HOW TO CREATE YOUR OWN BUSINESS GAME WITH IMAGINIT

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THE IMAGINIT MANAGEMENT GAME [1] was originally created to replace another business game then in use. This change suggested other changes would be desired in the future. IMAGINIT was designed to accommodate game changes without writing a new computer program or publishing a new book. To do this, all parameters and controls for IMAGINIT are included with the data fed to the computer. The IMAGINIT computer program, which is written in FORTRAN, contains no game parameters or controls. There is a capacity limit of five firms per industry, but even this was changed by one user.

THE IMAGINIT MANAGEMENT GAME is a computerized business simulation offering experiential learning about many different industries. It serves several purposes: introduction to business, acquaintance with computer usage, integration of the business curriculum, training in decision making, and behavioral research. Teams manage ongoing firms that compete in the industry being simulated. The industry has two product markets and one labor market. Firms usually begin making and selling a Product A-l in Market A and may bring out a Product A-2, which competes with all products A-1 in Market A, and a Product B-1 in Market B. Periods simulated may be years, quarters, or months. Period size may be switched during play. Optional features include display, presentation, or report assignments that are graded by the game administrator. These grades enter the computer model as data and affect the quantitative consequences for players. This combines nuances of qualitative player behavior with numerical decisions.

Players make decisions for the following elements:

For Each Product	For the Firma as a Whole
*Prices	*Employee fringe benefits per hour
*Materials	*Dividends per share to be paid
*Salesmen	*Operations research
*Advertising	Short-term Loans
*Product research and development	Bonds
Materials to be ordered	Shares of stock to be offered
Units to be produced	Factory capacity

The elements marked by asterisks above have magnitude, elasticity, and memory carrover controls that, along with other parameters, can be changed to create INAGINIT versions. Presently, there are ten versions. The disparity among these versions in price, materials inputs, and other variables illustrates the flexibility of the IMAGINIT simulation system. These ten versions simulate the following industries:

Breakfast cereals
Early television
Automobiles
Encyclopedias and books

Home Laundry
Home climate
Home computers
Tires
Post WWII typewriters
Washing products

After each decision, each player receives a computer report for his firm showing an income statement, a balance sheet, and a policy and environment report. Figure 1 is an example company report for an IMAGINIT firm. Players also receive an end-of-period industry report showing selected variables for all firms. An example is shown in Figure 2.

To create a new version, starting values for decision elements are first selected. The same values are then entered into the histories for each firm. Next a beginning balance sheet is created. Then tentative parameters for elasticities and time weights are entered. These may be borrowed from an existing version. Many other parameters may at first be borrowed in order to generate a trial income statement. Later, adjustments are made to obtain the desired starting position profit and potential for growth. IMAGINIT parameters include controls for:

Demand per firm	Plant expansion & salvage
Market trend	Depreciation
Marketing channels	Overheads
Seasonal variation	Accounts receivable and payable
Materials lead times	Interest rates
Ordering costs	Financial constraints
Storage costs	Income tax rate
Standard labor hours	Importance on market quote of:
Labor rates	Dividends
Overtime percentage	Book value
Length of strikes	Current profits
Factory capacity per man	Past quote

In addition, administrator's controls for size of period, starting period, number of periods to be simulated, number of report copies, and number of firms per industry must be set.

To create your own business game with IMAGINIT, you first name the industry you have in mind. This name goes on a version identification card along with the Market A and Market B product classes to be simulated. Then, establish starting decision values, histories, a starting balance sheet, and tentative parameter values. These are run with the computer model and the resulting income statement analyzed for desired characteristics such as dollar profit, return on sales, return on investment, and cash flow. Adjustments can then be made in decisions, starting conditions, and parameters until the starting income statement, balance sheet, and environment are as desired. Running for several periods with unchanged decisions and demands checks histories and memory carryovers. Market trend is then turned back on and analyzed if adequate to support an additional added product by each firm in Market A. Finally, some "wild" decisions should be tried to check on settings of memory carryovers and elasticities.

