing the needs of the marketplace. The product manager would generally have a strong technical background and a working knowledge of marketing concepts. He or she must possess leadership qualities in that the tasks to be accomplished are through others over whom the product manager has no direct control.

Major Duties

I. New Product
   A. Develop product strategies that are in support of corporate objectives
   B. Coordinate Project definition.
      1. Evaluate the content of new – product proposals (the product specification) and programs, responding to market opportunities identified by U.S., Eurafrica, and regional international marketing groups.
      2. Evaluate the content of the technical specification and the project schedule assuring conformity with the product specification and market timing requirements.
      3. Evaluate anticipated project costs.
      4. Analyze anticipated profitability of proposed programs (ROI).
      5. General the project authorization.
   C. Monitor project activity and take action where necessary to ensure integrity of project.
   D. Ensure vendor quality.
   E. Ensure the coordinate of all technical resources related to new – product development and introduction to include engineering, manufacturing, marketing, and service.

II. Existing product
   A. Monitor product line activity and take action where required.
      1. Sales volume.
      2. Competitive postures
      3. Relationship to changing technology.
      4. Product quality.
   B. Control product line offering (no product proliferation).
   C. Monitor engineering change order activity and take action where required.
   D. Eliminate product from the offering as appropriate.
   E. Provide technical assessment on advertising and promotional aspects of the product line (catalogs, mailers, brochures, new – product data sheets, etc.).
   F. Ensure that products comply to a variety of standards (corporate, governmental, industry, safety, etc.).

III. Competition
   A. Keep abreast of changes in product line.
   B. Maintain an in-depth knowledge of competitive product capabilities.

IV. Forecasting
   A. Unit forecast of specific product (category I).
   B. Forecast new-product quantities for Lot I build.
   C. Forecast product to meet promotional activity.
   D. Monitor *all* significant deviations.

EXHIBIT 4
Gantt chart.

FHE New-Product Development Planning Schedule

Project Engineer: JIM POWERS
Program Manager: MIKE ABELE
Product Manager: GARY SINCLAIR

Sheet 1 of 1

Project Name: Fluid Regulator
Project Number: 7720
Date Initiated: 10-6-02

Event No.	Define Activities
105	Project team established
120	Marketing need defined
160	Conceptual cost estimate
165	Technical specification completed
170	First model completed
180	First model testing
190	Design review meeting
203	Hazard analysis
205	Agency approval plan
210	Construct field test models
215	Conduct field test
240	Review laboratory & field test results
254	Preliminary MFG cost estimate
265	Design review meeting
270	Update ROI
282	Submit tooling decision package
291	Release design to MFG. ENG'R'G
305	Conduct MFG Commitment mtg
316	Order purchased parts
330	Production of lot 1
348	Lab test of lot 1 units
360	Release lot 1 for sale

Date	Approval/Date	Estimated Man-Hr.	Total	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
	JBP	Prog. Mgr.	150	20	20	10	10	10	10	10	10	10	10	10	10	10
		Engr.	320	60	60	40	40	20	20	20	20	20	10	10		
482	WEB 11-2-02	Ind. Des.														
		Draft.	100		40	40				20						
		Tech Pubs.	40										30	10		
483	JCW 11-2-02	Mod. Shop	120				120									
		Test Lab.	200					100	80						20	
Cash Expenditures		Expense—Mat'l, Outside Labor, Travel, etc.	$ 500							250	250					
		CAPITAL EQUIPMENT	$ —													

Schedule Revisions	Revised by				
	Date				