

Biz-Sim
A Business Simulation
For use with the
**Montana High School
Business Challenge**
Sponsored by
The Montana Chamber Foundation
Administered by
**The Montana Council on
Economic Education**
In partnership with
The College of Business
Montana State University-Bozeman

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Revised August 2013

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Acknowledgments

This simulation was created from a marketplace need for a simulation to enhance summer business week programs for high school seniors. The focus group that helped create the simulation wanted one that encompassed the business decisions needed to operate a small business, but was not so complicated that it took an inordinate amount of time to make decisions. Over a period of time it found its way into college courses, as many of the business week advisors were also college professors.

When creating a new product for a particular target market, many people get involved personally with the authors. At the risk of omitting anyone (please remind us if we do!), we want to acknowledge those who have helped so much with suggestions, testing, and most of all, encouragement that we were on the right track. We have also had the pleasure of meeting people (often by telephone or email) we would never have met.

These early adopters stand out: Tim Alzheimer at the Jake Jabs College of Business, Montana State University-Bozeman, and Steve Hyer and Kelli Dixon with Washington Business Week. If it were not for these three pioneers, the project would still be a dream. Also, Pennsylvania Free Enterprise Week and Jim Golding gave us excellent pointers. Fellow simulation author, Joe Wolfe, was immensely helpful. Joe is the author of the Global Business Game.

Others who have been very supportive are: Pat Shannon and Jack Morris at Idaho Business Week (Boise State University), New Zealand Business Program, Graceland University, Virginia Beach Public Schools, Ohio DECA Simulation Competition, Novare Asian Pacific Institute, (Australia), Florida Institute of Technology, Grinnel College, Graceland University, Calvary Baptist, Sonoma County California Business Week, Staley Manufacturing, The London Institute of Retail Studies (England), Pearl River College Small Business Development Center, University of Southern Europe (Monaco), Woolworth Management Training Center (New Zealand), Accenture Limited (Australia), Dayr Reis (who wrote a personal check so he could use it in his college class!), and Andrew Rockwood of TEC.

Academic users include Mark Meckler (a real simulation pioneer), Bill Barnes, Lisa Reed, Brandon Une, Marilyn Young, and Carlos Rodriguez.

Revised 7-23 and 8-26-2002, 6-2005, 1-2007, 9-2008, 1-2010, 6-2011 and 8-2013

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Quick Guide to Startup Position

Plant Capacity	35,000 units
Sales Last Quarter	35,000 units
Taxes (% of profits)	40%
Inventory on Hand	4,000 units
Selling Price	\$34
Cost to Produce	\$17
Cash Balance	\$100,000
Current Bank Loan Balance	\$1,100,000
Interest on Loan	10% annual
Dividends Paid last quarter	\$5,000
See Page 38 for Definitions of Common Business Terms	

SECTION 1

THE SCENARIO FOR THE SIMULATION

An Overview of a Simulation

1. Management teams make a set of business decisions for a simulated firm and these are evaluated against decisions made by competitors.
2. Several teams are created for competitive play. A team can consist of no more than five participants.
3. The team makes a set of decisions that one might find in a business setting. Turn to page 9 for the decisions made in the simulation.
4. Each time the teams make a set of decisions, it represents a period of 3 months in the life of the company being simulated. You will be playing the simulation for 8 quarters, thereby simulating two years in the life of the firm.
5. The administrator enters the decisions into a program on a personal computer. The program acts as the purchaser of the product, compares the relative merits of the decisions made by all teams, and computes the sales for each firm.
6. The program then prints a quarterly report for each team and this is distributed to the participants.
7. The teams analyze their results and prepare another set of decisions. This continues for eight quarters.
8. Upon the completion of play, teams usually give a short report of their strategy and the administrator usually debriefs the teams.

The Company You Will Be Managing

The industry your firm is in is the highly competitive and quickly changing personal video player industry. Your firm has been manufacturing and selling of a Digital Music Player. It is composed of a few large brand name manufacturers and as well as smaller firms such as your own that have the advantage of lower overhead cost, faster time to market a new feature on the product, and greater personal service to smaller retail chains. Since the market for this product is so fragmented, total sales is difficult to obtain. Your firm does not sell its product directly to the consumer but rather to wholesalers, distributors, and all types of electronic stores as well as direct sales to department stores.. This popular audio product has been selling in the \$99 to \$209 retail price range. The company in which you are assuming management has been in business only one year. The entrepreneur that established the company wishes to pursue other business interests. The company is a for-profit company and the stock in the company is held by a large variety of individuals. These stockholders (shareholders in some countries) have invested their monies in your firm and they expect your new management team to increase profits and dividends while maintaining high ethical standards.

Factors Used in Ranking Teams at the End of the Simulation

While opinions differ on the factors of excellent performance, the Montana Council on Economic Education and the Montana Chamber Foundation use the highest stock price at the end of the final quarter of participation to determine the overall winner.

SECTION 2 MAKING DECISIONS

This section contains the information needed to make the decisions for each quarter. The order of presentation is the same as the order of items on the Decision Form (page 9). It will be helpful if you look at that form now in order to get the big picture. Tips are shown with an arrow (>).

PRODUCTION DECISIONS

1. Production (000's of units) _____,000 (Last quarter decision = 35)

Each quarter you must forecast sales and place an order with your production department for the number of units you want to be produced. If you add capacity, you may use it immediately.

A suggestion for your first order (Quarter 1) is 30,000 to 35,000 units. There is no guarantee this is the exact amount needed as it cannot be determined what the competition is going to do the first quarter. However, it is an approximation to get your thinking started. This is only a suggested order for Quarter 1; you may order any number you desire, depending on your pricing decision.

- > When you take over operation of the firm, it will have an inventory of 4,000 units.
- > It is much better to have too much inventory than not enough. If you do not have enough inventory, your orders cannot be filled and the customers will find another supplier.
- > You may not produce any greater than your plant capacity.

2. Addition to Size of Production Plant (0-10) _____,000 (Last quarter decision = 1)

You may expand the size of your plant to meet your sales demand. New capacity is available for production immediately when purchased. If you cannot produce the number of units you request on the decision form, the program will reduce the production to equal the size of the production facility. The addition to capacity is ordered in multiples of 1,000 units. The cost of adding each thousand units is \$60,000 per thousand units. To expand capacity by 5,000 units would therefore cost \$300,000. Capacity is reduced each quarter due to depreciation (wear and tear) at 3% of Available Capacity. Therefore, to keep the plant size the same, you must add 3% of the capacity in addition to size above.

- > Order additional capacity on the decision form in multiples of 1,000 units (e.g., 5 = 5,000). You may not add more than 10(000) units per quarter.
- > New capacity that you order is available to use immediately.
- > If all of this is confusing, we suggest adding 2,000 to 4,000 units in quarter 1 until you can understand this better.

Tip: It is not good strategy to enter budgets that are lower than the beginning values. These are considered the “floor” for achieving sales.

3. Total Quality Management (0-200) \$ _____,000 (Last quarter decision = 10)

This budget is to support the quality programs in your organization, to include purchasing, production, distribution, and marketing. In general, the higher the budget the more savings you will achieve in the per-unit cost of the delivered product. This is due to the lower number of reject products both in inventory and units already sold, but returned. The beginning budget is \$10,000 and is considered by some in the organization as a bit small. Of course you can spend too much on this area and not achieve any further cost reductions. For this reason, continuously monitor your expenditures in this area and the per-unit cost of your product. The production cost at the beginning of the simulation is given in Table 2. If you notice that your cost was \$17 and it goes down to \$16.20, you may assume that the Quality Budget is working.

> The per unit product cost may be decreased through the quality budget and by producing at the most efficient level of production in your plant which is 80 to 90% of capacity.

MARKETING DECISIONS

4. Price (\$27-29, 33-35, 39-41) \$ _____ (Last quarter decision = \$34)

When you assume the management of the firm, it is charging \$34 (wholesale) for the digital player. However, your firm may establish in one of three price ranges: \$27-29, \$33-35, and \$39-41. If your firm wants to have a low price strategy then a price of \$27 to \$29 would be appropriate. If you want a mid-price policy then set the price between \$33 and \$35. If you want to have a high quality, higher price product then price between \$39 and \$41. Since you are selling at wholesale, the prices are in even dollars and not at the retail pricing scheme of odd pricing such as \$26.95. The price levels and associated production costs of the product is shown in Table 2.

