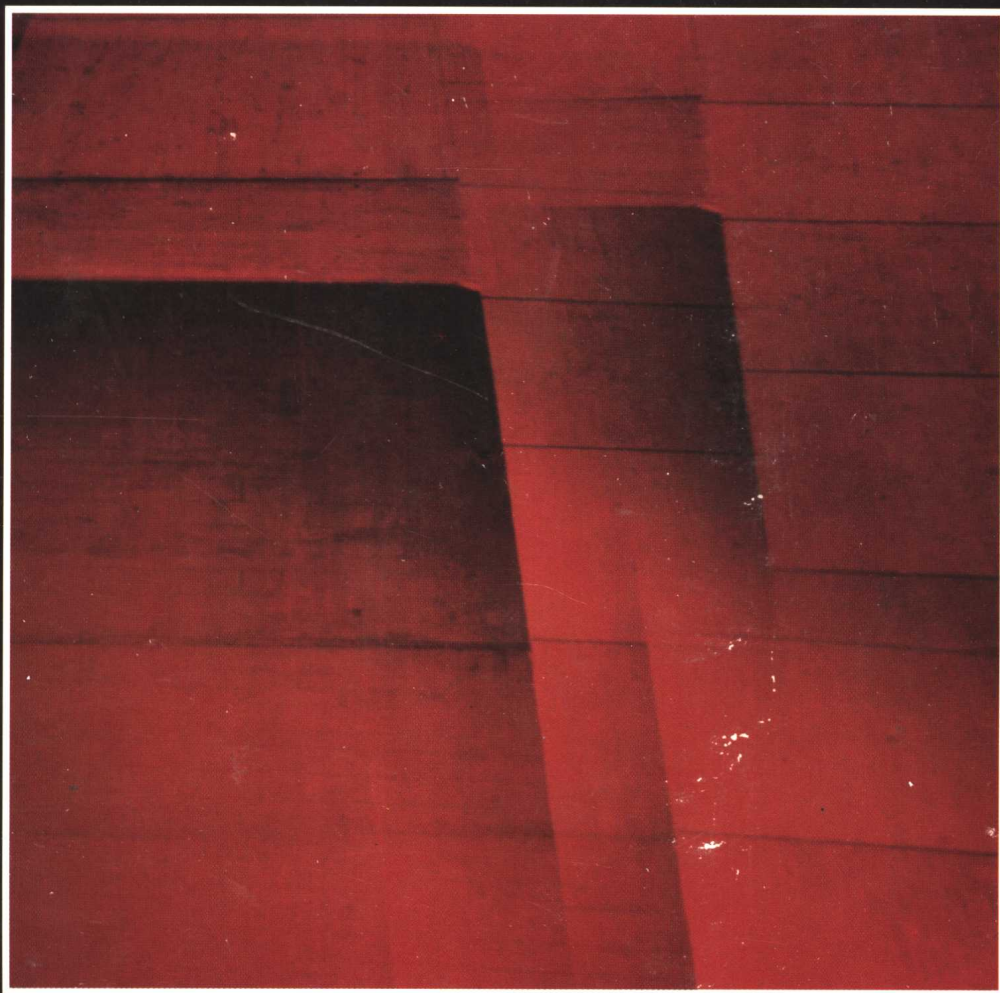


# Manager

## A Simulation



SMITH

# **MANAGER: A SIMULATION**

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# PREFACE

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*MANAGER: A Simulation* is a business game designed for students enrolled in an introductory management course. It provides student players with simulated real-world experience in managerial decision making, and enables them to see the relevance of the principles being taught in the course. Unlike other business games, *MANAGER: A Simulation* is simple enough to learn in a fifty-minute period and yet includes all of the variables a student needs to know in order to understand the major concepts of the introductory course. An additional benefit for players of *MANAGER: A Simulation* is that they will experience early in their education how the various functional areas of business mesh together and affect each other.

In playing the game, students acting as management teams make a variety of decisions that will have an impact on their company's operations. The decisions that each team must make include: price of the product, total marketing expense, production level, production engineering budget, research and development, size of production facilities, dividends, and capital procurement. A unique and optional feature of *MANAGER: A Simulation* is the inclusion of social responsibility and business ethic incidents that the firm faces in each decision period. Student decisions are recorded on Decision Forms and can be quickly analyzed and evaluated by a microcomputer. The instructor needs no computer knowledge to administer the game.

