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CARTELS & CUTTHROAT$™

SHORT RULES

INTRODUCTION

This game is a simulation of the business world. Each player runs a manufacturing company that buys raw material, produces finished goods and sells those finished goods in a competitive market. The object of the game is to earn the most total income. (Shown cumulatively as an increase in "equity" which is your ownership in the company). Each turn is a quarter of a year. The general play sequence is: review last period's performance, make plans for this quarter, implement the plans (enter them into the computer) and then review performance again Sales (and incomes) are based on how good your plans are in terms of the economy and your competitors. The quality of your plans is in turn influenced by how effectively you use the information you are given in your reports.

HARDWARE REQUIREMENTS

APPLE

- An Apple II, II+, IIe, IIc with at least 48K of RAM and APPLESOFT ROM and one floppy disk drive.
- Any properly interfaced parallel printer is optional.

COMMODORE 64

- A Commodore 64 computer with a 1541 Disk Drive.
- A Commodore MPS-801, VIC 1525, or other printer that can emulate a VIC 1525 is optional.

IBM

- An IBM PC, PC XT, PCjr or compatible with at least 64K of RAM with one floppy disk drive.
- Cartels & Cutthroats- works on any of the following displays:
  a) IBM Monochrome Display with Monochrome Display Adapter
  b) Composite Color Graphics or Monochrome Graphics Monitor with a Color Graphics Adapter.
  c) Color or Black and White Television with a proper adapter.
- Any properly interfaced parallel printer is optional.

LOADING INSTRUCTIONS

APPLE

1) With the computer off, insert the CARTELS & CUTTHROATS disk into the disk drive.
2) Turn on the computer and the disk will autoboot.

COMMODORE 64

1) Turn on your computer and disk drive; turn on your printer also if you are going to use one.
2) Insert the CARTELS & CUTTHROATS disk into the disk drive and type: LOAD "*", 8 <RETURN>
3) When the blinking cursor appears under the word "READY" type: RUN

IBM

1) Boot up DOS (2.0 and 2.1 versions of PC-DOS and MS-DOS will work).
2) Type<RETURN> when you are asked for the current date and time.
3) What you type in next depends on the kind of computer you have.
   - If you have an IBM PC, PCXT, PCjr, or if you have a Compaq, leave the DOS disk in the drive and type: BASICA
   - If you have a PC-compatible computer that uses GW BASIC, then leave the DOS disk in the drive and type: GW BASIC
4) When you are in BASIC, the prompt will change from 'A>' to 'OK'. If you do not see 'OK', then reboot DOS and try again. If you do see the 'OK' prompt then remove the DOS disk from the disk drive and insert the CARTELS & CUTTHROATS disk.
5) Once the CARTELS & CUTTHROATS disk is in the drive, type: RUN "HELLO" <RETURN>. Make sure that you type in all capital letters and have quotes around the word "HELLO".

THE SET-UP

After "booting" the diskette, a number of preliminary questions will be asked about the type of game you want and who is going to play. (Consult the game manual if you have any trouble answering these questions.) The most important part of this set-up is the scenario for the business environment. This will define the kind of raw material you use, the type of product you produce, and the economic outlook for the next 5 years. There are four types of raw material that vary primarily in the way their prices fluctuate. More crucial to the game is the type of product which can be produced: a luxury, a necessity or a mixed good (halfway between luxury and necessity). The economic outlook includes predictions about inflation, growth of the economy and possible changes (upturn or down-turn) in that economy. Be sure to make a note of all these conditions before answering "Y" to "Is this acceptable?".

SUMMARY NEWS WIRE

At this point in each turn, information is given about the economy and your industry (made up of all the companies in the game). Four economic indicators are normally shown throughout this game. They are:

GNP — Gross National Product, which indicates the total dollar growth in the economy (including inflation).

CPI — Consumer Price Index, which shows the level of inflation.

PPI — Purchasing Power Index. an indicator created specifically for for this game, giving an indication of the "real" growth in the economy (and the potential market for your products), excluding inflation.

Prime (Rate) — the base interest rate on loans taken out during the game.

Besides updating the economic climate, the news wire gives information on topics of interest to your industry. Raw material supplies and prices, government actions, bankruptcy filings, and the results of last quarter's decisions in terms of sales are all presented.

COMPANY REPORTS

Immediately after the news wire, players individually view their performance reports files. These files consist of five standard reports, memorandums from key officers in your company (as needed) and occasional letters from outside the corporation. You can "page through" the material in your file, noting any items useful in preparing your plans for the current quarter. If you work fast, your decisiveness will be rewarded by slightly increased sales. The five standard reports are: the Profit and Loss Statement, the Balance Sheet (with Ratio and Equity Analyses), the Sales Report, the Production Report and the Market Summary. Each of these reports gives a different view of the performance of your company. Together they offer a wealth of information that can be overwhelming (especially in your first game). However, the important point to consider is that all the information is offered simply to aid you in making your plans. Basically, all you need from the reports is whether or not you are making a profit and how to revise your plans from last quarter to improve your performance this quarter.

Although you should read any memos from your staff that are in the file, pay particular attention to the one from your Finance Director. This is the first memorandum after the reports and it informs you of your total funds available. If you spend more than that amount, you will be declared bankrupt.

PLANNING

As president of your corporation your job is to make decisions. The items you enter on the planning sheet represent those decisions. They are as follows:

Raw Material (RM) Purchase: Here you specify the number of raw material units to be bought at the "going price". Unless some unexpected circumstance arises (like a transport strike) you should receive the material in time for this quarter's production.

Production: You specify in this item how many raw material (RM) units to turn into finished goods (FG) units on a one-for-one basis. You may produce up to twice your normal capacity (of 10 units per factory) by paying "time and a half" for all extra production. Costs here depend on the labor rate and the labor units used (automation reduces the labor units required).

Finished Goods (FG) Price: Select the price at which you will sell the company's product. The total finished goods available for sale are made up of all units carried over from last period, plus the units produced this period. The importance of price to sales depends on the product type. (Low price is more important for a necessity than a luxury in determining your individual sales.)

Advertising and Marketing: Here you decide how much money to invest in "pushing" your product in the marketplace. Typical investments range from $100 to $1000 or from 1% to 10% of gross revenues. Such investments carry over slightly from quarter to quarter. (Advertising has more impact for luxuries than for necessities).

Research and Development: Money spent on R&D is an investment in creatinga research breakthrough. These breakthroughsoffer you a chance to invest either in automated equipment to reduce production costs, or in product improvements to increase sales. Two other breakthroughs that do not require any additional funding will either reduce your overhead costs or increase your production capacity. R&D investments compound each quarter to make a breakthrough more likely as long as investments are maintained. Lowering the R&D budget reduces the probability of a breakthrough. (Research breakthroughs are the only way to "differentiate" your product from your competitors'. Such product distinction is more important, in terms of sales, for luxuries than for necessities).

Loans: You may obtain loans by entering the dollar amount desired or you can let your finance director obtain them whenever your cash account is overdrawn. To repay a loan, enter a negative number. The interest rate of your loans will be determined by the prime rate with adjustments for your performance.

Factories: To buy additional factories, enter the number you want on the planning sheet. To sell factories, enter a negative number. Buying or selling factories requires a quarter for implementation.

