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ACQUISITIONS? DIVESTITURES? PROGRESS REPORT ON A CONGLOMERATE GAME

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ABSTRACT

Initial interactive computer implementation of a simulation game for three conglomerates doing business in up to five industries is described. Details of modifications of the underlying industry simulations and of a policy-style control of these industries is also presented.

INTRODUCTION

Two years ago a paper at the annual ABSEL meeting discussed requirements for a conglomerate model suitable for simulation gaming [3]. Now such a model is running interactively on a central computer but has not yet been integrated with its underlying industry simulation nor has it been tested by players. This paper is a progress report of computer implementation of ideas reported in the 1984 paper.

CONGLOMERATE GAME ORGANIZATION

To allow more freedom for acquisition and divestiture the original idea of three conglomerates competing in three industries was expanded to three conglomerates competing in at most five industries which may be chosen from seven or eight industries. This required enlarging the concept of the "environment," which is the place divested firms go to or acquired firms come from, unless one conglomerate sells a firm directly to another. With a large enough environment the three conglomerates may hold as few as one firm each (all others in all industries being in the environment). Conglomerates may hold as many as five fit-ins each (in which case there are not many firms left in the environment).

The conglomerate simulation system is built upon an existing management game that simulates individual industries [l]. The game design assumption for the conglomerate model was that several industries would be simulated by this one underlying game by using it to simulate different manufacturing industries in some detail. Because this simulation, as do most, traditionally begins with competing firms in equal starting positions, it had to be modified to provide unequal starts for firms to create high, medium, and low market shares. This was done by altering the input data, including both parameters and starting histories. Profits, costs, expenses, shares outstanding, and other variables were adjusted proportionate to market share so that each of the firms in a single industry starts with equal book values and stock market quotations despite their unequal market shares. The usual industry size and growth parameters are easily altered so that an industry may be large, medium, or small and have high, medium, or low market growth.

With these adjustments to the underlying industry simulations, each conglomerate may hold firms that have high, medium, or low market shares in industries of different sizes that have high, medium, or low growths. With these possibilities, an approximately equal start for each conglomerate can be established. For example, starting firms for three conglomerates may be as shown in Figure 1. An example computer terminal screen showing the organization of the conglomerate game at any stage of play is shown in Figure 2. In this figure, each firm is identified by a 3-digit number. The first two digits are the industry number and the third digit is the number of the firm in that industry.

FIGURE 1. EXAMPLE CONGLOMERATE GAME ORGANIZATION OF FIRMS

Conglomerate One	Conglomerate Two	Conglomerate Three
High share-high growth	High share-medium growth	High share-low growth
Medium share-medium growth	Medium share-low growth	Medium share-high growth
Low share-low growth	Low share-high growth	Low share-medium growth

Each conglomerate has a headquarters separate from the firms it holds. It is to and from the headquarters accounts that resources flow when a firm is acquired or divested. The entire conglomerate is represented by a consolidation of the held firms with the headquarters accounts. The consolidated conglomerate is affected only by changes in existing data items or by new period data entered into the accounts of held firms or of its headquarters.

FIGURE 2. CONGLOMERATE GAME ORGANIZATION SCREEN
OFFICIAL CONGLOMERATE HOLDINGS, SIMULATION NO. 21

	CONG ONE	CONG TWO	CONG THREE	FIRMS IN THE ENVIRONMENT		
A FIRMS	212	313	413	511	113	312
B FIRMS	311	211	512	411	213	111
C FIRMS	414	112	114	515	513	514
D FIRMS	0	412	0	115	0	0
E FIRMS	0	0	0	0	0	0

CONGLOMERATE PLAYER ACTIONS

The terminal display screen menu of actions available to conglomerate players is shown in the first 11 lines of Figure 3. Players do not see lines 12-19. Players can display on the screen or print hardcopy reports for each firm it holds (menu choices 1, 2, 3, and 4).

Reports are ten column historical spreadsheets for a held firm and are of two kinds: official and what if. Official reports contain data officially generated by the underlying industry simulations during "official" plays of each industry. What if reports contain any data players choose to enter in their what if spreadsheets. Players cannot change official reports. Menu selections 5 and 6 allow conglomerate players to alter data items in the what if spreadsheets to represent trial decisions and/or hypothesized results, either for firms or for the accounts of corporate headquarters.