**Table 2
Beginning Product Prices and Costs of Production**

	Lower Price Strategy			Medium Price Strategy			Higher Price Strategy		
Price	\$27	\$28	\$29	\$33	\$34	\$35	\$39	\$40	\$41
Production Cost	\$13.50	\$14	\$14.50	\$16.50	\$17	\$17.50	\$19.50	\$20	\$20.50

> **You might understand the pricing scheme better if you think of it as General Motors which has three different levels of products, Chevrolet-Buick-Cadillac.**

While you may change prices each quarter, in general you should choose which category of pricing you want and stay within that range (low price, medium, higher price). However, if your inventory at the end of a quarter gets too large, you may want to reduce the price for one quarter in order to stimulate sales and sell the older inventory. You may not set a price of \$30, 31, 32, 36, 37, or 38. Place the sales price on the decision form in even dollars within the range shown.

5. Advertising and Sales Promotion (0-200 \$_____,000 (Last quarter decision = 50)

Advertising is a part of marketing that attracts prospective customers to purchase your product when they visit a retailer. In the simulation this might be advertisements in business, purchasing, and electronics products magazines. It may also take the form of advertisements to the final consumer that furnishes technical information about the product and why it is a "good value." These are called "pull" marketing strategies. You are attempting to pull customers toward your product. Promotion expenditures are known as a "push" marketing strategy. Typical promotional activities include coupons and attractive point-of-sale displays that push merchandise into a customer's hands. You may also use rebate coupons and special cooperative advertising with the stores and distributors you do business with. For purposes of simplification in budgeting, the amount entered on the decision form is for both advertising and promotion activities. Last quarter the firm budgeted \$50,000 for this area.

> As with any expenditure, it is possible to budget too much for any item on the decision form and your decision value will hit the point of diminishing return. This means you are spending more than necessary. Only trial and error will indicate when you may have reached this point.

6. Number of sales people added this quarter (-4 to 4) _____ (Last Qtr decision = 0)

(Use negative value to lay off salespersons)

Even though you do not have a store in which to sell your product, you must reach the wholesale customers with the message about your product. While your advertising activities will accomplish some of this, a real person pushing your product is important also. When you assume management of the firm, it has two salespersons calling on current and prospective customers. You are charged \$15,000 per quarter for each salesperson. This cost includes payroll taxes, insurance, and auto expenses. It requires about one quarter for a salesperson to learn the product, customers, and to become effective.

> The same advice applies here in terms of the point of diminishing return. It is important to have enough sales people representing you but you can have too many also. You currently have 2.

> You may fire salespersons by placing a minus before the number to fire on the decision form. This is sometimes called "de-hiring." It is the same thing but sounds less negative! The cost to fire a salesperson is \$6,000 each in severance pay.

> The total cost of salespersons, severance pay, etc. will be shown on the expense report as "Salesperson cost." Once you hire one or more salespersons, do not place them on the decision form again the next quarter as that many will be hired again.

> When you assume the management of the firm, there are 2 salespersons on the staff.

7. Product Development/Enhancement Budget (0-200) \$_____,000 (Last qtr decision = 50)

This budget is used for two purposes:

1. To improve and enhance the current product
2. To create a “break-through” product that has more appeal to certain consumers. If you create a “break-through” product you would be engaging in a “niche” strategy and your product would be designed, marketed, and sold to this special niche of consumers. You will be informed if your Product development department develops a break through product.
 - Last quarter the firm budgeted \$50,000 for product development.

NOTES:

8. Market Research Studies (0-15)

\$_____,000 (Last quarter = 15)

A market research firm conducts various studies in your industry and makes the information available for a fee. The following studies and costs are shown below.

- > An estimate of total industry sales for the quarter, listed in units. Also, the Economic Index forecast for the next four quarters is given. Cost: \$1,000.
- > Prices for the products of every company. Cost: \$2,000
- > An estimate of the average advertising/promotion budget, the average quality budget, the average product development budget, and the total number of salespersons in the industry. Cost \$4,000.
- > A focus group study of the Product Perception of all products in your industry. This report will be based on index numbers with 100 being the highest level of perception and moving down from there. It is possible to have a rating as low as 1. Cost \$8,000

Add the total dollars you want to budget on market research and place it on line 8 of the Decision Form. For example, if you want only the first two studies, enter \$3,000 (\$1,000 + \$2,000). If you only want the focus group study, enter \$8,000. You may mix and match any combination of studies, and since these are unique values the program will issue the studies you desire. If you want all the research studies, enter \$15,000 on line 8 of the Decision Form (\$1,000 + \$2,000 + \$4,000 + \$8,000). If you are not purchasing any studies enter a zero. Permissible entries include \$0 to \$15,000.

- > An estimate of your market share will be furnished if your budget exceeds \$3,000.

FINANCIAL DECISIONS

9. Dividends

\$_____,000 (Last quarter decision = 5)

The firm paid \$5,000 in dividends last quarter. (This is entered as 5). You may increase or decrease these dividends. The amount cannot exceed \$10,000.00 per quarter! Also, a dividend may not by law be paid if there are negative retained earnings.

10. Loan Addition or Payment (-999 TO 999) \$_____,000 (Last quarter decision = 0)

(Use a minus sign to make a loan payment)

If your firm needs more cash than it has available, it can borrow additional funds from its bank by placing the required funds on item 10 of the decision form. The current interest cost is 10% annually or 2.5% per quarter.

- > You may repay any part of your loan in any amount at any time. Place your loan payment on the decision form with a minus (-) sign. You may want to delay making any principal payments until you get a better feeling for your cash needs.

- > If you do not borrow enough to meet cash needs, the bank will issue an overdraft loan and charge a higher rate of interest for one quarter on the additional loan amount (4% per quarter).

11. Mini-Case Response (Use only values from the manual) _____

You should respond to the assigned mini-case in Section 2 each quarter by placing the number of your response on the Decision Form. You may receive some type of feedback on your printout indicating how your response affected your firm. The effect on your firm has been programmed into the model from experience and probabilities found in the "real world." Mini-case A is required for the simulation and must be decided in Quarter 1. If you are not instructed otherwise, you may assume the Mini-cases will be used in order, e.g., Mini-case A in Quarter 1, Mini-case B in Quarter 2, Mini-case C in Quarter 3, etc. Your quarterly printout will always have the next assigned mini-case. Place your response to each Mini-case on line 11 of the Decision Form.

Verification Total

After you have completed the Decision Form, add up all of the numbers and place the total in the Verification Total box. Subtract any negative numbers. The total may look strange in terms of its value but it provides an error check for the person who enters your decisions into the computer. If you add the numbers incorrectly it slows the process down greatly; in this case, you may expect to be fined.

Naming Your Product

The product name cannot exceed 30 letters and spaces. NO COMMAS OR QUOTE " " MARKS. The name may be changed any time during the simulation if your strategy changes, e.g., price level change. Remember this is the product name, not the name of your company. Therefore it should NOT be David, John and Sue, Inc. That is not a product name. The product name should be easy to remember and have a positive image on the prospective buyer. Since you are selling a digital music player, think of a name that appeals to the younger crowd. See mini-case A for more ideas.

The Beginning Decision Form

The Decision Form on the next page has been completed for Quarter 0 (the last quarter of the previous management). Your team can use the values as a starting point for your team's discussion for Quarter 1. Note that the minimum and maximum entry values are shown beside each item. The maximum values are greater than required for a firm this size but are given to keep your team from entering a value that is completely out of range.

- > Hint: Do not repeat the quarter zero decisions with the strategy of waiting to see what other teams are going to do. This "wait and see" strategy will not give you any feedback as to the cost/benefit of changes.

Some Closing Thoughts

Instructors are often asked "What is the winning strategy?" There are many strategies that can be winners. Winning teams take the simulation seriously, purchase applicable market research studies, and know what the competition is doing at all times. They analyze the quarterly report and do some common calculations to check budget effectiveness. For example: assume you have been budgeting \$20,000 for Quality Management and decide to increase it to \$30,000. Is the savings in production cost greater than the extra budget you allocated? If not, you have reached the point of diminishing returns. Carefully analyzing your quarterly report each quarter and making informed decisions is much more rewarding than just throwing random numbers on the decision form.

Even if your team isn't the winner, it is a winner because you have learned a lot from playing the simulation. You have learned many business and accounting terms, financial decisions, strategies, and group interaction. The authors and your instructor or simulation administrator wish you a valuable learning experience and a bit of good luck as you play this simulation.