The objectives of *MANAGER: A Simulation* are:

1. To allow students in each major academic area (marketing, management, and so on) to make decisions that cross over functional lines and to observe how, in making major organizational decisions, one must consider all aspects of the firm
2. To provide the opportunity for student interaction in organization teamwork
3. To improve the student's communication, leadership, and interpersonal relations skills
4. To develop logical and rational decision making
5. To demonstrate the importance of such management tools as budgeting, forecasting, and long-range planning

6. To introduce the student to various ethical — or business responsibility — problems that might occur in a firm and to show the consequences of the decisions that are made

The game administrator is provided with an Instructor's Manual that explains how to play the game and provides suggestions for grading the performance of student teams and a floppy disk that analyzes and evaluates student decisions.

Unfortunately, no business simulation duplicates real life. This simulation, however, attempts to build a game model that is as close as possible to actual conditions. It is hoped that student teams will approach the gaming process as a challenge to use their knowledge to operate a business successfully. Your suggestions for improving *MANAGER: A Simulation* will be sincerely appreciated.

# ACKNOWLEDGMENTS

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To the late Professor Emeritus William McGlothlin who taught me that one learns best by doing. To my father who taught me many practical elements of business and to my mother who taught me what business ethics means.

To my many colleagues in the Association of Business Simulation and Experiential Learning whose annual meetings have been a constant source of help and inspiration.

To Jane Goldstein and her talented staff at the University of Louisville School of Business for their patience in teaching me what word processing is all about.

To my family for their unrelenting support: Carolyn, Susan, David, Flossie, and Annetta.

# CONTENTS

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## Preface

1.	The History and Background	1
2.	The Environment and Process	5
3.	Decision Incidents	30
4.	Log of Company Decisions	45
5.	Internal Management Audit	58
6.	Break-even Analysis	62
7.	Management Information	75
8.	Worksheets and Decision Forms	83

# 1

## THE HISTORY AND BACKGROUND

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## **The Industry**

The firm your team will be operating is one of several in the automobile radio industry. All are relatively small firms with annual sales of \$3.5 to \$4 million. Each of the competing firms is relatively new and has had modest profits in the past. Each is marketing an FM/AM auto radio which is not part of the original auto equipment; the radio is installed by the owner or by a radio shop for the owner. Most of the firms in the industry sell through wholesalers, discount houses, and auto radio shops. The manufacturers have kept the wholesale price fairly close to \$40, and the radio retails for \$65 - \$100. There are firms that produce a much higher priced radio (\$100 - \$350 retail), but these are not your competition; your competitors are all producing a relatively low-priced product.

The total market potential is affected by (1) general economic conditions, (2) the total marketing expenditure, (3) research and development expenditure, and (4) pricing decisions. The potential share of the market for each firm is a function of the relationship of its decisions to those of its competitors.

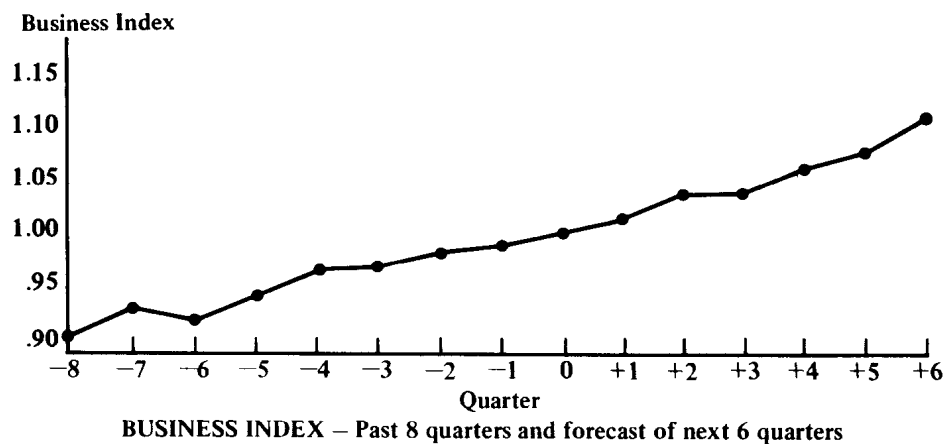
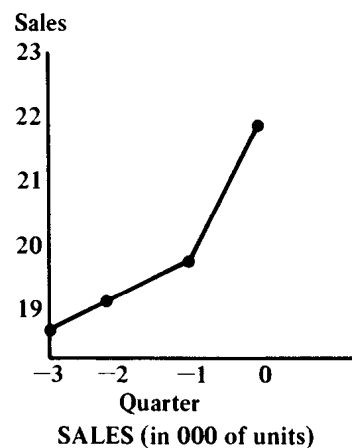
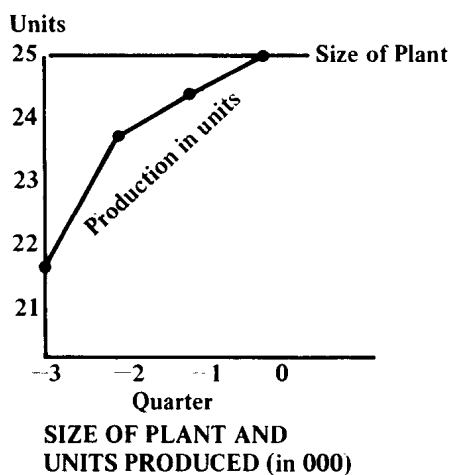
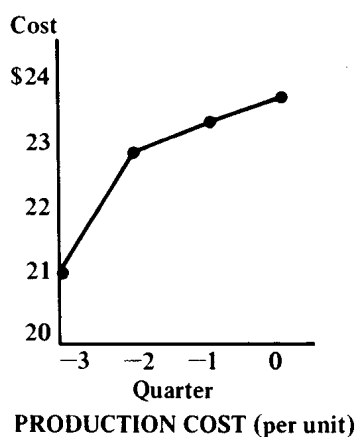
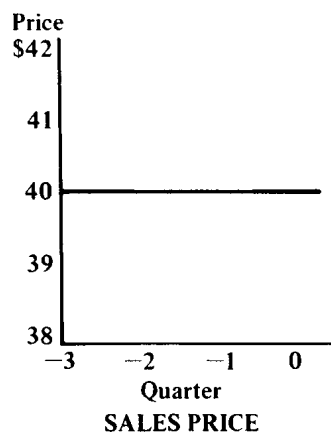
## **The Company**