Special Memos: Send memos to approve expenditures or investments that have been offered to you. Do this by entering the appropriate letter(s) on the special memos line. (Fur instance, an "A" will approve the purchase of automated equipment only when a breakthrough has been made). If you want to send more than one memo, enter the letters (without separation) on one line.

Although all eight of these decisions are important, only the first three (RM purchase, production and FG price) are essential to the existence of your company – without products to sell, you would not be in business very long. Also, unless you are purchasing enormous amounts of raw materials or buying more than one factory, you do not normally have to worry about how much money you are spending, Just concentrate on your profitability and your finance director will watch the cash flow.

STRATEGY HINTS

Generally, you should make small changes to your plans from quarter to quarter. large changes in any of the planning items are less effective than small progressive "improvemcnts".

Since the object of the game is to make profits, you normally mark up your price from cost-per-unit information. However, there are occasions when you sell so few finished goods that your cost per unit sky-rockets. This happens because the operating expense portion of your total costs does not change with the number of units sold. Thus, in some cases you may want to lower your price (even below total costs) in order to sell more units, thereby spreading your operating expense. You will then, hopefully, be reducing your cost per unit to a level below your price.

Since this game is a realistic simulation of the business world, you should expect to have to learn something about economics and business management in order to be successful. Consult the game manual if these instructions were not sufficient. In the long run, however, experience is the best teacher. And after all, IT'S ONLY PLAY MONEY!

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STRATEGIC SIMULATIONS, INC.

TABLE OF CONTENTS

Introduction. 1
Parts Inventory. 1
Game Types 1
Beginners 1
Computer Players.. 1
The Scenario 2
Saving Games 2
Annual and Final Reports 2
Miscellaneous 3

SPECIAL INTRODUCTION TO BUSINESS 3
First Day on the Job.. 3
The Economic World You Live In 3
The Business You Are In ____ _____ 4
Reviewing Your company's Performance. 5
Going to Work: Making Your Plans 8
Summary Remarks. 10

Designers' Notes 11
Model Notes. 11
About the Authors 12
Credits 12
Selected Glossary. 13
Table of Starting Values .... Back cover

INTRODUCTION

Cartels and Cutthroats is not just an exciting game. It is a sophisticated management simulator. In fact, if you are able to master this game you probably have the makings of a corporate manager!

This manual contains both information about how to play this game and a thorough explanation of many of the concepts of economics and business management (see SPECIAL BEGINNER'S REPORT). If you are already fairly familiar with these concepts, read the "Short Rules" card included with this package and get on with a game. Refer to this manual at any time later to confirm your suspicions or clarify certain areas.

PARTS INVENTORY

A. GAME BOX
B. GAME MANUAL
C. 5%" GAME DISC
D. SHORT RULES CARD
C. BUSINESS PLANNING PAD

GAME TYPES

One of the first questions you answer when starting a new game, is what type of game you want to play. There are four types, as follows:

Open Game — In this type of game all of the players sit around the computer and can view each others' reports. After all players have finished viewing their reports, plans are entered. The recommended way to enter the Plans is for one Player to read all of them aloud, while another Player types them into the computer. This type of game is especially good when there are beginners playing.

Closed Game In this type of game, players individually use the computer to view their reports and enter their plans in confidence. Place the computer so only one Player at a time can see the screen during the viewing and Planning phase. However, viewing the News Wire and Annual Report should be done with all players together. Thus, you will have to use a little imagination in setting up the computer and the video monitor (or TV). This type of game is more realistic and challenging since each Player has limited knowledge of what the competition is doing,

Hard-Copy Game - This type of game requires a printer that is properly interfaced for your computer (see the hardware requirements for your computer on the Short Rules card). All reports are output to the printer for distribution to the players. If this type of game is combined with the "save game" feature, then a classroom set-up is possible. Fur instance, a game can be Played at the office if you bring the reports in each morning and pick up the plans each afternoon. (This assumes your computer is at home and that if you're one of the players, you can find someone else to enter the plans. Otherwise you would have an unfair advantage.)

Beginner's Game — 'The beginner's game is an Open Game with several other options already selected for you. This simplifies start-up by reducing the number of questions you have to answer. In addition, the economic environment of the beginner's game stimulates growth, Random chance (luck) is also increased to make skill less essential.

BEGINNERS

For your convenience, Cartels and Cutthroats has several special features for beginners. There is the Beginner's Game mentioned previously, that Provides a simpler start-up procedure.

Besides a beginner's game, Cartels and Cutthroats also includes a feature that permits individual players to be specified as beginners (regardless of the type of game selected). This Provides beginners with: more time to view their reports, some salesadvantages, a reduced chance of bad luck outcomes, and a market analysis memorandum. This last feature consists of a memo from a "special advisor" who will give hints on how to increase Profits. Generally, these advantages granted beginners should be enough to help them stay in the game but shouldn't make them win against experienced Players.

COMPUTER PLAYERS

You may create additional companies that will he managed by the computer. These "Players" will follow simple strategies that normally won't win games. However, if you have fewer than three human players, the computer player(s) can make the game more interesting.

THE SCENARIO

All of the specific aspects of the game you are going to play are described in the scenario. It gives the type of product you produce, the kind of raw material you use, and the economic outlook for the next five years. Each of these aspects can be individually selected as follows:

Product Type: There are three general product types that represent stereotypes for general classes of products: neccessities, luxuries and mixed goods. Only one type may be selected per game.

Necessities are products that consumers need in certain quantities. They will generally pay higher prices if necessarv to obtain the units they desire, but they won't buy significantly more units even if the price drops. Thus, total revenues (of all the companies added together) will decline if the average price drops and will increase if the price goes up. However, if an individual company lowers its price relative to the competition, it should sell significantly more product. The reason is that price is the most important consideration to consumers as they choose among competing necessity products. Thus, neccessities can lead to extreme cutthroat competition but they also make price-fixing cartels very profitable.

Luxuries are products that consumers buy out of their disposable income. If the economy grows, they will buy considerably more units. They will buy much less if the economy drops. Given any particular economic situation, a drop in the average price will cause total revenues to increase, whereas a rise in price will cause them to decrease. However, for an individual company's sales, price is less important than advertising and other considerations. Luxuries therefore cause less intense price competition and don't normally encourage cartels.

Mixed goods arc halfway between luxuries and necessities. Regardless of whether the average price goes up or down, the total revenues will remain about the same. (This is called "unit elasticity" in fancy economic terms). All other aspects of competition for mixed goods are also halfway between luxuries and necessities.

Raw Material Type: There are four types of raw material that vary in terms of price fluctuations and availability. There are: those for which prices are stable based on abundant supplies; those for which prices fluctuate unpredictably based on world-wide supplies; those for which prices fluctuate seasonally, with the third quarter offering the lowest prices; and those for which prices are directly influenced by your industry's total demand on your few suppliers. In all but the last type, the price is predicted for the current planning period. For the "prices influenced by demand" type of raw material the current price is calculated as soon as all orders are in. In that case you only know the price after you purchase. Disrupted supplies can also occur with all but the first type of raw material (abundant supply type).

Inflation: There are four levels of inflation that describe the annual rate of change in the Consumer Price Index (CPI). These levels range from 1% to 15% as follows: very low (l%), controlled (5%), high (10%). runaway (15%).

Base Economic Change: This item reflects the overall annual growth of the economy (excluding inflation). This rate of growth can take the following levels: slow decline (-5%), stagnant (0%). slow growth (5%). strong expansion (10%).