Figure 1
EXAMPLE COMPANY REPORT FROM A PLAY OF
THE IMAGININT TIRE INDUSTRY

THE IMAGINIT TIRE COMPANY		YEAR 3	QUARTER 0		MONTH 0
PRACTICE DECISIONS—BA1290—TIRE INDUSTRY—10:30 CLASS					
COMPANY REPORT FOR FIRM 36		A-1	A-2	B-1	TOTALS
INCOME STATEMENT					
SHIPMENTS IN UNITS OF PRODUCT		3965618	0	0	
NET SALES REVENUE		39007369	0	0	39007369
COST OF GOODS SOLD					
DIRECT LABOR ($)		4238214	0	0	4542899
DIRECT MATERIALS		16164350	0	0	16164350
STORAGE					102603
FACTORY DEPRECIATION					3940000
OTHER FACTORY OVERHEAD					3227918
COST TO MANUFACTURE					27977769
CHANGE IN FINISHED FOODS ON HAND ($)		120782	0	0	120782
COST OF GOODS SOLD					28098551
GROSS PROFITS ON SALES					10908819
SALESMEN		750000	0	0	750000
ADVERTISING		550000	0	0	550000
RESEARCH AND DEVELOPMENT		250000	0	0	250000
EMPLOYEE FRINGE BENEFITS		216839	0	0	212738
OPERATIONS RESEARCH					100000
ADMINISTRATIVE OVERHEAD					541905
INTEREST					0
PROFIT BEFORE TAX					8504176
INCOME TAX					4082004
NET EARNINGS					4422171
DIVIDENDS PER SHARE	4.00	TOTAL PAYOUT		4000000	
SHARES SOLD	0	PROCEEDS		0	
CHANGE IN STOCKHOLDERS EQUITY					422171

BALANCE SHEET

CASH	2769047	ACCOUNTS PAYABLE		1585689
ACCOUNTS RECEIVABLE	5025319	SHORT-TERM LOANS		0
MATERIALS	2052050	BONDS		0
FINISHED GOODS	0	PAID-IN CAPITAL		40800000
NET PLANT	44405000	RETAINED EARINGS		11865726
TOTAL ASSETS	54251416	TOTAL EQUITIES		54251416
COMMON SHARES	1000000	BOOK VALUE	52.67	
	MARKET QUOTE	58.45		

CURRENT POLICY AND ENVIRONEMENT		---A---		---B---
AVERAGE INDUSTRY PRICES THIS PERIOD		10.28		0.0
CURRENT TOTAL MARKET DEMAND (UNITS)		16699162		0

		A-1	A-2	B-1	
SHARE OF MARKET THIS PERIOD		0.373	0.0	0.0	
POTENTIAL SHIPMENTS NEXT PERIOD		6851305	0	0	
PRICES		10.10	0.0	0.0	
MATERIALS INPUTS PER UNIT ($)		4.1	0.0	0.0	
MATERIALS ON HAND ($)		2052050	0	0	2052050
MATERIALS ON ORDER ($)		0	0	0	
MONTHS UNTIL MATERIALS ARRIVE		0.0	0.0	0.0	
PRODUCTION LEVELS (UNITS)		3942524	0	0	
NUMBER OF FINISHED UNITS ON HAND		0	0	0	
DISTRIBUTION CHANNEL INVENTORIES		0	0	0	
PURCHASE OR SALE OF FACTORY CAPACITY					8945000
LOANS MADE OR REPAID	0	BONDS ISSUED OR REDEEMED			0
QUARTERS DIVIDENDS TOO LOW	4	TOTAL DIVIDENDS TO DATE			6500000
FIRM LABOR RATE	4.3	ACTUAL LABOR HOURS			966992
FRINGE BENEFITS PER HOUR	0.22	PROBABILITY OF A STRIKE			0.14
CURRENT NUMBER OF LABOR SHIFTS	1	PERSONS ABAILABLE PER SHIFT			444

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FIGURE 2

EXAMPLE END-OF-PERIOD REPORT FROM A PLAY OF
THE IMAGINIT EARLY TELEVISION INDUSTRY

THE IMAGINIT MANAGEMENT GAME   YEAR 4   QUARTER 4   MONTH 0

END-OF-PERIOD REPORT

THE IMAGINIT EARLY TELEVISION INDUSTRY   BLACK & WHITE   COLOR

COMPANY REPORT FOR FIRM 41		A-1	A-2	B-1	TOTALS
SHARE OF MARKET THIS PERIOD		0.162	1.128	1.462	
PRICES		77.00	77.00	465.00	
MATERIALS INPUTS PER UNIT ($)		30.00	31.00	240.00	
ADVERTISING		200000	150000	160000	510000
SALESMEN ($)		185000	150000	150000	485000
QUARTERS DIVIDENDS TOO LOW	2	TOTAL DIVIDENDS TO DATE			525232
COMMON SHARES	40266	BOOK VALUE		13.38	