The company your management team is taking over has been in business only one year and has been making modest profits. The current president wishes to pursue other business interests and has hired your management team to assume management of the firm. The company is short on working capital and is operating close to its production capacity. Thus, the first major decisions by your team will involve capital procurement and enlargement of the manufacturing facility.

Maximization of profit is a key objective of the game, but other objectives are of importance also. These include:

1. Maintaining a prudent cash position
2. Keeping a reasonable inventory on hand
3. Maintaining a fair share of the market
4. Utilizing plant capacity
5. Being a good citizen in the community
6. Keeping the price of the common stock at reasonable levels

## PAST OPERATING CHARTS





# 2

## THE ENVIRONMENT AND PROCESS

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## Decision Information

### PRODUCTION MANAGEMENT

#### Size of Plant

The plant currently has the capacity to produce 24,250 radios per quarter. Additional capacity can be obtained by investing \$40 per additional unit desired in "Plant Addition" on the decision form. *Construction of additional capacity takes one quarter.* (See Depreciation, below.)

#### Scheduling

Teams should use all forecasting methods obtainable in order to accurately predict sales and the corresponding production to support sales. Selling out of the product (a "stock-out") is just as undesirable as accumulating excess inventory. If the firm cannot meet all its orders in a period, those unfilled orders do *not* carry over to the next period, but go to a competitor in the *same* period. Each unsold unit that must be held in inventory costs approximately \$1 for storage expenses. Minimum inventory cost each period is \$1,000. Inventory costing is on the "last in, first-out" system. This means that goods carried over from one period to the next are carried on the books at their most current cost.

#### Production Engineering

Expenditures in this category will support the firm's production engineering department in improving production line efficiency through time and motion studies, more efficient equipment layout, and other cost-saving programs. The major benefit is in decreasing variable production costs. The major effect of additional budgeting in this area will take place the upcoming quarter. Last quarter the firm budgeted \$10,000 for this department.

#### Cost Characteristics

Production costs will increase as plant utilization nears 100 percent capacity as well as when utilization is less than the optimum. Thus, overtime, increased maintenance, and decreased efficiency of peak capacity will raise the unit cost of a product. The additional apportionment of fixed costs to a smaller number of units will also make the unit cost higher than if the plant is operating at the optimum level. One could expect that a plant

of this type would have an optimum (cost) level when production is at a level of from 70 to 90% of capacity. Last quarter the firm produced 25,000 units (maximum capacity), and the per-unit cost was \$23.52.

## **DEPRECIATION**

Depreciation of plant and equipment is computed at the rate of 3% per quarter. Depreciation, a noncash cost, is charged as an expense to determine taxable income but is not shown on the cash flow statement. The plant capacity will decrease by 3% per quarter unless an equal amount is expended each quarter for additional capacity. This would amount to \$30,000 for the upcoming quarter (just to keep the plant capacity at its current 24,250-unit capacity). The maximum plant addition in any one quarter is \$200,000 (5,000 units).

## **MARKETING MANAGEMENT**

### **Pricing**

The firm is currently pricing its product at \$40 per unit to all customers. The freight is paid by the customer (FOB). Most of the competition has priced close to this level in the past, and very little price cutting has taken place in the industry. However, with more national discount chains carrying this type of product, sharper price competition is expected in the industry.