Are you confused at this point and don't seem to be able to make a decision? Go to page 9 and note what decisions the firm made last quarter and then make slight adjustments to those decisions, writing your new values on the page 9 form. This is not thoughtful nor award-winning decision-making, but the first quarter's decisions will be finished on time!

THE COMPLETED DECISION FORM WITH QUARTER 0 VALUES ENTERED

DECISION FORM

Industry X Quarter No. 0 Company No. all

PRODUCT NAME (30 LETTERS AND SPACES MAXIMUM) _____

Production Decisions

1. Production (000's of units 0-99) 35 , 000

Note: You may not produce any greater than your capacity

2. Addition to Size of Production Plant (0-10) 1 , 000

May not exceed 10(000) units per quarter.

3. Total Quality Management (0-200) \$ 10 , 000

Marketing Decisions

4. Price (\$27-29, 33-35, 39-41) (Entry must be within one of these ranges) \$ 34

5. Advertising and Sales Promotion (0-200) \$ 50 , 000

6. Number of sales people added this quarter (-4 to 4) 0
(Use negative value to lay off salespersons)

7. Product Development/Enhancement Budget (0-200) \$ 50 , 000

8. Market Research Studies (\$0-15) \$ 15 , 000

Financial Decisions

9. Dividends (Cannot be greater than \$10,000.) \$ 5 , 000

(Not allowed at all if retained earnings are negative.)

10. Loan Addition or Payment (-999 TO 999) \$ 0 , 000

(Use a minus to make a loan payment)

11. Mini-Case Response (Use only values from the manual) 1

12. Verification Total 201

Verification Total: Enter a 0 in any item from 1 to 11 that is not used. Add all numbers from items 1 through 11 and place the total in the verification box. Add only the numbers YOU entered, not the preprinted 000's. Subtract any negative numbers. The verification total is used by the person entering your decision values numbers to ensure that data entry is correct; the verification total has nothing to do with your decision results. You may receive a fine if this is not entered or entered incorrectly. Describe the rationale of any major strategy changes and/or mini-case decisions you have made on the reverse side.

Report for Quarter 0 -- Your Starting Position for Quarter 1
 (All numbers in 000's except product which is in units)

Quarter 0 Econo-Music Industry C Co. X

**** INVENTORY AND PRODUCTION ANALYSIS****

Beginning Inventory	4,000	Beginning Plant Capacity	35,082
+ Units Produced	+35,000	+ Added Capacity	1,000
Total Units Available	=39,000	Capacity Avail in Qtr 0	36,082
Sales	-35,000	- Depreciation	1,082
Ending Inventory Qtr 0=	4,000	Plant Capacity in Qtr 1	35,000

(Your Beginning Inventory in Quarter 1 = 4,000)

****INCOME & EXPENSE ANALYSIS****

****BALANCE SHEET****

Sales: 35,000 @ \$34.00	1190	Cash	\$ 100
Cost of Goods Sold	-595	Inventory	68
Gross Margin	=595	Plant & Equipment	2,100
Interest Income	+ 2	Balance Sheet Correction	<u>0</u>
Total Income = 597			
Quality Management	10	TOTAL ASSETS	2,268
Inventory Expense	23		
Advertising & Promotion	50	Loans Payable	1,100
Sales Force(2) Cost	30	TOTAL LIABILITIES	1,100
Product Development	50		
Mkt Research	15	Stock	1,000
Other Expenses	0	Retained Earnings	168
Interest Expense	28	TOTAL EQUITY	1,168
Overhead Expense	200	TOTAL LIABILITIES+EQUITY	2,268
Total Expenses	-406		
Less Depreciation	- 65		
PROFIT BEFORE TAX	=126	Current Price of Stock:	25
Less Taxes	- 50	Total Shares Stock Issued:	40000
Dividends Paid	- 5	Earnings Per Share:	1.85
PROFITS RETAINED	= 71	Economic Index this Quarter	100
(Net Income)		USE MINI-CASE A NEXT QUARTER	

****CASH FLOW ANALYSIS ****

Beginning Cash	\$ 24	Expenses+Cost of Goods Sold	\$ 1001
Sales & Interest Income	1,192	Taxes and Dividends	55
New Bank Loan	0	Change in Inventory Value	0
Overdraft Loan	0	Cost of Plant Addition	60
Total Cash Inflow	1,216	Total Cash Outflow	1,116

NET CASH FLOW (This quarter's ending cash) \$ 100

MARKET RESEARCH STUDIES:

Your Market Share is 33.3%.
Economic Forecast next 4 quarters 100 103 1xx 1xx
Total Industry Sales(units) 105,000
Prices(Co 1-3): 34 34 34
Average Industry Advertising: \$ 50,000
Average Industry Product Development: \$ 50,000
Total Industry Sales force: 6
Average Quality Budget: \$ 10,000
Product Perception(Co #1-3): 28 28 28

MESSAGES TO YOUR FIRM, INDUSTRY REPORT, AND MINI-CASE RESPONSE

Production Cost(per unit)\$ 17.00
Product Perception is 28
Lost Sales 0
(Mini-Case Response will be printed here)

Use Mini-case A in Quarter 1.

New management has been hired for several firms in the industry.
The management teams are all geared up and ready to put spark into
the personal music firms.

The Economic Index looks positive so sales should increase in the immediate
future.

SECTION 3 ANALYSIS OF THE REPORT FOR QUARTER 0

This section explains the items on the quarterly report for quarter 0 that is on page 10.

INVENTORY AND PRODUCTION ANALYSIS

The first thing that should be pointed out is that the number of units you produce has no bearing on the number of units you sell. Some teams get the (incorrect) idea that if they increase production that sales will increase. As mentioned earlier, sales are driven by the Economic Index, advertising, product development, quality, and competitive pricing.

The left side of the report lists the production analysis which for quarter 0 is shown below.

Beginning Inventory	4,000	
+ Units Produced	<u>35,000</u>	
= Total Units Available	39,000	
- Sales	<u>35,000</u>	
= Ending Inventory (Quarter 0)	4,000	(This is your beginning inventory)

The ending inventory for quarter 0 becomes the beginning inventory for quarter 1, and so on. If you place an order on the decision form to produce more units than you have the capacity to produce, the simulation program will automatically reduce your production order to a value that is equal to your production capacity.

The plant capacity is listed on the right side of the report and appears like this:

Beginning Plant Capacity	35,082	(The ending capacity from the previous quarter)
+ Added Capacity	<u>1,000</u>	(1,000 units were entered on the decision form)
Capacity Available this Quarter	36,082	(The maximum number of units you can produce)
- Depreciation	<u>1,082</u>	(Units lost to aging equipment -3% of line above)
Plant Capacity Next Quarter	35,000	(This is your beginning capacity for quarter 1)

Inventory Expense

The cost to maintain your warehouse facilities is \$15,000 per quarter. In addition to this fixed expense, you will be charged \$2 per unit for each unit that did not sell and is in "ending inventory."

INCOME AND EXPENSE ANALYSIS

This portion will list the firm's sales revenue and interest income. The Cost of Goods Sold will be deducted from the sales revenue to indicate a common accounting term, gross margin. It should be noted that the Cost of Goods Sold is the production cost of only those units sold and not the total production cost for the quarter. Accounting practices dictate that only the units sold should be counted as an expense in a given quarter. However, the costs of manufacturing the units are a cash expense in the quarter in which they were manufactured and you will find this cash requirement in the *Cash Flow Analysis*.

At the end of the expenses is the Profit before Tax from which taxes and dividends are deducted. The final value, Retained Earnings represents the amount of profits being kept by the firm (e.g. not paid out as dividends). The amount of Retained Earnings is then added to or subtracted from the Total Retained Earnings shown on the Balance Sheet. Remember that retained earnings are an accounting entry only and this item does not represent a reserve of cash. The retained profits that a firm may have accumulated have already been utilized in a variety of ways such as additional plant expansion, additional inventory, or additional cash.

Interest Income

There may be occasions when you have excess cash. If your beginning cash balance exceeds \$60,000, your bank will automatically invest your cash in a money market fund. (Don't confuse the CASH on the Balance Sheet with Beginning Cash which is shown on the Cash Flow Analysis.) This fund currently pays 6% interest per year (1.5% per quarter) but may fluctuate with market interest rates. The interest income will appear on your Income and Expense statement near the top. Since your financial statement is shown in 000's, interest income values will be rounded either up or down so they can be shown in \$000's (integer method). The interest is paid on the first day of the next quarter. To reconcile the amount of interest earned, use the beginning cash value on the Cash Flow Analysis.