Note: The annual percentages given for inflation and the economy are estimates, since the actual values can vary anywhere within their total ranges.

Economic Swings: In addition to the basic level of change, there is also the possibility of further changes in the economic rate of growth. These changes can take the form of an up-swing. down-swing or no swing. In addition, swings have a variable probability of happening and variable maximum effects on the economy. Finally, each swing is followed by a recovery in which the economy attempts to return to its original rate of growth. But there are no guarantees concerning whether a swing will happen, how long it will last, or how closely the economy will return to its original rate of change.

Impact of Chance: This item indicates the game's level of variability. Generally, the greater the impact of chance, the lower is the realism. The impact of chance can take the following levels: slight, moderate, significant and wild. The last level creates an exciting and playable game that does not put much emphasis on skill. (It is therefore the level chosen for the beginner's game).

Note: There are certain combinations of the economic options that can create absurd and nrealistic environments. In general, do not specify scenarios with all items set to their extreme values.

SAVING GAMES

Each turn allows you an opportunity to save the current game in progress. In order to save the game properly, you must have an initialized save-game disk. The Commodore 64 version will allow you to make the disk during the game, if you haven't made one before you began the game. If you have an Apple, you must allow the game to initialize a save-game disk for you (the game will ask you if you want an initialized save-game disk after you choose to save a game). Apple owners, please remember that a disk initialized on *DOS 3.3 will not work.* IBM owners must format a save-game disk with the DOS disk before starting the game (the game cannot format the disk for you).

Once you have the appropriately initialized disk you will then be prompted to insert it into the disk drive and give the saved game a title. At any time later, you may resume a saved game by answering "N" to the question, "Do you want to start a new game?". You will then be asked to insert the disk with the saved game and to enter its name. In all cases, saved games will resume at the point where plans are entered. Thus, players must fill out their planning sheets before the game is saved and must retain those plans until the game is resumed.

ANNUAL AND FINAL REPORTS

Each year, after the fourth quarter performance has been reviewed, an annual report is presented. This report shows the current ranking of all players by equity growth, by percent income per dollar sales, and by total units sold. A second page of the report gives the percents that each cost and income item represents of total revenues. This page can be very useful in discovering how different strategies compare.

An identical report is prepared at the end of the game. Although the winner is the player who ranks highest in

equity growth, other players may take consolation from their rankings in the other categories.

MISCELLANEOUS

For the sake of realism, all dollar figures given in the game (except costs per unit) may be thought of as having three zeros omitted. **In** other words, where the game shows $10,000, it could be thought of as $10,000,000. (Also, the number of units sold would be 20,000 instead of the 20 units the game displays). However, once you accept the realism of the game, it is probably less confusing to deal with the values displayed by the game exactly as they are given.

The title of this game, Cartels and Cutthroats, was not arrived at by random selection. Cutthroat competition and price-fixing cartels are the two extreme strategies used in industries where there are a limited number of companies (oligopolies). Thus, even though most forms of competition fall somewhere between these extremes, the title of this game can be a constant reminder of the extreme options available to your industry.

One of the questions you will be asked to answer in the set-up of a game is "How many quarters do you want to play?". The minimum length of a game should be eight quarters. This is just long enough to try out some of your strategies. The recommended game length is five years or 20 quarters. The model was designed with a game of this length in mind. The maximum game length recommended is 10 years or 40 quarters. Strange things may happen to games running longer than ten years [such as a total deterioration of the economic scenario). There is another way to determine how long a game will run: Specify the length as longer than you anticipate playing and simply stop the game (by typing "Q") at a certain predetermined time (like midnight).

SPECIAL INTRODUCTION TO BUSINESS

FIRST DAY ON THE JOB

New President
First Day

Good morning. And congratulations on your first day at work — running the company your father bought you for your birthday. He wants you to learn about business first hand As hi8 executive secretary, my assignment is to prepare a "crash" course report for your first day on the job.

I have attached an outline on business and the operations of this company. Knowing that you majored in art and sociology, and never learned to balance your checkbook, I have kept this report very simple. If, however, you feel confident to begin making decisions, you can skip my report.

Remember that, although your father wants you to learn about business, he doesn't believe in losing money. If he sees your company in danger of going bankrupt, he will step in and place you back on your old allowance.

Sincerely,

Meg A. Bucks

Ms. Meg A. Bucks
Executive secretary

THE ECONOMIC WORLD YOU LIVE IN

Although you have successfully hidden from it so far, you should know that there is an "economic" world that makes capitalism work (and has payed your allowance all these years). Economics can sound like alphabet soup, but these initials are important: GNP, CPI, and PPI. 'Together with the Prime, they are as important to good planning as your Racing Form is to betting on the horses.

GNP

This is not a gasoline additive; it stands for the Gross National Product. (Gross indicates "total" and is not a judgement of product quality). Thr GNP is a measure, in dollars, of the total market value of all goods and services produced by the **economy** during the last period. Market value is simply the price tag that final consumers pay. ln order to avoid double-counting, GNP counts only final goods. But because the GNP is based on current prices, its value will be inflated by the current inflation rate. The important aspect of GNP is its change each period. Your company reports will keep you posted on the GNP and its changes.

If the GNP is going up, more people are producing, as well as receiving paychecks and profits. With this increase in income, people will buy more — more money for horse racing, disco dancing, and (of interest to you as president) more of your product. As you may suspect, the GNP is not always cooperative. It's been known to decline. You have heard of recessions and depressions? These represent GNP declines. Don't overproduce or build factories in a declining GNP.

CPI

The CPI is the consumer price index, which provides a measure of inflation. You are certainly aware that it takes more dollars to buy the same amount of consumer items each period. This "general" rise in prices is what is

measured by the CPI. The CPI parallels increases in your costs for items like raw materials and labor. Your costs generally rise with the CPI, but so does the willingness of consumers to pay higher prices for your product. The CPI then, just "ups the ante" for everyone. Don't become excited if profits go up during inflation. You have to grow faster than inflation to be truly profitable.

PPI

The PPI (Purchase Power Index) indicates the growth of the economy excluding inflation — in other words the "real" gain in consumer buying power. The government publishes the GNP and CPI, the marketing department uses this information to calculate the PPI. Since the PPI removes the CPI (inflation) from the GNP (economic growth), it is very useful. In addition, the PPI is calculated with a starting base of 100 when you begin. For these reasons, the PPI (and its change from quarter to quarter) is the most useful of the "indicators" for planning production and expansion. You must deal with "aggregate" (overall) indicators because your final consumers are dispersed, and are influenced by the general trends of the economy.

Prime

"Prime" is short for the "prime interest rate". The Prime is the rate bankers charge for loans to their "best" customers — seldom us. More importantly, the prime indicates the availability and cost of funds for expansion. The company's interest rate will be the prime plus a premium. That premium varies, depending on the bank's assessment of the company's operations. The catch 22: if your profitability declines, the bank increases the interest charge, profitability declines further, and so on.

This concludes the general overview of the economic environment. I will provide more details on the environment as we review your company's reports. Overall though, economic trends provide you with "general" readings. You will make "fine-tuning" adjustments after reviewing the company reports.

THE BUSINESS YOU ARE IN

You are in the business of taking in raw materials and manufacturing finished goods for sale. Viewed as a process, the company transforms inputs into outputs of greater value (the price exceeds the cost per unit), as illustrated in figure 1.