The computer model maintains both official and what if spreadsheets for each firm a conglomerate holds and for its corporate headquarters. Under exclusive control of the conglomerate game administrator, the official spreadsheets are consolidated into a spreadsheet for the total conglomerate. However, when conglomerate players make what if changes in firm or headquarters data, the what if consolidated spreadsheet no longer reflects these changes. Therefore, consolidation of what if spreadsheets into the total what if conglomerate spreadsheet is under control of conglomerate players (menu choice 10). What if firms and what if headquarters (menu choices 5 and 6) permit hypothetical treatment of spreadsheet histories (or added future predictions) for currently held firms.

WHAT IF ACQUISITIONS AND DIVESTITURES

Conglomerate players may wish to experiment with acquisition of a firm from the environment or from another conglomerate, with the divestiture of a firm to the environment, or with replacement of a firm in its corporate "portfolio" by divesting one and acquiring another. Players may even hypothetically hold two firms in the same industry (there being no "What if Department of Justice"). What if acquisitions and divestitures are accomplished through menu choices 7 and 8. Players can do this only for their own conglomerate. In the headquarters accounts, acquisitions decrease resources and divestitures increase resources. Players can, in conjunction with what if acquisitions and divestitures, alter their headquarters accounts to reflect what they hypothetically think these resource changes will be. To find out what a new what if portfolio implies for the total conglomerate following appropriate what if headquarters changes, players may then consolidate all these what if changes (menu choice 10). The what if data base remains as changed period after period until new what if changes are made.

What if divested firms leave the what if data base and reports for these can no longer be displayed or printed, unless, of course, a conglomerate acquires again a firm it has divested. What if changes of any kind by one conglomerate do not affect other conglomerates in any way. What if activities are an independent exercise of the computer capabilities to achieve for conglomerate portfolio decisions "simulation of the simulation," which is also available for the underlying industry simulations [3].

As the underlying industry simulations are run period by period, conglomerates can update their what if spreadsheets with official data automatically by an option under menu choices 5 and 6 without keying in up to thirty data items for each firm held and for headquarters. They can also reset their what if spreadsheets back to official data, say to restart a whole new what if series.

Finally, conglomerate players may personalize or characterize their headquarters and corporate names (menu choice 10).

OFFICIAL ACQUISITIONS AND DIVESTITURES

Official spreadsheet data is stored separately from what if data and is not alterable by conglomerate players, except as they make decisions in the ongoing play of the underlying industry simulations. Period by period data from the underlying industry simulations is entered into the appropriate official spreadsheet column for a period for all firms held by conglomerates that period. The menu of actions available to the game administrator is shown in Figure
3. As shown, the administrator can perform all player actions, choices 1 through 11. Menu choice 12 brings into the spreadsheets the data from the underlying industry simulations. Menu choice 17 then consolidates the new data.

FIGURE 3. GAME ADMINISTRATOR'S MENU

01	DISPLAY OFFICIAL REPORTS ON THE SCREEN
02	DISPLAY WHAT IF REPORTS ON THE SCREEN
03	PRINT OFFICIAL REPORTS
04	PRINT WHAT IF REPORTS
05	WHAT IF FIRMS
06	WHAT IF HEADQUARTERS
07	WHAT IF ACQUISITION
08	WHAT IF DIVESTITURE
09	EDIT HQ OR CORPORATE NAME
10	CONSOLIDATE WHAT IF CHANGES
11	TERMINATE SESSION
12	UPDATE FIRMS WITH OFFICIAL DATA
13	UPDATE OFFICIAL CONTROL FILE
14	ENTER OR UPDATE HQ WITH OFFICIAL DATA
15	OFFICIAL ACQUISITIONS
16	OFFICIAL DIVESTITURES
17	OFFICIAL CONSOLIDATION
18	SHIFT COLUMNS OR EDIT READINGS
19	INITIALIZE SIMULATION

An official divestiture can only be made by the game administrator (menu choice 16). The game administrator does this by moving the chosen firm from the conglomerate to the environment. He also changes the official headquarters accounts for the new period to show resources received (menu choice 14). How much a conglomerate receives for a divestiture in cash or other assets is determined by negotiation with the game administrator or with another conglomerate if the firm is divested to that conglomerate. Official acquisitions are accomplished by the game administrator by moving a firm from the environment or from another conglomerate to the acquiring conglomerate (menu choice 15). He then alters the headquarters spreadsheets accordingly for the next period.