> A Beginning cash balance of \$60,000 would pay \$1,000 interest which would be shown as "1" on your Income and Expense statement.

Overhead and Fixed Expenses

The firm's overhead and fixed expenses are currently \$175,000 per quarter when you take over. This will allow the firm to have 35,000 units of capacity. For each 10,000 units above this amount, overhead will increase by \$25,000. Note: Overhead costs are based on the capacity (not sales) of the firm. This is the cost at the beginning of the simulation and may increase at any time.

Table 4
Overhead Cost based on Production Capacity

0 - 35,000	\$175,000
35,001- 45,000	\$200,000
45,001- 55,000	\$225,000
55,001- 65,000	\$250,000
65,001 -75,000	\$275,000

The cost continues in 10,000 unit blocks at a rate of \$25,000 per 10,000 units.

For example, a production capacity of 90,000 units would be \$325,000

Taxes

The simulation charges a tax rate equal to 40% of profits. This includes all types of local and federal taxes. If there is a VAT (value-added tax) or sales tax in your area, you may assume that it is included in this tax rate. If the firm has had losses it will receive a credit against any future profits from the government and no taxes will be due until this credit is exhausted.

Other Expenses

This item may contain any fines your instructor may assess, the cost of any mini-case expense, and any other costs that are not listed on the report in other places.

Quarterly Profit

Your quarterly profits reflect all revenues and expenses for the quarter except your loan principal repayment. This is because principal repayments do not count as a valid expense for tax purposes, although the interest on the loan is a tax expense. Dividends also are not an expense because they are a return on investment to the owners.

A Note on Depreciation Expense

You will notice that depreciation is listed as an expense on the financial statement although on the Cash Analysis section it is not shown as a deduction from cash. This is because the funds for the plant and equipment have already been paid out of cash when the additional capacity was purchased. Therefore, the depreciation figure is just an accounting entry that allows a portion of the plant and equipment cost to be allocated to expenses each quarter.

CASH FLOW ANALYSIS

The Cash Flow Analysis in the middle section of the quarterly report lists the firm's cash inflow, cash outflow, and ending cash position. You can use this information to plan cash needs and borrow additional funds if necessary.

The most important item in this section is the Net Cash Flow which indicates whether you had a shortage of cash or a positive cash balance. If this value is zero, it means your banker had to add to your loan for you (an overdraft loan). Hopefully though, your cash analysis will forecast your cash needs and you will make a loan.

A Note on Borrowing: It is not necessarily a negative thing if you need cash. If you are growing and need additional plant capacity, these funds usually need to be obtained by a loan.

Depreciation is a non-cash expense and is not included as a cash flow item. An explanation of this is called for at this point for those who have not had accounting. Depreciation charges are a method of allocating a portion of a large-fixed asset (such as the manufacturing plant in this simulation) to each accounting period. Therefore, in this simulation, the plant value (currently \$2,100,000) is depreciated at 3% for the upcoming quarter, making the depreciation expense \$63,000. Since the plant was paid for sometime in the past, there is no cash expense at this point, but we can use the depreciation expense as a legitimate expense for income tax purposes. This is why it is listed as an expense on the Income and Expense Analysis but not as an item for which cash was needed on the Cash Flow Analysis. Each quarter the Plant and Equipment figure will be decreased by the amount charged as depreciation expense and increased by the amount of plant addition.

If more goods were produced than were sold, the excess goods are added (at their current production cost, \$17 each) to the Inventory account. Conversely, if demand was more than the units produced, the excess demand will be met out of inventory to the point of a "stock out." Thus, a positive figure after Net Change in Inventory Value indicates goods were placed into inventory. A minus figure (B) indicates goods had to be taken from inventory to meet current sales in excess of production.

Loan Repayment

Your loan balance will be shown after any payments and additions. The interest cost will be shown on the income and expense statement. The current interest rate cost is 10% per year (2.5% per quarter).

Overdraft Loan

If you fail to borrow needed funds or if you do not borrow enough, the shortage will be made up automatically by the bank in the form of an overdraft loan. The interest on the overdraft portion of your loan

is 16% per year (4% per quarter). After one quarter, the overdraft loan becomes part of your regular loan and the higher interest rate is no longer charged.

Cash Flow versus Cash Expenses

When calculating the profits for a firm, only the cost of each unit sold is used. If more is produced than sold, the difference in sold vs. produced is a cash expense to the firm but does not influence the profit in any way. This difference will be shown on the Balance Sheet along with unsold inventory from the previous period, e.g., total inventory in stock at the end of the quarter. If demand is greater than production in the next quarter, the units will be taken out of inventory and the inventory account will be decreased and you have converted the inventory to cash.

Loan transactions are recorded under Loan Payment, and cash expended for building a larger plant is listed under Cost of Plant Addition. The total of all the above items represents the Total Cash Outflow for the quarter. If Total Inflows do not cover this amount, the balance must come from the Cash account, and that account is adjusted accordingly. If the cash outflow is less than cash inflow, the excess cash results in an addition to the Cash account.

Change in Price Level - Effect on Cash

If you change your price from one level to another, the value of the product in inventory must change to match your new cost level. To simplify matters, the simulation adjusts this on the cash flow analysis. There is no effect on profits.

Balance Sheet

A Balance Sheet is printed on the right side of the quarterly report. A Cash balance of zero (0) indicates there was not enough cash to cover all the cash needs and the bank automatically covered this overdraft with an additional loan.

Inventory is the dollar value of the current inventory at their average cost. The Plant & Equipment value of \$2,100,000 represents its net value after 3% depreciation for the quarter has been deducted and the current plant addition is applied. This value divided by \$60 will indicate the plant capacity ($\$2,100,000 / \$60 = 35,000$ units). Other Assets is a nonstandard accounting entry that is used to allow the balance sheet to balance due to the rounding of all numbers into even thousands. The Total Assets figure is the total of the four items above.

The next section of the balance sheet is Liabilities which consists of only Loans Payable. The stockholders' Equity is shown next. This consists of Common Stock (stock that has been sold) and retained earnings. When you assume control of the firm, 40,000 shares have been sold for a beginning capital of \$1,000,000. No additional shares will be sold, nor can any shares be repurchased by the business.

The other part of stockholders' equity is Retained Earnings. This is the accumulated value of all past profits less dividends paid. It represents the total profits since the firm began in business that have not been paid out to stockholders but retained by the firm for growth needs. Total Liabilities and Equity are the total of these three items. As a matter of accounting principles, total assets must equal total liabilities plus stockholders' equity.

Other Information on the Report

Just below the balance sheet is other information of interest. Current stock price, total shares of stock issued, earnings per share, the Economic Index for the current quarter, and which mini-case to use the following

period. **Earnings per share** are an important value. It is calculated by dividing the earnings after taxes but before dividends by the total number of shares. To annualize this quarterly value, multiply the result by four. Earnings per share are an important factor in the price of your stock.

On the lower third of the report you will find the **market research studies** that you have purchased. Next are the messages to your firm. This section contains a very important piece of information, **Lost Sales**. If Total Units Available were not enough to meet orders, the difference will be listed as Lost Sales. These sales are not back ordered but go to your competitors. Your current production cost per unit is given as well as your quality index. A message concerning the results of your response to the mini-case will also be given.

The **Industry Report** has announcements from the administrator and other industry-specific information. At first the team report may seem a bit confusing but in a quarter or two you will be reading it like a pro.

The Economic Index

The simulation uses an Economic Index to impart information on the general economic health of the economy and begins at an arbitrary value of 100. Any changes in this number will have an effect on the total demand for your product. For example, if the Economic Index forecast indicates a move from 100 to 105, the overall economy is expected to increase by 5%. Conversely, an index of 96 would indicate that economic conditions are expected to decrease approximately 4% from the original 100 quarter 0 value.

News Messages

The news message section of your report will provide instructor messages, the impact of your mini-case response, and other operational information including warnings.