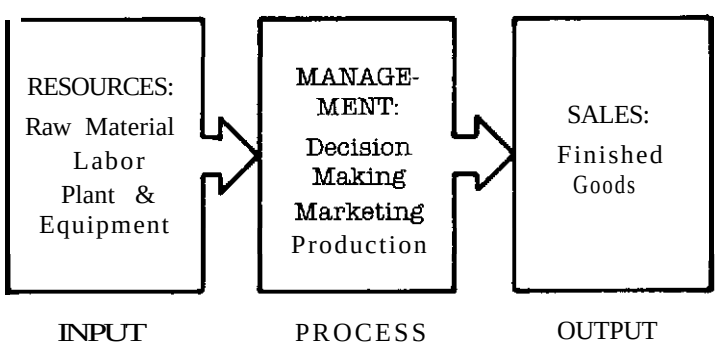


FIGURE 1. Simplified view – Production Company

There are three product types that the company could produce: luxury, mixed, or necessity goods. Once the product type is selected, it cannot be changed, and all of your competitors will be producing the same type of product. Thus, you will be competing "head-to-head" for a share of the available market.

CONGRATULATIONS!

You have acquired a manufacturing company that makes a product considered a luxury by most consumers.

Your raw material prices fluctuate unpredictably according to world-wide supplies.

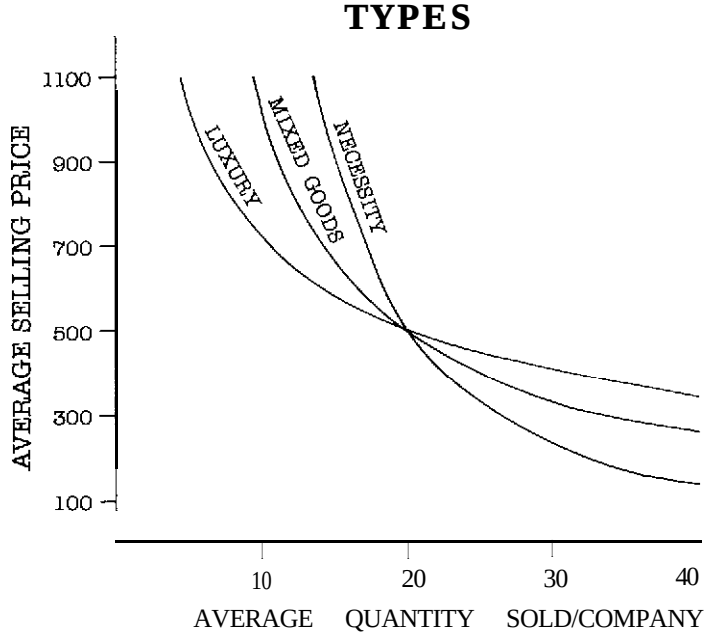
The economic outlook for the next five years is for slow growth in the Gross National Product (GNP) with an additional economic up-turn likely some time in the future.

Inflation, as measured by the Consumer Price Index (CPI), is expected to continue at a controlled level.

In addition, the impact of chance on the company and the economy should be significant.

The product type, therefore, has important consequences for strategy. For example, advertising is more effective for a luxury product, whereas price is the key element for a necessity good. The sale of luxuries is hurt the most by a GNP decline, but luxuries have the greatest growth during PPI expansion. The opposite is true for necessities. Thus, your strategy for competing for sales and profits must be based on the type of product you have to sell.

ESTIMATED DEMAND CURVES FOR GENERAL PRODUCT TYPES



REVIEWING YOUR COMPANY'S PERFORMANCE

Your role is to make decisions. These are recorded on a company Planning Sheet. Before making decisions, you should review the company's quarterly reports. I have reproduced last quarter's reports along with a brief discussion of their use.

Summary News Wire

The first report you receive is the Summary News Wire. This is not a report in the normal sense, but it provides you with your first hint about operations in the previous quarter. The Summary News Wire lists the actual GNP, CPI, and PPI statestics for last quarter: It also lists the number of units sold, the price, and the total revenue of each company in the industry. Finally, the price of raw material units is listed.

The Summary News Wire is a special report because it is supplied to all the companies in the industry. The information given here is also available in your own company reports. Special notes are occasionally attached to the bottom of the Summary News Wire (usually on government actions that affect the industry).

Profit And Loss Statement

WHEELER DEALERS INC
PROFIT & LOSS STATEMENT FOR l/2

	$	%tl	$/#	%ch
Revenue	12,625	100	505	0
COG Sold	4,800	38	192	11
Overhead	1,630	13	65	10
Adver & Mrkt	600	5	24	20
Resr & Devlp	500	4	20	0
Depreciation	400	3	16	0
Misc Expense	0	0	0	0
Oper Expens	3,130	25	125	2
Interest	358	3	14	12
Taxes	2,067	16	82	21
Total costs	10,359	82	414	3
Net Income	2,266	18	91	20

The Profit and Loss Statement is the first company report you will receive. A profit and loss statement is a flow measurement of wealth over a "period of time". The four columns of the Profit and Loss Statement provide:

1) The total dollar amount of activity for each line item.

2) A percentage breakdown for each line item. Sales revenue is 100% and each item below is shown as a percent of revenue.

3) Average cost per unit (total dollars divided by the number of items sold).

4) The percent change of each line item from the previous period. (If the previous amount is zero, a double arrow is shown since the percent change would be infinite.)

This format provides valuable planning information; for example: If total costs are averaging $400 a unit when 20 units are sold, lowering the selling price below this would not keep you in business very long.

The profit and loss statement orovides "the bottom line" so frequently referred to. The first line of the Profit and Loss Statement is sales revenue, the last line is "et income (or loss). All the lines in between are expenses or costs of doing business. Most of these costs don't need a" explanation. The expense amounts relate directly to your decisions on the Planning Sheet. However, one Item deserves special discussion — the Cost of Goods (COG) Sold. COG Sold is calculated from Cost of Goods Produced (not shown), and I begin my discussion there.

The Cost of Goods (COG) Produced consists of raw material, labor, and any storage costs. Storage costs result if you hold raw material units in inventory from period to period. Calculating raw material costs used in production is a simple addition and subtraction procedure: Add raw material purchases to the starting inventory, and then subtract out the ending raw material inventory. The remaining amount plus any storage cost is the value of raw material used in production. Direct labor is now added to raw material value. Direct labor costs are based on wage rates, production scheduling, and percent automation (see PRODUCTION). Raw material value and labor costs used in production are known as prime costs. Prime costs make up COG Produced. Profitability increases as prime costs are kept down.

Next, COG Sold is calculated from COG Produced. They differ when you produce more than you sell. Unsold finished goods are listed in inventory and are not "expensed" until they are sold. The storage charge is added to finished goods value. A similar addition and subtraction process is used for COG Sold. Add the COG Produced to the start value of finished goods, then subtract the end value (from the balance sheet) of finished goods inventory. The result is COG Sold shown on the Profit and Loss Statement. You may now realize that the one line, COG Sold, represents numerous policies (for example, both raw material and finished goods inventory policies). The unit cost of COG Sold should be well below the selling price to allow for overhead, other expenses, and of course profit.