### **Marketing Expenditure**

Currently, the firm is budgeting \$90,000 per quarter to the marketing department. This is used to support the missionary sales force, advertising efforts, and sales promotions. Additional expenditures in marketing would have the largest effect during the quarter in which the additional amount was budgeted; however, there would be a small residual effect carried over to the next quarter.

### **Research and Development**

Expenditures in the firm's R & D program may bring about an improved product that will be more desirable to the consumer and result in increased sales. The probability of success of any R & D program is likely to be related to the program's size, consistency, and durability. There is a point of

diminishing returns in most R & D operations. The firm you are taking over has a fairly modest R & D budget of \$10,000 per quarter.

### **Market Research**

Various market research studies may be announced by the game administrator during the course of the simulation. Teams that purchase these studies will pay for them in the Other Expense block of the decision form.

## **FINANCIAL MANAGEMENT**

### **Sources of Capital**

The firm is currently low on working capital. There are three methods of obtaining additional funds. The first is through a bank loan. Bank loans may be made at any time during the game and may be made for a term of three months to three years. The bank would expect quarterly payments to be made on the principle; this payment should be no less than 1/12 of the original loan and should be paid quarterly. Such a payment is indicated on the decision form by using a minus sign (-) in front of the repayment under Bank Loans. Teams are expected to pay off the loan with the proper notation on the decision form without further instructions. In other words, the repayment of the loan is not automatically assumed. Teams may pay off the loan at a faster rate if desired.

Interest charges are automatically computed and charged to the expense statement and no action is required by the team. Current interest rates are 4% per quarter (16% annually). Interest rates in the future could be higher or lower than the current rate. Any changes will be announced by the instructor.

A second method of obtaining additional funds is by selling additional shares of common stock. The corporation has been authorized by its state charter to issue a total of 12,000 shares of stock. It has issued only 7,000 shares to date, so you can sell up to 5,000 additional shares. Stock is sold at the current price as shown on the printout.

The third method of obtaining additional funds is by retaining the profits as they are made. Of course, a portion of the profits (\$7,000 per quarter) is currently paid out to the stockholders, and you may wish to continue this practice, decrease the amount, or increase the amount. The total accumulated profits kept by the firm for its own use are termed Retained Earnings. This account is merely an accounting entry for these funds

retained by the firm in the past; the funds have been used in a variety of ways — new facilities, equipment, inventory, and so on. It does *not* represent ready cash; additional cash *may* be available the quarter in which profits were generated, but to determine this, you will need to check the Cash line of the balance sheet.

### **Cash Flow**

The firm should make a thorough analysis of its anticipated inflow and outflow of cash using the Cash Flow Analysis form provided in Chapter 8 of this manual. If expenditures are expected to exceed cash income, then additional capital procurement will have to be made. As stated above, additional capital can be attained through (1) a bank loan, (2) the sale of additional common stock, or (3) retention of profits earned. If a firm does not plan its cash flow well and has a negative cash balance, the bank will cover the overdraft at an interest rate of 7% per quarter. This overdraft will be included with any loans outstanding under Loans Payable on the balance sheet.

### **Dividends**

Each firm is expected to establish a dividend policy. Retention of earnings for financing company growth is a conservative and well-accepted policy. However, the stockholders' position must also be considered carefully and a policy developed that is most equitable to all parties. Currently, the firm is paying \$1.00 per share per quarter in dividend (\$7,000 per quarter).

### **Stock Price**

Each quarter, the firm's common stock price will be quoted on the computer printout. The stock price is a function of the firm's sales and profits, financial condition, dividends paid, R & D expenditure, and general economic conditions. The stock price may be considered as *one* indicator of the relative standings among firms but it does not indicate long-term trends. The firm's current stock price is \$108 per share.

### **Overhead and Fixed Expense**

The firm's overhead and fixed expenses are currently \$100,000 per quarter. The firm could absorb a growth of up to 50% without this expense changing. If the firm expands beyond 50%, overhead can be expected to increase



\$50,000 for each 50% increment in increased production capability. Therefore, when plant size exceeds 37,500 units, overhead costs will increase to \$150,000 per quarter.

### **Operating Statements**

A copy of the firm's computer printout for the previous quarter is included in the manual. It includes an income and expense statement, cash flow analysis, abbreviated balance sheet, and unit cost, ending inventory, business index, and stock price information. In addition, information concerning the previous quarter's decision incident will be included.

### **QUARTERLY INCIDENTS**

In addition to making operating decisions, each team will be presented with a different "incident" each period. The incident will cover some area of business ethics or social responsibility. Read the incident carefully, discuss it thoroughly within the team, and select one of the alternatives listed. Then place the number indicating your decision on the decision form. The instructor may want your team to justify your decision in writing and submit it with the decision form. (See Chapter 3 for Incident #1.)