OTHER INFORMATION CONCERNING THE STUDENT REPORT

A Note on Depreciation

Depreciation is an accounting term used to amortize the cost of physical property over a period of time that is regulated by tax laws. In the simulation, your Plant and Equipment will be depreciated at a rate of 3% per quarter. Thus, if your total Plant and Equipment is \$ 2,100,000 the depreciation that you may charge as an expense on the "Income and Expense" statement is \$63,000. Note that the capacity of your plant also is reduced by this same amount (to keep the calculation simple) as the equipment ages and is replaced each quarter. The \$2,100,000 value above represents a capacity of 35,000 units. Therefore, in quarter one you would expect the capacity to be automatically reduced by 1,050 units ($35,000 \times 3\%$). Your quarterly report will have a synopsis of your Plant and Equipment situation in the top left hand corner. It will look like the table on page 11. Plant capacity is reduced by 3% depreciation each quarter.

Production (Product) Cost and Relationship to the Price You Set for the Product

The production cost may increase due to new innovations you make (through budgeting product development) or due to underutilization of your production facility. The production cost may decrease due to high utilization of your production capacity or due to the quality budget.

When the simulation begins the firm is selling the product for \$34 per unit to its dealers and the cost to manufacture the product is \$17 per unit. If you reduce your price to have a low-cost strategy, it is assumed you are producing a "no frills" player to keep your costs low. In this case, your cost will be reduced to \$11 by the simulation. On the other hand, if you want a premium price strategy, the simulation will assume you are adding premium features to the personal player and the cost will be \$23 per unit. See Table 2 for the various

cost/price combinations. Any of the three strategies can be very profitable if the team makes all the other decisions to support its strategy.

A Note on Product Development

Naturally, it requires quite a larger amount of investment to create a new and different type of player. Perhaps one that was dust proof, drop proof, has larger memory, etc. The possibilities are endless. Of the total amount that you budget, the product development department will first use enough of the budget to improve the current product. This is the only prudent thing to do. Otherwise, your current product will be behind the competition in terms of features, looks, quality construction, etc.

Last quarter the firm budgeted \$50,000 for product development. This is enough for two product engineers working full time in your product lab. If you have a low price product, you will not need to budget as much in this area as the price is the major selling factor. However, even if you have a lower priced product, you would want to keep it up-to-date through a continued product development budget. A price strategy of medium or high price will require proportionally more budget in this area. Your relative product level as perceived by a marketing focus group is available as a market research study. You may want to check the public perception of your product to that of your competition, especially the competition at your price level.

Information Concerning Dividends

Dividends are a payment to stockholders for the investment they have made in the firm. Since the stockholders are the owners of a company, they have every right to be rewarded for the risk they have taken in investing capital funds in a firm. On the other hand, the firm may be in a high growth period and need all available profits for growth purposes. It is a difficult decision to know if the firm needs the dividends more than the stockholders do. If the firm does not have a ready need for profits then it should pay the profits to the rightful owners, the stockholders. Whatever you decide to do, always pay a dividend quarterly rather than once or twice a year. This is the standard practice by most firms and it makes the cash flow easier to predict. Never begin a dividend payment you cannot sustain. Stockholders will become disenchanted with your firm and your stock price will fall. Dividends cannot be paid if cash or retained earnings are negative.

Calculation of Stockholder Return on Investment

In order to give you some idea as to what return on investment a certain amount of dividends would give a stockholder, use the following formula. Total dividends paid divided by total value of the stock. This will give you a decimal of perhaps .01. Then multiply times 4 to give the annualized return. This is still a decimal so convert it ($.01 \times 4 = .04 = 4\%$).

Product Quality and Perception

As you know, all of us have a certain “perception” of a product. If it is a brand name product our perception is usually high. If a firm has a reputation for high quality the accompanying perception would also be high. In the simulation, a product’s perception consists of the following factors: the product’s quality; the firm’s advertising and promotion budget (we do form perceptions through advertising); whether a firm can meet its demand and not run out of stock of a product as well as handle its finances so that it does not have overdraft loans (indicating to the public that the firm is well managed). The decisions a firm makes that fall under the categories of business ethics and social responsibility also effects perception. A firm’s quality index will be listed on its quarterly report but the public’s perception of all firms products must be purchased through a market research study. It should be noted that a lower price product does not need as high a perception as a higher price product.

A Note on Borrowing - The Bank Loan

It is not “bad business” to borrow money. Most growing companies occasionally have a requirement for additional cash. This is used to build additional facilities, increase various budgets, and pay for the added cost of inventory required. These additional funds will be termed “capital” in the simulation. There are many types of loans but yours is a line of credit loan. This type of loan does not have a required repayment schedule but rather a payment can be made in any amount at any time. You may want to delay making any principal payments until you have a better feel for your cash needs. However, you should not end the simulation with a large amount of cash and a large loan principal; that would be an indication of poor financial management. You will lose your line of credit from the bank if you have three consecutive quarters of losses but returns as soon as you make a profit. Place your loan payment on the decision form with a minus (-) sign.

Interest Expense on the Bank Loan

The interest is calculated after any loan payment is applied to the outstanding balance. The current rate is 10% annual or 2.5% quarterly. Since your loan is a line-of-credit loan, you may borrow against your line of credit or make a payment on the loan at any time. You may want to use the cash analysis forecast form in section 5 to help plan your cash needs. Note that the interest rates are not related to the current rates in the real world in the current time period. The simulation has a predetermined economic cycle that it will adhere to.

A Note on Stock Price and Number of Shares

The market value of your stock is not a precise indicator of the performance of your firm but does give a rough estimate of the relative standings of the competing firms. Investor whims concerning poor performance one quarter could make the stock price decline perhaps more than it should. Investors may not know of the firm's overall plans and what it is trying to accomplish, thus undervaluing the stock. While you should not ignore the stock price, you should continue to operate your business and stick to your strategy.

When the firm began a year ago, there were 40,000 shares of stock that were sold at \$25 per share. You can compare how you are doing by using the \$25 value as the starting point, and by comparing your stock price to other firms.

Some of the factors that affect stock price are total sales and profits, return on sales (e.g., profit divided by total sales), customer satisfaction (as reflected by the ability to maintain an optimum inventory), product image (as reflected by advertising, promotion activities, quality budget, and good business ethics), preventing overdraft loans, and preventing lost sales

SECTION 4

MINI-CASE DECISIONS

This section contains several Mini-cases. The Mini-case for quarter 1 must be Mini-case A.. Your instructor may change the order of mini-cases in subsequent quarters. Always check the News Message section of the quarterly report to ascertain which mini-case is next. If you are not using the mini-cases, enter a zero on the decision form for item

The ability to make a decision concerning a mini-case will be limited to the decision quarter for which it is offered. You cannot go back to a previous mini-case to take advantage of the mini-case.

Mini-cases may have a financial effect on your company either in the current quarter or a future quarter.

Mini-Case A: NAMING YOUR PRODUCT

Industry ____ **Co #** ____

You will need to provide a name for your product. This is an extremely important decision for your team. You may assume that the firm name is also the name of your product. A product’s name can create an immediate image to the prospective purchaser. For example, if a firm sold computer printers, “Perfect Print” is a more descriptive name than “The Cannon.” You may want to answer some of the questions below first.

- The name cannot exceed 30 letters and spaces. NO COMMAS OR QUOTE " " MARKS. The name may be changed any time during the simulation if your strategy changes, e.g., price level change.
- 1. Is the name an ego trip for team members? For example, using the letter of each persons first or last name: AJFTY @ or "Dan’s, Inc" (NO commas!), or "Whitley’s Cricket" (what is it?).
- 2. Does the name help describe your product? Is it aimed at your target market?
- 3. Is the name easy to remember and perhaps catchy? AHi-Q Music Maker@

Who is your "Target Customer" or "Target Market?"

Brainstorm some possible names:

Write a justification for your selection:

PRINT THE NAME YOU HAVE CHOSEN (maximum 30 letters and spaces) and also write it on the decision form for Quarter 1:

TURN IN THIS FORM WITH YOUR FIRST SET OF DECISIONS AND ENTER A ZERO ON THE DECISION FORM FOR THE MINI-CASE, ITEM 11.

Mini-Case B: A New Production Manager

Your production manager gave two weeks notice and left to start his own business. You have conducted interviews with several applicants and you have the list down to three. Here is a short synopsis of the three;

Applicant #1

This applicant is currently your assistant production manager. He is middle age, has a bachelors degree in Business and been in the position since the firm began a year ago. He had a similar position before coming with your company. Although he knows the production process at your plant relatively well, his people skills are somewhat weak according to the departing plant manager. The advantage of hiring this person is that he knows every small detail of your operation and perhaps he could work on his people skills if given a chance to get the promotion.