Balance Sheet

WHEELER DEALERS INC
BALANCE SHEET FOR 2

Cash	6,549	Loans	7,000
Invent.	450	Liabil.	7,000
Bldgs.	31,200		
Aut. Eqp.	0	Equity	31,154
Assets	38,154	Lia & Equ	38,154

The balance sheet is a very important company report. It provides information on the composition of the

firm's assets (on the left), as well as the composition of the claims on those assets, liabilities and equity (on the right). The balance sheet represents assets and claims at a particular point in time, like taking a photograph. The amounts invested in each asset category (cash, inventory, factories, etc.) are the results of past decisions. Your decisions will further alter the asset values and their mix. For example: building another factory, stocking up on raw material, or paying on a loan would all change various asset values.

The balance sheet items provide the "limits" for planning next period's production. The company's cash, inventory value, and automation and building value are shown. Production or expansion cannot take place beyond the "ability" represented by the balance sheet accounts.

'The right side of the balance sheet represents the claims on your assets (from the bank and your family). The loans, or liabilities, are the bank's claims on your assets. The ratio of liabilities to total assets is important. As this ratio increases, the risk of bankruptcy also increases, particularly during a declining sales period. The other "claim" on the right side, equity, is your "net worth" in the firm. As you know, your father expects this account to increase since it represents part (even if small) of the family's wealth. Finally, as you noticed (I hope), combining liabilities and equity "balances" with total assets.

Two small reports are included with the Balance Sheet report because they highlight balance sheet relationships.

The first one is called Ratio Analysis. Three percentages are calculated: income divided by assets, income divided by equity, and loans divided by assets. The first two are useful in analyzing the rate at which the company is creating income. Any difference between these two will be due to the "leverage" created by using the bank's money (in addition to your own) to make your income greater. The third ratio gives some additional insight into the firm's leverage since it is based on loans divided by total assets. As this percentage goes higher, so does the earnings/equity. But if your loans become too large a portion of your assets then you run a risk of bankruptcy. As you gain experience, these ratios can be increasingly useful in analyzing your company's financial situation.

The other area on the Balance Sheet report is called Equity Analysis. This summarizes the relationship between the Profit and Loss and the Balance Sheet Statements. The bottom line net income from the Profit and Loss Statement will increase the equity of the Balance Sheet by the same amount (or decrease it with a loss). Visualize the equity measurement as gallons of water in a bathtub (figure 2). Sales revenue flows into the tub throughout the period from the faucet (hopefully turned up high). All costs (expenses) of doing business will be represented by a series of drains (hopefully small) that take water from the tub. Because your business is an ongoing enterprise, this process is continuous. However, since you desire periodic measures of the results of the in and out flow of water, you photograph the level (construct a balance sheet) each quarter. The change in water level is precisely the amount of net income (the excess of the faucet water over that escaping down the drain). Why not shut off the faucet, stop the drains and relax in a bath?

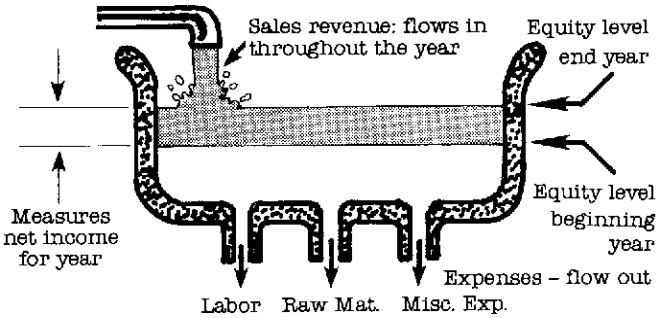


FIGURE 2. Simplified relationship – income statement to balance sheet using bathtub.

The water in the tub (your equity) would still decline through evaporation (depreciation of your fixed assets).

I hope you stayed with me through this extended analogy. I have tried to illustrate an essential relationship between the Balance Sheet and the Profit and Loss Statement. Any other description is just so much bubble-bath, designed to obscure the level of water in the tub.

Although Equity Analysis is a simple calculation, it is an important reminder that the decisions you make are all condensed into one figure that increases (or decreases) net worth. Your goal is to increase equity to the limit of your ability!

Sales Report

SALES REPORT

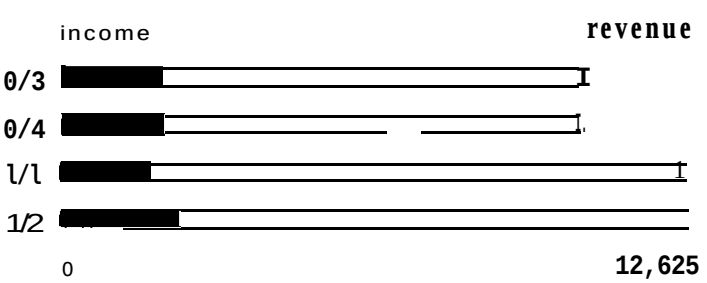
SALES ACTIVITY 1/3

	units	%ch
Available for Sale	25	0
Total Demand	33	32
Units Sold	25	0
Unsatisfied Demand	8	

CONSUMER PREFERENCE ESTIMATES

	market rank	% sales caused
Price	3	35
Advertising	1	35
Product	6	0
History	2	12
Other	1	18

PERFORMANCE CHART



The Sales Report provides information on the effectiveness of your sales efforts. It is divided into three sections: sales activity, consumer preference estimates, and a performance chart.

Sales Activity: Sales activity shows how well you balanced product available (supply) with product desired (demand). When you supply more than consumers desire, the surplus is listed as excess units. If the number of excess units increases, adjustments on your next plan should be made (lower your price, cut back on production, increase your advertising or improve your product). Small excess unit amounts **can** be ignored. The opposite of **excess units** is excess demand. Excess demand occurs when total demand is greater than product available for sale (supply). Turning customers away because of excess demand creates ill will towards **the** company (negative advertising). Your next plan should try to bring supply and demand **back** into balance.

Consumer Preference Estimates: Consumer preference estimates provide a useful insight into the causes **of the company's** sales. Five variables that cause sales are **shown,** with an estimate of the percent sales caused by each. Also, each variable is ranked in the industry for its favorable effect on sales. (For example: the lowest price is ranked first, while the highest advertising is also ranked first).

Performance Chart: The performance chart is a graphic comparison of revenue and income for the last four periods. Trends can quickly be identified with this chart.

Production Report

PRODUCTION REPORT

RECENT PRODUCTION COSTS

	$	#	$/#	%ch
RM Storage	**0**	**0**		**0**
RM Purchased	**1,080**	**40**	**27**	**461**
FG Storage	0	0		0
Direct Labor	**4,125**	**25**	**165**	**0**
Prod Overhead	**620**	**25**	**25**	**221**

CURRENT INVENTORY

	units	warehs	%full
Raw Material (RM)	15	**2**	**75**
Finished Good (FG)	0	0	

RECENT LABOR		**CURRENT PLANT**	
Rats Payed	**8.25**	Factories	**2**
# Employees	1000	% Automated	0
		Nrml Capacity	**20**

While the Sales Report summarizes company effectiveness (revenue and income), the Production Report provides insight into business efficiency (low cost production). There are four sections of the Production Report.

Recent Production Costs: Four columns provide detailed information for tracking production costs: total dollars, total units, cost per unit, and percent **change from** the previous period. The last column, percent **change,** allows you to quickly see the effects of any strategy on production costs.

Current Inventory: Information on both raw material and finished goods is shown in the current inventory section of the Production Report. In planning production, you must know the current raw material inventory. A rising finished goods inventory may indicate corrective action is needed (lowering price, increasing advertising, cutting back production, etc.). The "percent full" of inventory. warehouses should be checked for storage efficiency.