Figure 4 compared to Figure 2 shows the organization of the game after Conglomerate One has officially acquired Firms 515 and 113 from the environment, Conglomerate Two has divested Firm 211 to the

environment, and Conglomerate Three has acquired Firm 212 from Conglomerate One.

FIGURE 4. ACQUISITIONS AND DIVESTITURES
OFFICIAL CONGLOMERATE HOLDINGS, SIMULATION NO. 21

	CONG ONE	CONG TWO	CONG THREE	FIRMS IN THE ENVIRONMENT		
A FIRMS	0	313	413	511	0	312
B FIRMS	311	0	512	411	213	111
C FIRMS	414	112	114	0	513	514
D FIRMS	515	412	212	115	211	0
E FIRMS	113	0	0	0	0	0

Official divestitures and acquisitions are done before each official period run of the Industry simulations. For divestitures, the old spreadsheet data disappears and no new data is brought in for the divested firm. For acquisitions, nothing happens until the industry simulation is run; then the data for the acquired firm is entered into the new spreadsheet column for the period of acquisition. (If a conglomerate wants to see the history of its acquisition, it can do this by what if acquisition but presumably it has already what if'd the acquisition before making an official deal for it.)

Official consolidation for the new period now does not consolidate data for just divested firms and does consolidate data for newly acquired firms. The consolidated history remains unchanged in the prior period columns so that divested firm data remains in the consolidated spreadsheet for the periods it was held and the acquired firm data does not appear until the period of its acquisition.

OTHER ADMINISTRATOR FUNCTIONS

A control file containing the official organization of the conglomerate game (Figure 2), security passwords, spreadsheet row captions and column headings, and other administrative data can be changed at the terminal by menu choice 13. This feature eases chores of starting a conglomerate simulation. It allows parallel runs of conglomerate simulations by giving each a unique simulation number.

If a simulation run goes more periods than columns in the spreadsheet, columns and column headings can he shifted left (menu choice 18) to empty columns to the right for data for new periods.

Menu choice 19 initializes the simulation by creating the data base for each conglomerate and by entering starting position data, given the simulation organization established in the official control file (menu choice 13). For both players and the administrator, interactive terminal sessions are ended by menu choice 11, at which time changes are recorded in the data base.

RUNNING THE UNDERLYING INDUSTRY SIMULATIONS

As pointed out in the prior paper [3], teams of three to five players managing three conglomerate and up to fifteen firms in the industries, would call for more players than are usually available. Moreover, teams managing firms in industries would not get the conglomerate experience. If the industry simulations were completely automated (perhaps by using data from prior industry runs) then conglomerate teams would not experience the responsibilities of managing firms in their portfolios.

Under development is a policy model that will allow conglomerate players to set policies that govern the period to period decisions of the firms they hold without attending to the detailed decision making required to manage each firm. This policy decision maker will also allow the administrator to easily manage the firms in the environment which are not held by any conglomerate.

Yet a full simulation experience may not be had by players unless they manage their conglomerate and at least one industry firm in complete detail (while merely setting policies for other industry firms). But which firm? One possibility currently being explored is to establish one three firm industry with equal starting positions, then start each conglomerate with a firm in this industry, prevent divestiture of this firm, and require players to manage this firm in complete detail. Hence, each conglomerate team would be playing a complete-detail industry simulation of the usual equal-start nature and at the same time be running a conglomerate acquiring and divesting unequal growth and share firms which are then managed by the policy model. The policy model would allow players to set, for example, growth, hold, or harvest strategies for its firms without getting into complete decision making detail.

At this time, the industry simulations run under control of a separate simulation system. Data for conglomerate spreadsheets is passed from this system to the conglomerate simulation data base by means of external files. Players must use each system separately. Under development is an integration of the two systems so that both industry simulations and conglomerate simulations will be contained in a single system. When this integration is accomplished, player teams can then "simulate the simulation" and also make official decisions both at the headquarters level and at the firm level in a single terminal session. Development of the policy model to manage firms without complete detail includes this integration of the two systems.

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