Applicant #2

This applicant is currently employed by an electronic manufacturing facility such as yours. She has excellent credentials, a bachelor's degree in production management, and has excellent references. She needs to relocate to your area. She has two other offers and both have offered her a bonus of \$5,000 for signing. Your human resource manager feels you can hire her if you offer a \$5,000 signing bonus that includes \$2,000 for moving expenses. One of your staff has pointed out that the bonus will establish a precedent in your firm. If you hire this applicant, you will be charged \$5,000 in Other Expenses.

Applicant #3

The applicant has the most experience of the three. At age 63 he has been the production manager in four firms over the last 30 years, all in electronic production facilities. He has an associate degree in science and has excellent references. One of your staff members has pointed out two possible problems with this applicant. The first is that he is disabled and uses a wheelchair to move around; there are some areas of your plant that are not equipped for wheelchair usage. The second potential problem is that he is nearing retirement age although he assures your committee that he plans to work until he is 70, as long as his health holds out. This applicant would bring a lot of experience to the position.

Choose which applicant you will hire. If you choose #2, your "other expenses" will be charged \$5,000.

Mini-Case C: Environmental Dilemma

In order to provide parking and expand your production facility, a large lot at the rear of your building must be cleared of several trees. The locality in which you are located has a regulation that any trees that are removed a like number must be planted. There is room to plant the requisite number of trees on the perimeter of the large lot. However, one of your most respected staff members made a passionate plea to go “beyond the law” by leasing 10-20 acres out in the rural area and plant several hundred young trees on it as well. “If we are to think of ourselves as trustees of the global environment and not just consumers of the environment, we must go beyond the legal requirement and leave something for future generations.” Your financial officer responded with “This would cost us \$10,000 and we could use those funds for building the business. We could do this later after we have profits built to a much higher level. Besides, I personally believe that we should meet the legal requirements and no more. If we continue to spend money on every “social” cause that comes along, we will not be serving our stockholders well.”

The staff member responded with “Our stockholders would want us to be a socially responsible firm and we would be doing it for the future descendants of the stockholders and I think the majority of them would approve of that. As far as waiting for a better time to do it, there will never be a “better” time than now. Besides, the expense is a tax deduction and it would actually cost only \$6,000 cash outlay.”

Discuss this situation with your team and enter a one (1) on the decision form if you are going to budget the \$10,000 cost of the tree project and a zero (0) if you are not going to do it. If you elect to do it, you will be charged \$10,000 next quarter. The balance would be paid two years from now.

Mini-Case D: The Case of the Missing Keys

The ring containing the master keys to many areas of the building disappeared off the production manager's desk this morning. Changing all the locks would cost \$2,000 as they are all high quality custom-keyed locks. An anonymous note left at lunch time on the desk of a production foreman listed three or four employees that could have taken them and that there was a rumor that they had been put in the guilty employee's locker for safe keeping in case the employees were searched. The production manager wanted to search the four lockers for the keys but the human resources manager warned him that the lockers could be considered as a personal area and the company did not have a right to search a personal area. He ended his remarks with a statement about a potential lawsuit, especially by any employees who were not guilty. A complication is the fact that a rumor has been floating around that one or more employees have stored drugs in their locker.

Discuss this situation with your team. Enter a one (1) on the decision form if you plan to search the lockers and a two (2) if you choose to change the locks. If you choose the latter, "other expenses" will be charged \$2,000.

Mini-Case E: The Case of the Personal Email

All employee computers are now connected to the company Internet access and there has been a surge in Email traffic that you suspect is due to personal Email and use of the personal use of the Internet. Although the law is very clear that the logs and records on the hard drives corporate computers belong to the company, Email is a non-cash perquisite that some companies permit to their employees. One department manager is concerned that there is a significant amount of "Asocial loafing" associated with personal Email and Internet surfing. It is hard to compute the exact amount of work time used without hiring a specialist to conduct detailed reviews of the usage logs. It is clear that the company must establish a policy on this matter. The concerned department manager wants to have a "no use at any time" policy because he fears that "if you give them an inch they will take a mile. Where do you draw the line" he asks?

Discuss the situation with your team. Enter a one (1) if you are going to formally permit people to use their own discretion about personal Email and Internet activity. Enter a two (2) if you allow employees to use their computers for personal activity before and after work hours. Enter a three (3) if you will not permit personal use of the company computers at any time.

Mini-Case F: Health Insurance Decision

A group of employees has approached management with a request from a majority of employees that the firm establishes a health insurance plan, paid for by the company. One staff member has pointed out that the plant does not have a union at this point and that this type of situation cannot be ignored or placed in a committee for a 6-month analysis. The human resource manager has received proposals from an excellent insurance company for different types of plans. While the plans are not top-of-the-line in benefits, they are adequate. The plans are listed below.

- #1 Do not establish a health plan but contract an all-purpose clinic to treat employees and their dependents for discounted fees. No cost.
- #2 Establish a health plan for employees only (not dependents) with the company paying half the cost and employee paying half the cost. Cost: \$3,000 per quarter.
- #3 Establish a health plan for employees only (not dependents) and pay the full cost. Cost :\$6,000 per quarter. Employees could add and pay for dependents at the full dependent cost.
- #4 Establish a health plan for employees and their dependents with the company paying half the cost and employees paying half the cost. Cost: \$5,000 per quarter.
- #5 Establish a health plan for employees and their dependents and pay the total cost. Cost: \$10,000 per quarter.

Make your decision and place it on the decision form. If you choose an alternative with a cost, it will appear as “other expense” for the length of the simulation.

Mini-Case G: Going International

The Marketing Director brought up the idea of becoming an international company by exporting your product. The choice of a location is not a factor in this decision but the method of marketing your product in that country is. The following choices are available to you.

- #1 Do not export at this time. You feel you need to continue and expand in your current markets and exporting would require precious capital and managerial resources.
- #2 Contract with a broker in the foreign country to handle your product as part of his line. He calls on the types of stores that would carry your product. The advantage of this alternative is that it costs nothing as the broker would be paid a commission on each sale. The disadvantage is that you have no way of telling how hard the broker is trying to sell your line versus the other competing products he offers to his customers. It is estimated that he may be able to increase your current sales 1% to 5%. All brokers require a one year contract as your only representative.
- #3 Hire a salesperson in that country to market your product there. The cost would be \$20,000 up front cost to establish the position (charged to other expenses next quarter). Future costs would be paid from the sales of the international office and not charged directly to your expenses. It is estimated the salesperson would be able to increase your current sales by 5 to 10% within two quarters.
- #4 Establish a sales office and stocking warehouse in the country. This would allow immediate shipments of goods to the customer, saving days as compared to alternatives #2, and #3 above. The cost would be \$40,000 to establish the office. After the initial charge (next quarter) the expenses would be paid out of the international division and not show directly on your expenses. It is estimated this alternative could increase sales 5% to 15% of your current sales.

Make your decision and place the number on the decision form.

Mini-Case H: Selection of a Country for International Sales

You have the choice of several countries to begin marketing activities and open up sales to the country. The alternatives are listed below. Although you may not enter the country immediately, the President wants your group to select a country so you would be ready if the decision were made.

Country Selection for Exporting				
Selection Factors	Country #1	Country #2	Country #3	Country #4
Language - Same as ours or Different	Same	Different	Different	Different
Annual Economic Growth Rate	1%	3%	5%	8%
Level of Taxes and Tariffs	Moderate	Moderate	Higher	Highest
Currency Strength Vs Our Currency	Equal	Stronger	Stronger	Weaker
Ease and Cost of Exporting to this country 0=Somewhat Difficult 10=Easy	9	8	7	6
Stability of Government 0=unstable 10=very stable	10	9	7	6
% Literacy Rate	93%	96%	92%	80%
Relative Affluence 0=poor 10=same as your country	10	8	7	5

Make a selection of the country you would enter. You must make the selection whether or not you think your firm should export. Chose 1, 2, 3, or 4 and place it on the decision form.

Mini-Case I: Time Management and Goal Setting

The firm you are managing is relatively small and therefore you have a small staff. In assuming management of the firm a few tasks need to be accomplished as soon as possible so that you can get the firm operating as efficiently as possible. The tasks that need to be accomplished are listed below. Your team should rank order these tasks from the choices below.