Recent Labor: The Recent Labor Report tracks components of your labor costs: labor rate, number of employees, and number of hired (or rehired) employees. Sales effectiveness may require production **above normal** capacity, but the effect on wage rates should be noticed. Laying off and rehiring employees adds to costs. **Steady** production at normal capacity is the most efficient (least cost per unit).

Current Plant: Current plant contains normal capacity and percent automated information about the company's factories.

Market Summary Report

MARKET SUMMARY

	#sold	price	revenue	%mrkt
WHEELERS	25	**505**	**12,625**	**19**
DEAL LTD	**2 0**	**500**	10,000	**15**
BETTER	**22**	**497**	**10,934**	**17**
GONNAGET	21	**520**	**10,920**	**17**
BIG DEAL	**20**	**524**	**10,480**	**16**
JJ & CO	**20**	**510**	**10,200**	**16**

estimated.

	0/4	1/1	1/2	l/3	%ch
GNP	**2620**	**2691**	**2763**	**2824**	**2.2**
CPI	**236**	**240**	**244**	**247**	**1.2**
PPI	100	101	102	103	1
Prime	16.8	16.1	15.9	15.7	1.31
Ttl Sold	120	132	128	131	**2.3**
Av Price	**500**	**508**	**509**	**515**	1.2

New Factory Cost	16,320
Next RM Cost/unit	**80**

The last report in your file is the Market Summary report. Don't throw it away, it's not that complicated. The top of the Market Summary Report displays the units **sold, price,** revenue, and market share of each company in your

industry. This is where you size up the competition. Be sure to check where your price **ranked among your** competitors. 'The next **section of the** Market Summary report provides a repeat "glimpse" of economic conditions and the previous performance of your industry, as well as projections for the remainder of the present quarter. The GNP, CPI, PPI, Prime, Total # Sold, and Average Price are given as separate lines. For each of these lines, a number of columns display their changes over time. Starting at the left, the first column past the names gives the values as of the end of the period three (3) quarters earlier. The next column similarly shows **the** data for two (2) quarters previous, followed by the column for the last period. The next two columns are estimates for what "should" happen during the period for which plans are being made. The last column is the percent change between the values for the previous period and the projections for this planning period. Finally, the Market Summary Report lists the cost of constructing a new factory during this period, and the price of raw materials per unit. (If you build a new factory it will not be ready for producing until the following period, since one period is required for construction.)

Memorandum And Letters

MEMORANDUM

TO: DANIEL P. BUNTEN, PRESIDENT

FROM: Finance Director

DATE: 1/3

SUBJ: Requested Change in Loans

As per your instructions I repayed $2000 of our loans.

I have also been informed that the interest rate on our outstanding loans will be decreased from the present rate of 16.1%. This change was mainly caused by our assets/liability ratio.

The annual rate on loans totalling $7000 will be 15.9%. Our quarterly interest payment will now be $278.

Our guaranteed line of credit for this quarter is $27300. Together with our current cash, we have access to total funds of $33849.

MEMORANDUM

TO: DANIEL P. BUNTEN, PRESIDENT

FROM: Director of R&D

DATE: 1/3

SUBJ: Research Breakthrough

We have discovered a method of using automat.& equipment that will reduce our labor cost by 10% for an investment of $1590. At our present production rate and costs this investment will be recovered after only .9 quarters. Send a memo to 'A' to approve this automation proposal.

We have also developed an improved product design that the marketing department believes will increase our sales by 15%. The total costs for changing over our facilities to produce this improved product will be $1100. send 'P' a memo to approve this change.

At various times your company's department heads will send memorandums (memos) to you. These either ask for direction (see SPECIAL MEMOS) or provide information. There is one memo that is so important to your corporate survival that you must consult it before making any plans. Your Finance Director informs you each period of the total funds that are available for the planning period. If the amount you spend, minus revenue, exceeds that figure, you are bankrupt! Although the consequence of overdrawing your credit is extreme, you don't usually have to be too concerned with each cash outlay for labor, interest, warehouse rental, etc. Just don't **buy** to" much raw material or too many factories and you should remain solvent.

There are also rare letters that come from people outside the company offering you options. Your response to these and any other alternative is made through the Special Memos section of the Planning Sheet.

GOING TO WORK: MAKING YOUR PLANS

Now that you have **reviewed** the performance of the company **and** analyzed the economic climate, it's time to go to work. For the company president (that's you!), work consists of making decisions on **next** quarter's operations. A Planning **Sheet is** provided for you to record your decisions on eight aspects of company operations. 'These plans will be implemented for you (that's the advantage of being president). Your company's performance is based on these plans. If the decisions are poor, you have **only** yourself to blame (the disadvantage of being president)! Adopt a general strategy to guide your plans (price leader "I follower; high mark-up, low volume; low mark-up, high volume; product improvement and efficiency; advertising leader; etc.). If you have poor results, adjust your strategy. Many different types of strategies could be profitable, however your strategy must acknowledge the economic environment and the strategies of the competition, to remain successful. For example, a strong expansionary strategy (building factories, large inventories, and high volume sales) will fail during an economic downswing. Sales will fall and fixed costs per unit will increase. So pay attention to the economic forecast. 'The company's planning sheet requires the following eight decisions from you:

RM Purchase

Enter the number of raw material units you want purchased this period. The choice ranges from 0 to well over 100. Raw materials arc converted into finished goods by your factories each period on a one-for-one basis. A factory can produce a maximum of 20 finished goods per **quarter (you have two** factories to start with). However, the "normal capacity" of each factory is 10 units. Producing over 10 requires wages to be paid at time-and-**a-half,** (see PRODUCTION).

The **number** of units you purchase should depend on the cost of raw materials, production plans, current

inventory of raw materials and financial resources.

If the price of raw material is "relatively" low it may be advisable to stock up for two or more production periods. This is especially true in an inflationary environment with raw material prices fluctuating. During the first quarter for which you will plan, raw materials will be $50 per unit (a relatively "normal" price). Buying to match your production plans is always safe at this price.

Raw materials must be available to meet your production plans. There is no wastage in producing finished goods. If there are no raw material units in inventory, you must purchase at least the units necessary for your planned production.

Buying more units than you plan to produce in the same quarter will place the excess into raw material inventory. These units will then be available for a later period and allow you to reduce the impact of a raw material shortage. There is a storage cost for these units. A warehouse rents for $40 per period (initially) and each unit in the warehouse costs $1 in storage fees per period. Each warehouse can hold up to 10 raw material units. (Similar costs and restrictions apply to warehouses containing finished goods. Check the table provided on the back of this manual.) Storing a small number of raw material units in a warehouse is uneconomical. You can check your efficiency in storing both raw material and finished goods by looking at "warehouses rented" and "%" full" items on the Production Report.

Finally, as mentioned, your raw material purchases are limited by your financial resources (cash and pre-approved loans). Don't overextend your resources (unnecessarily increasing bankruptcy risks) to carry an excessive raw material inventory.

In the past, raw material embargos and shipping strikes occurred infrequently; but as everyone knows, times have changed. Occasional "stock ups" when the price is low will reduce the impact of such supply disruptions.