MARKET QUOTE   15.75

COMPANY REPORT FOR FIRM 42		A-1	A-2	B-1	TOTALS
SHARE OF MARKET THIS PERIOD		0.099	0.102	0.0	
PRICES		77.00	75.00	0.0	
MATERIALS INPUTS PER UNIT ($)		29.00	28.00	0.0	123000
ADVERTISING	13000	13000	110000	0	123000
SALESMEN ($)		90000	130000	0	220000
QUARTERS DIVIDENDS TOO LOW	1	TOTAL DIVIDENDS TO DATE			277938
COMMON SHARES	24750	BOOK VALUE		13.38	

MARKET QUOTE   26.59

COMPANY REPORT FOR FIRM 43		A-1	A-2	B-1	TOTALS
SHARE OF MARKET THIS PERIOD		0.144	0.147	0.0	
PRICES		79.00	76.00	0.0	
MATERIALS INPUTS PER UNIT ($)		32.00	30.00	0.0	
ADVERTISING		150000	150000	0	300000
SALESMEN ($)		115000	115000	0	220000
QUARTERS DIVIDENDS TOO LOW	1	TOTAL DIVIDENDS TO DATE			855039
COMMON SHARES	32023	BOOK VALUE		-30.41	

MARKET QUOTE   0.0

COMPANY REPORT FOR FIRM 44		A-1	A-2	B-1	TOTALS
SHARE OF MARKET THIS PERIOD		0.115	0.103	0.538	
PRICES		77.00	75.00	450.00	
MATERIALS INPUTS PER UNIT ($)		29.00	27.00	225.00	
ADVERTISING		90000	90000	460000	640000
SALESMEN ($)		90000	100000	235000	425000
QUARTERS DIVIDENDS TOO LOW	4	TOTAL DIVIDENDS TO DATE			386000
COMMON SHARES	28000	BOOK VALUE		16.19	

MARKET QUOTE   60.25

TO MODIFY AN EXISTING IMAGINIT VERSION

Rather than create an entire new version, IMAGINIT users may merely modify existing versions. Their purposes may be to update levels for prices and overheads, to change a product class, or to introduce changes during play.

Inflation can be introduced by increasing the price control parameters and decreasing price elasticities. Overhead, direct labor hours, and the wage rate may also be increased.

The energy crisis was represented in a play of the IMAGINIT automobile industry by dramatically increasing demand for low-price automobiles (changing the product class name to economy cars) and shrinking demand for the luxury class (changing its name to "gas eaters").

Modifications of existing versions can be made in any of the controls, starting conditions, and parameters available for creating new versions. During play modification should be made only where the transition is smooth and explainable in the next period, as with demand and cost shifts. Except in special cases such as bankruptcy, changes in histories and balance sheets during play are to be avoided.

GAME ADMINISTRATOR CREATIVITY

Without touching the computer program and without rewriting any part of the Player's Manual, a game administrator can create an IMAGINIT version to meet his needs and industry interest. Versions may relate to local industries or correspond to case studies used in conjunction with THE IMAGINIT MANAGEMENT GAME. With several of his own versions at hand, an administrator's use of IMAGINIT becomes highly individualized and personal.

PLAYER CREATIVITY

The optional assignments, with grades that enter the IMAGINIT model as data and affect consequences, provide opportunity for unlimited player creativity. These assignments can capture those nuances of player behavior not reflected in numerical decisions and incorporate them in the game model. Optional assignments are available for marketing, production, finance, administration, personnel, labor, overall policy, and team organization. Optional assignments can be structured by the game administrator to serve special purposes for any industry he may create.

Maximum player creativity can be generated by asking players to make up an IMAGINIT version and then play it themselves. For players, this is an exercise in modeling an industry by man-computer simulation without computer programming.

PARMATER SUMMARY

THE IMAGINIT MANAGEMENT GAME Player's Manual contains an appendix that is a parameter summary. Also, blanks for parameters appear throughout the text. In these blanks and in the parameter summary go all the data needed by players to play any industry version, including a newly created version or one of the ten available versions. For a new version, a brief description of the industry should also be written. Descriptions for the ten present versions are in the Player's Manual.

REFERENCES

1.   Barton, Richard F., THE IMAGINIT MANAGEMENT GAME, (Lubbock, Texas: Active Learning, 1973).