1. Review the marketing plans and expedite marketing and sales of the product.
2. Review the production operations of the firm and make the shifts necessary for producing the highest quality product and the lowest cost.
3. Review the packaging, warehousing, and shipping of the product to assure the product is promptly shipped to customers without delays.
4. Review personnel record of all employees to get a feel for the strengths and weaknesses of the human resources in the organization.

Even though your team would like to attend to all these matters, you are being asked to prioritize them.

Rank order the four items and place your choice on the decision form (do not use commas nor spaces). Examples: 1342, 3421, 1243, etc.

Mini-Case J: The Recall Problem: Ethics or Common Business Practice?

Business is built on the principle of giving the customer a safe product or service at a fair price. The minimum level of business ethics is to obey all laws and regulations relating to one's business. Then comes behavior that is legal but perhaps not ethical. Next there is a gray area of ethical behavior in which decisions are difficult to make. Finally, there is behavior that is clearly ethical in which the firm could pass the TV rule. (The firm so conducts its business that all of its actions could be disclosed to the public on TV without fear of any condemnation.)

The situation faced by your team today is one in the gray area of ethics. The sales force has reported that some retailers have had the latest model of your player returned because of a problem with skipping songs. A check of 100 units off the production line showed that 5 had the potential to be defective and one was defective. The defect could do no bodily harm to the user due to any type of electrical shock. Luckily, it is a new model and there have only been 5,000 units sold. Steps have been taken to correct the problem immediately on units coming off the production line. A meeting of your staff produced nothing except very diverse opinions as to what action to take. The alternatives appear below.

- #1 Recall all units of that model, inspect them, and either return it or replace it, as required. Your legal counsel has recommended this action. Cost \$20,000
- #2 Place ads in stores and a few newspapers announcing a voluntary recall. Only customers who would happen to see the ads would return the units. Cost \$5,000
- #3 Adopt an unwritten policy to repair (without cost to the purchaser) any defective unit that is sent back to the factory. This would be in effect as long as the units were in consumers hands. This is known as a "secret warranty" and no notice of the extension is given. No recall notice is given. Cost \$1,000 to repair the few units that may come in after the 180 day warranty has expired..
- #4 Stand behind your usual 180 day warranty. No recall would be made. If a unit comes in after the 180 days, the customer would be charged for the repair. No cost to your firm for this choice.

Discuss with your team and enter your decision (1-4) on the decision form. Although you may think of a better alternative, in a simulation the menu of choices must be adhered to. Any costs will be charged to other expenses.

Mini-Case K: Technology

At a department head's meeting the production manager brought up the topic of "Catching up with the 21st Century." He noted that while the firm was producing a Player with the latest features, the firm was behind in some areas of technology. By the time everyone had spoken at the meeting, several proposals had been made concerning utilization of new technology. They are listed below.

- > Purchase new software to upgrade the accounts receivable system that would reduce the time in billing customers by a week. Thus monies owed the firm would come in a week earlier. Cost \$1,000.
- > Upgrade the sales forces' cell phones to smart phones having internet and email access, in order to get their orders in faster and more efficiently. Cost \$2,000.
- > Purchase a CAD (Computer Assisted Drawing) system that would allow the production development department to prepare all drawings via computer. Now it is being done by hand drawings. Cost \$4,000.
- > Purchase a system that ties together all the firm's suppliers to the production facility purchasing department via Internet. This would allow the purchasing agent to place an order immediately with no lost time. The firm could carry less inventory in raw materials stock and save funds invested in this type of stock. Cost \$8,000.
- > Establish through a third party that already sells at retail on the Internet, the ability to sell your players via two pages in the third party's on-line catalog. This is admittedly a small step toward E Commerce but the manager who made the proposal advocated a test run of this type to ascertain what the potential is. Cost \$16,000.
- > Establish an E Commerce site that would sell your player exclusively. The site would feature full color web pages with all product specifications listed. It would compare your player with you closest competitors and show the superiority of your unit. Customers could either order via Email or phone their order in. Cost \$32,000.

All of the proposals above have pluses and minuses. Your team should discuss them and enter the total cost of any proposals you want to activate. Since the costs are unique numbers, the computer program can sort out which you want. For example, if you want to implement the first and third options, enter $(\$1,000 + \$4,000)$ \$5,000 on the decision form (in 000's would equal an entry of "5").

Possible values to enter are from 0 to 63 (e.g., 0 to \$63,000).

NOTES:

SECTION 5 WORKSHEETS AND FORMS

This section contains worksheets and forms for the simulation. EVERY member of the team should maintain the ‘Record of Decisions’ Form on the next page. It is a record of your quarterly decisions and will be useful as you proceed through the simulation.

Form 1 Record of Decisions
Industry _____ Company _____

Quarter _____

Keep a record of your quarterly decisions on this form. Everyone on the team should keep this form posted so that in any team member's absence the team will know the previous decisions.

Quarterly Decision Log											
Quarter #	Production # units	Add to Capacity	Total Quality	Price	Advertising	Sales Persons	Product Development	Market Research	Dividends	Loan	Mini-Case
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

Form 2 Your Business Plan

Industry___ **Company #**___

See the reverse side of this form for some ideas on strategy.

Your Key Strategy

Your company Mission (Why are you in business, in addition to making a profit)?

The Vision for your company (Where do you want your business to be in 3 or 5 years)?

What pricing strategy have you chosen? Why?

First Year Goal or Objective (What would you like to achieve the first 4 quarters in the simulation?)

Second Year Goal or Objective:

Secondary Goal or Objective:

How are you going to organize your management team to accomplish your objectives?(1)

(1) For example: Jill will analyze market research each quarter to track our competition. John will analyze our production costs and make recommendations concerning this area. Ruth will _____

FOUR KEY STRATEGIES

Here are some strategies to consider. However, there are others that may be just as effective. Thanks to Joe Hyer and Washington Business Week for the original idea for this page.

THE MASS MERCHANT: Cost Leadership

You want to sell as much product as you possibly can. You sacrifice some profits in order to increase market share. Your price is lower than average, and you budget more than your competitors in the area of marketing. Your plant growth is rapid, as you have to fill all the orders coming in. There is a limited number of Player's to be sold, meaning that every one you sell is one your competitors cannot. An Important Ratio: Market Share (Total Units Sold/Your Sales = Market Share %)

THE LUXURY MARKETER: A Differentiated Product

This strategy is based on the philosophy that no one NEEDS a Player. Therefore one might as well sell a luxury product, something people buy because they can afford it. With proper marketing, you can convince them that they only want the best. Price is usually not an issue, because customers feel that they "get what you pay for. Your price is always higher than the competition, and your marketing budgets tend to be above average. Product Development is important, as you create the perception of being on the cutting edge of technology. Your production is lower, because you squeeze all the profit you can from each unit sold. An Important Ratio: Profit per Unit (Units Sold/Net Profit = Profit /Unit).

AN ANALYTIC APPROACH: Cost Focus Strategy

When you talk about players with a retail price in the \$100+ range, the quality difference can't be that great. You take the approach that in the end, all firms are selling about the same product. In order to make this company profitable, you have to squeeze every dollar of profit you can. You have to drive your cost per unit down by investing in Quality Management. You have to keep your plant operating at optimum capacity (between 80 and 90%), and keep inventories as low as possible. Your price should be right in the middle of your competitors, and you should be wary of burning up money with costly marketing campaigns. Marketing is important, but you should spend as much as they do, not more. The same strategy goes for your product development budget. An Important Ratio: Net Margin (Gross Sales/Profit Before Tax = Net Margin %)

THE OPPORTUNIST: Emergent Strategy

Change your strategy to meet the changing markets you face. Buy all the market research you can, and attempt to capitalize on the weaknesses of competitors. If prices are rising, you lower yours to capture sales. If industry marketing is on the rise, drop price and capture their sales. If prices are low, raise yours and market heavily. If the economic forecast is good, invest in inventory in case your competitors stock out. Reduce your costs as much as possible, and have cash available in reserve for investments in inventory, marketing, etc. As to dividends, remember the investors only make money if the company makes money. This strategy is more risky but can be more rewarding, if implemented flawlessly. An Important Ratio: An Opportunist watches all ratios carefully, to calculate the odds.

Form 3 The Final Management Report for Your Firm

The management processes are not complete until there is some way of analyzing the outcomes of operations. This is called the control function of management. A list of critical questions that attempts to start your thinking on your performance follows.