Production

The number of units the company is to produce is the next item on the planning sheet. As mentioned, each factory can produce up to 20 units of finished goods every quarter. Up to 10 units (normal capacity) are produced at a standard wage rate determined by your labor contract. Produce over ten, and you pay "time-and-a-half" (50% more than standard) for each unit in excess of ten. In addition, each change in the number of units produced causes a change in the number of workers needed (since we add a shift for any production above the normal level). Each worker recruited and hired adds $1 to your overhead for that period. Each worker "laid off" costs $0.50 in severance pay. You can eliminate these costs by scheduling production at a constant level. Producing less than ten units in a factory is inefficient (expensive per unit). Fixed costs are spread into less units, which increases cost per unit. This cuts the profit margin unless your price is raised (which may not be competitive).

Temporary production plans for above-normal capacity are sometimes justified. Such decisions arc sound if the units can be sold at a price above the new cost per unit. This is called "marginal analysis". It is economical to produce another unit if the additional revenue exceeds the additional cost. However, consistent production above normal capacity increases the probability of a labor strike or an equipment breakdown. Building another factory (if money is available) would be better than continually over-producing.

The company's factories are not currently automated. Investment in R&D (research and development) provides the opportunity for a breakthrough that allows you to invest in labor-saving automated equipment (see RESEARCH & DEVELOPMENT and SPECIAL MEMOS).

FG Price

The selling price for finished goods is the third item on the planning sheet. All eight planning sheet decisions are important, but none more so than setting your product's price. Too high, and your production won't sell; too low and your revenues (and profits) drop.

When the selling price is too high to clear finished goods, the cost per unit rises, reducing the profit margin (the mark-up of price over cost). Cost per unit is of two types: variable and fixed. Each unit produced contains variable costs: labor and raw material. The total of these costs "vary" directly with the total number of units produced: twenty units use twice the raw materials of ten. The other component of total costs dues not vary with the number produced but is "fixed" for the quarter. These costs (also called period costs) will be the same regardless of the number of units produced and sold. For example, depreciation, advertising and administration do not vary with production. If only one unit is produced and sold, fixed costs are divided by one to arrive at the cost per unit. By selling more units, the fixed cost per unit decreases, thus reducing total cost per unit. You should aim to select a pricing strategy that consistently clears finished goods.

A price below the "market price" may create excess demand (more buyers than product available). Customers are turned away when finished goods are not available, creating ill will toward the company; and reducing total revenue (a higher price could have been charged and still cleared finished goods). This ill will must be overcome through advertising and a product history of available finished goods to all customers.

The Market Summary report predicts the price that should clear the industry's finished goods. Your price may vary from this market price depending on your advertising budget, product improvements and other reasons. But don't vary far without justification.

Advertising And Marketing

The fourth item on your planning sheet is the advertising budget for the upcoming quarter. In general, advertising allows you to sell your product at a higher price, and tends to expand the potential market over time. Advertising's effect will vary depending on various factors (for example: the product type, and the competition's level of advertising).

The product type is important in deciding on your advertising budget. As has been previously mentioned, the three product types are: luxury, mixed, and necessity goods. These three types provide useful characterizations, although the distinctions are not precise. Advertising is most effective with luxury, moderately effective with mixed, and least effective with necessity goods. Thus, luxury goods justify the highest advertising budget.

Average ranges (shown as a percent of sales revenue) for different goods are: luxury 5510% mixed 3-6%. necessity l-3%. Each quarter, the Sales Report estimates the percent of sales caused by advertising.

The benefit to sales from advertising can be lost by poor decisions in other areas. Advertising is wasted if the product is unavailable because of stock outs. Also a poor pricing record (erratic jumps) can offset advertising gains. In short, advertising increases good performance but can't "buy off" the damage of poor decisions. Experiment with advertising, and watch what the competition is doing. Remember, though, there is an economic limit to advertising's benefits. If advertising cost per unit exceeds the increase in price it supports, reduce your advertising. Don't worry about precision, your rough guestimatc should do and will improve with time.

Research And Development

The fifth planning decision is the company's R&D budget. This budget is optional. R&D expenditures arc made to gain breakthroughs of two main types: productivity improvements that lower production cost, or product enhancements that improve sales.

Cost-lowering breakthroughs come mainly in the form of automation opportunities. Automation of your factories reduces labor costs. When a breakthrough occurs. a memorandum is sent with your quarterly reports. The memo outlines the cost, payback, and benefit of the automation breakthrough. If you decide to invest in automation, you send instructions by Special Memo.

Product enhancement discoveries are also possible through R&D investments. Product enhancement allows you to "differentiate" your product from the competition. Customers arc attracted when you improve your product, increasing your market share.

There are two other productivity breakthroughs that are rarer. Neither require further investments. One lowers production overhead and the other increases maximum production output per period.

Investing in R&D will not insure breakthroughs, although the probability increases as the investments are maintained quarter to quarter. Investments in R&D in the past averaged about 5% of sales. It is far better to invest a small amount in R&D consistently than a large sum occasionally. Whenever you reduce your R&D expenditure your chance of a breakthrough is significantly reduced.

Loans

Loans arc the sixth decision on your planning sheet. If you wish a loan, enter the amount desired in this category. You can borrow up to the pre-approved limit (based on a percent of your assets) that is listed in a memo from your Finance Director. Except for emergencies, it is better to use loans for funding factories only, not for operations (raw materials, wages, overhead, etc.). Large loans increase the risk of bankruptcy, especially if sales decline. Bankruptcy occurs when you spend beyond your line of credit plus cash and income.

Emergency loans will bc handled for you by the Finance Director (if you have prc-approved funds remaining). You will be advised by memo of any emergency loans.

The interest rate is your cost for using borrowed money. The bank will make a judgement on your company (based on existing loans, cash flow, etc.) and adjust your interest rate from prime. Poor performance increases the risk of bankruptcy, and thus increases the premium you pay over prime.

Loans may be repaid by entering a negative amount on the planning sheet. If a partial repayment is made, the balance will be refinanced with the new rate representing current prime plus the bank's (reassessed) premium. Refinancing occurs regularly, since the bank evaluates quarterly all loans outstanding.

Factories

'The seventh decision on your planning sheet concerns factories. If you order a new factory, it is available for production the next quarter after the current planning period (construction takes one quarter).

When the economy is growing, new factories may increase revenue and net income. As production increases, fixed costs are "shared" by more units, reducing cost per unit, raising the profit margin. However, in an economic downswing or sales slump, an extra factory's overhead (fixed expenses and interest) will reduce profits and, in the extreme, risk bankruptcy. It you can consistently produce and sell above normal capacity, building a factory is justified. Howcvcr, if a downswing causes cash flow problems, don't hesitate to sell off an extra factory (by entering a negative number on the planning sheet). You will receive book value when selling a factory (cost less accumulated depreciation).

Special Memos

The last decision on your planning sheet is whether to send special memos to company departments. These memos are always in response to memos or letters you receive asking for direction or authorization. By entering the appropriate response you will authorize the special activity or investment. Leaving this section blank always indicates "no action". For example, placing an "A" in special memos will authorize investment in automation (if you have received a request to authorize the expenditure).

You have now concluded your plan. Your directives will be implemented. There is room on the planning sheet to note the results of your decisions in terms of sales and income. Other blanks allow you to track items of personal interest (for example: cost per unit, PPI forecast, raw material cost, etc.). Noting results and items of interest will make the next quarter's plan easier to complete.

The planning description may sound complicated. Howcvcr, it gets easier each quarter. Don't be overly cautious. Usc your own judgement. Remember the market rewards the entrepreneur! A summary review and a few hints will complete this report.

SUMMARY REMARKS

In review: Your role as company president is to make decisions. 'These decisions are made on eight aspects of company operations. Each quarter, results are reviewed, and the same right decisions are remade.

The only evaluator of your decisions is the marketplace. It rewards good decisions with profits. Poor decisions will result in losses or bankruptcy. The marketplace is objective — it doesn't look at intent, but

results. Decisions are judged good or bad, based on their results.

The company owns factories, hires labor, and processes raw material into finished goods. Finished goods are sold in competition with other companies' products. All companies have similar constraints and opportunities. Each makes the same basic decisions. A balance between reducing costs and increasing sales is made. Consistent production at "normal" capacity insures low cost. However, expanding production may be more profitable even though costs per unit rise. Again, the marketplace decides if the balance you choose is correct. Your responsibility: Watch the signals closely. Evaluate your results compared to your competitors' and the economy. If you have built factories, and can't sell normal production, sell a factory. If other companies are selling more product at higher prices, increase your advertising.

Decisions are what you are paid for. Not acting on environmental signals is also a decision. (For example, if the economic environment indicates that you should build a factory and you don't, it is a poor decision).

The economic environment creates the context for your company's operations. Translate environmental changes into strategy quickly. Stock up on raw materials when the price is low. Build factories when the PPI is rising. If it is falling, consider selling a factory and paying back loans to reduce expenses. The market rewards the company that acts quickly on environmental changes. One caution: avoid excessive jumps in strategy. Raising and lowering price or production erratically will usually not be successful. The consumer wants a measure of consistency. Hiring and firing costs can also become prohibitive. But when a change is necessary, make it.

A few specific strategic hints will conclude this report, and then it's time to go to work.

Lower the cost per unit: Fixed cost per unit is reduced by producing more units. Production at less than normal capacity is uneconomic. It is better to sell a factory than to produce below normal capacity during a sales slump.

Raise your profit margin: The difference between price and cost per unit is the profit margin. Cost-per-unit information is available in the Profit and Loss Statement. Mark your price up from the cost per unit as much as possible and still clear normal production Advertising allows a higher price mark-up. The advertising cost per unit, though, should not exceed the price mark-up it allows. The economic level of advertising cannot be measured precisely; make your best judgement and watch the results.

Raise total revenue: Total revenue is price times quantity. As price is raised, less product may be sold, so for every price there is a different total revenue. The best price is the one that maximizes total revenue. Again, you can't measure it exactly; make an estimate based on your judgement.

Try anything that works: All of my hints and advice can be discarded, if that is what works. What works is what increases the bottom line: net profit.

There is more information available in your reports than you can use effectively. Time dictates that you make selective use of the information available. Don't dwell over data that doesn't mean anything to you, but look at what does.

This report should get you started. Decisions are easier to make each quarter as you track your results. Basically, decide how many units you want to sell at what price. Your other decisions support this (buying enough raw materials, producing the right amount, financing the purchases, providing support through advertising, etc.).

DESIGNERS' NOTES

This game was a joint effort of a systems simulation expert and a Master of Business Administration. The fact that these two individuals were brothers was an additional plus. The game was tough to design but great fun to test. Hopefully our excitement and satisfaction with this product will spill over to add to your enjoyment.

We would also like to acknowledge the help and support received from the Apple Addicts Computer Club, Little Rock, Arkansas. Special thanks to Phillip Wade, Ron Mason, Chris Johnson and Jim Rushing. And for patience above the call of duty, we are grateful to our wives and our children.

MODEL NOTES

The model for Cartels & Cutthroats is a simulation of the relationships between economic environment, production management, and market forces.

All important relationships that could be modeled without sacrificing playability were incorporated into the game, including the following concepts: price elasticity of demand, Law of Demand, Law of Supply, market price equilibrium, advertising and product differentiation's effects on sales, inflation, factor costs, GNP, CPI, disposable income, and more.

The simplifications made are to improve playability; fur example: dropping the 000's from revenues, expenses and quantities. The bookkeeping tedium associated with most business games has also been eliminated, permitting instead an emphasis on the roles of strategy and decision making. The main emphasis is simply on the fact that business reports are not sacred. They represent past decisions, and are continually changing as strategies and new decisions are implemented. Courses in accounting and business management often overlook this orientation because of their preoccupation with the mechanical detail of constructing reports. Accountants will construct your reports.

All outcomes are generated by predisposed probabilities. A sophisticated use of normally distributed random variables allows outcomes to vary widely while still tending toward certain values. Even chance outcomes can be specified — from very unlikely (realistic) to highly variable (playable).

The game allows freedom to experiment with strategy. However, inappropriately wild play is quickly penalized, as it should be in all adult games. Education occurs with playing, but not at the expense of fun.

STARTING COSTS*

Raw Material (RM):

Purchase price/unit..	50
Warehouse cost/quarter (capacity 10)	40
Storage cost/unit/quarter	1

Finished Goods (FG):

Warehouse cost/quarter (capacity 10)	80
Storage cost/unit/quarter	2

Overhead:

General overhead/quarter	1000
Production overhead/factory/quarter	300
Overhead cost of hiring l worker	1
Overhead cost of laying-off 1 worker	.5

Factories:

Purchase price	16,000
Depreciation/factory/quarter.	200

Production:

Labor rate up to normal capacity	7.50
Labor rate for units over normal capacity	11.25
Workers needed/unit produced.,	40
Labor hours available/worker/quarter	500

$$\text{Prod. Cost} = \frac{U \times W \times (1-A) \times R \times 500}{1000"} + \text{RM cost}$$

where:
U = number of units produced
W = workers/unit
A = percent automated/100
R = average labor rate

* *Divided by 1000 since "000" is omitted from all total costs

Average production cost/unit:

At normal capacity..	200.0
At 1.5 times normal capacity	225.0
At double normal capacity	237.5

* The above costs are only accurate for the first period of the game. After that inflation, economic changes, etc. revise the vallues.

IMPORTANCE TO CONSUMERS IN SELECTING A PRODUCT

	Percentages by Product Type		
	Necessity	Mixed	
Price	80	60	40
Advertising	10	20	30
Product	5	10	15
History	5	10	15

¢ARTELS & CUTTHROAT$™ BUSINESS PLANNING SHEET

Company _____ **President** _____ **Date** _____

Period (yr/qtr)	0/4	1/1	1/2	1/3	1/4	2/1	2/2	2/3	2/4
PLANS									
RM Purchase	20								
Production	20								
FG Price	500								
Adv. & Mark.	200								
Res. & Dev.	300								
Loans	10000								
Factories	0								
Special Memos									
RESULTS									
Demand	20								
# Sold	20								
Income	1900								
_____									
_____									
_____									
_____									
_____									
_____									

GAME STARTING CONDITIONS

Product Type _____ **RM Pricing** _____ **Inflation** _____

Economic Outlook _____ **Impact of Chance** _____

BUSINESS PLANNING SHEET (Continued)

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Period (yr/qtr)	3/1	3/2	3/3	3/4	4/1	4/2	4/3	4/4	5/1	5/2	5/3	5/4
PLANS												
RM Purchase												
Production												
FG Price												
Adv. & Mark.												
Res. & Dev.												
Loans												
Factories												
Special Memos												
RESULTS												
Demand												
# Sold												
Income												
_____												
_____												
_____												
_____												
_____												
_____												

Notes: _____

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