1. Did you have adequately stated mission and objectives?
2. Did your team make decisions on a rational basis or did you "stab in the dark"?
3. How many times did your firm have no ending inventory causing you to lose sales?
4. Did you advertise and promote enough? Too much? Can you determine a "point of diminishing return"?
5. Did you have sufficient sales persons to service your customers? Did you hire too many and had to de-hire some?
5. How would you describe your success in producing and marketing your product? Explain.
6. Did your business practices reflect your personal ethics and commitment to social responsibility?
7. Which mini-case created the most disagreement among team members? How did you solve this problem?
9. If you had the opportunity to play the simulation again, what would you do differently?

Form 4 Executive Bonus Recommendation **Quarter** ___ **Industry** ___ **Company** ___

Performance evaluations are an important aspect of every manager's job. As a member of your company's Executive Compensation Committee, you have been assigned the task of allocating \$100,000 among the managers (your team mates).

Fill in names of the executives in your firm, including your own	Fill in the amount of the executive bonus
Your Name:	\$
	\$
	\$
	\$
	\$
	\$
	\$
	\$
	\$
	\$
	\$
	\$
	\$
	\$
	\$
	TOTAL \$ 1 0 0 , 0 0 0

Form 5 CASH ANALYSIS FORECAST Industry ____ Quarter ____ Company_

A. Beginning Cash Balance (From Balance Sheet) _____

Cash Inflow:

Forecasted Revenue:

_____ units sold @ \$_____ per unit _____

+ Estimate of Interest Income _____

B. Total Cash Inflow (Forecasted Revenue + Interest Income) _____

Cash Outflow: _____ (\$000)

1. Production (000's of units) _____ @ \$____ each _____

2. Total Quality Management (0-200) _____

3. Estimate of Inventory Expense _____
(\$15,000, plus \$2 per unit in ending inventory)

4. Advertising and Sales Promotion (0-200) _____

5. Total Sales people _____ @ \$15(000) each _____
(Don't forget to add any hired this quarter)

6. Product development (0-200) _____

7. Market Research (0-15) _____

8. Other Expenses including Mini-Case Response _____
(and mini-cases from prior quarters)

9. Overhead at total capacity of _____ = _____
(See chart on page 13)

10. Estimate of Interest Expense _____

11. Estimate of Depreciation Expense _____
(Capacity available x 3% x \$60)

12. **Expenses before taxes** _____
(Total of lines 1-11)

13. Earnings before taxes _____
(Total Cash Inflow minus line 12)

14. Estimate of Tax Expense (Line 13 x 40%) _____

15. Addition to Production Plant _____ units @\$60 ea _____

16. Dividends Paid (0-10) _____

C. Total Cash Outflow (Lines 12 + 14 + 15 + 16-11) _____

Net Cash Flow (Beginning Cash Balance Plus
Total Cash Inflow less Total Cash Outflow (A+B - C) _____

NOTE: If net cash flow is negative, you must request a bank loan or adjust projected income and expenses

Business Terms

Assets: The items the firm owns: cash, buildings, equipment, accounts receivable (money that is owed to the firm), inventory of products that are being held for sale.

Accounts Payable: The amount the firm owes to others for goods and services rendered but not yet paid.

Accounts Receivable: Amounts owed to the firm by others for goods and services rendered for which they have not paid.

Amortize: The accounting term that describes the allocation of the expense for a major item over several years.

Balance Sheet: Since “balance” means equilibrium, the balance sheet lists the firm’s Assets on one side of the scale and Liabilities and Owners Equity on the other side. Accounting principles require that the two sides must have equal values.

Economic Index: The method in this simulation to describe the overall economic conditions in the U.S. It is based on a starting (index) value of 1.0. If the forecast is for 1.06 then the overall economic conditions would be expected to increase by 6%.

Change in Inventory Value: The net change in the value of the inventory at the end of a quarter. For example, if the value of the beginning inventory was \$46,000 and the value at the end of the quarter was \$26,000, the change in inventory value would be \$20,000. Since the ending value is less, some of the stock of inventory was sold.

Cost of goods sold: The total costs of manufacturing a product: materials, labor, utilities, etc.

Depreciation: The accounting term that describes the allocation of the expense of a physical asset (i.e., building, equipment, etc.) over several years. In the simulation, the plant is depreciated at 3% of the value of the plant. Example: 35,000 plant size x 3% = \$1,050.

Earnings per share (EPS): a common financial analysis that indicates how much profit each share of stock made in a given time period. It is calculated by dividing the current profits by the number of shares of stock. Common practice is to annualize it by multiplying it 4 times to convert a quarterly EPS to an annual EPS. Example: \$100,000 quarterly profit / 40,000 shares of stock = \$2.50 per share for the quarter times 4 quarters in a year = \$10 earnings per share. Stocks can sell on the stock market for some multiples of this value, usually from 7 to 25 times the EPS. ‘High Flying’ technology stocks may sell for as much as 100 times the EPS as investors are banking on unusually high future returns.

Gross Margin: (Gross Profit): Indicates the sum that remains after the direct production costs have been allocated (Sales - Cost of Goods Sold = Gross Margin). It is a financial test that can aid a firm to know whether its costs are in line with the industry averages.

Common Business Terms (continued)

Liabilities: Amounts that are due others that have not yet been paid: loans, accounts payable, mortgages.

Loss Leader: Any product that a store uses to draw additional customers. The loss leader is priced at the lowest possible price. The manufacturer cannot control what prices stores choose. While a loss leader sells more of the manufacturer's products, the practice creates ill will with other retailers that want to maintain normal markups.

Overhead Expense: All the expenses of a company that are relatively 'fixed' in nature and not part of the production cost of the product or service, such as supporting staff payroll and fringe benefits, insurance, power and light, telephones, computers, travel. These are costs that would go on whether or not the firm was manufacturing a product.

Owners Equity: The value of stock that has been sold plus the retained earnings (profits retained for business uses). Although profits may be retained in a firm to help finance the firm, it still belongs to the stockholders and are thus listed as part of stockholders equity.

Production Cost: The total direct costs of producing a product such as production line labor, raw materials that go into making the product, maintenance on equipment, etc.

Quality programs: Over the past two decades U. S. firms have paid more attention to the quality of goods or services they offered in order to match the quality of foreign products. There are various names given to these programs including Total Quality Management, Quality Circles, Continuous Improvement, Re-engineering, etc.

Retained Earnings: The amount of profits that have not been paid as dividends but rather held in the firm for working capital, growth, and other needs.

Stock: Stock is sold to investors and it represents ownership in the firm. Stockholders expect to be rewarded for their investment by the value of their stock rising and/or dividends paid.

Working Capital: The amount of funds the firm has available in the short term (30 to 90 days) to purchase goods and services, and to build up the stock of inventory.

DECISION FORM: Name _____ **Industry** _____ **Quarter No.** _____ **Company #** _____

Production Decisions

- 1. Production (000's of units 0-99) _____,000
 Note: You may not produce any greater than your capacity
- 2. Addition to Size of Production Plant (0-10) _____,000
 May not exceed 10(000) units per quarter.
- 3. Total Quality Management (0-200) _____,000

Marketing Decisions

- 4. Price (\$27-29, 33-35, 39-41) _____
 (\$30, 31, 32, 36, 37, 38 are not valid prices)
- 5. Advertising and Sales Promotion (0-200) _____,000
- 6. Number of sales people added this quarter (-4 to 4) _____
 (Use negative value to lay off salespersons)
- 7. Product Development Budget (0-200) _____,000
- 8. Market Research Studies (0-15) _____,000

Financial Decisions

- 9. Dividends (Cannot be greater than \$10,000.) _____,000
 (Not allowed at all if retained earnings are negative.)
- 10. Loan Addition or Payment (-999 TO 999) _____,000
 (Use a minus to make a loan payment)
- 11. Mini-Case Response (Use only values from the manual) _____
- 12. Verification Total _____

Verification Total: Enter a 0 in any item from 1 to 11 that is not used. Add all numbers from items 1 through 11 and place the total in the verification box. Add only the numbers YOU entered, not the preprinted 000's. Subtract any negative numbers. The verification total is used by the person entering your decision values numbers to ensure that data entry is correct; the verification total has nothing to do with your decision results. You may receive a fine if this is not entered or entered incorrectly.

Members of the team that were present for this decision:

Describe Rationale of major strategy changes and/or mini-case decisions this quarter on the reverse side.

Rationale for Mini-Case Decision:

Explain Major Shifts in Strategy:

NOTES: