

# Developments in Business Simulation & Experiential Exercises, Volume 13, 1986

## AN EXAMPLE: THE USE OF MANAGEMENT GAMES ON MICROCOMPUTERS BY COMPUTER NOVICES

Robert E. Schellenberger, East Carolina University  
Lance A. Masters, California State University

### ABSTRACT

The purpose of this presentation is to demonstrate the ease of starting and using a sophisticated business simulation on a microcomputer. The game demonstrated is designed primarily for use in the strategic management or business policy course, but the discussion and explanation has value to those interested in other areas of application.

The authors of the game demonstrated (MANSYM IV) have over thirty years of combined experience using simulations in classes ranging in size from two students to over eighty students. The game has been successfully employed in both semester and quarter environments, and in experimental shorter sessions of less than two weeks. The authors will discuss typical class organizations and assignments. The single greatest advantage of using a microcomputerized management simulation is that virtually no technical or administrative support is required, and even an absolute computer novice may successfully use the game on a microcomputer.

The 4th published edition of MANSYM (John Wiley & Sons, 1986) includes the choice of four basic industries: the small kitchen electrical appliance industry, the wood products industry, the textiles industry, and the food products industry (cookies and crackers). In addition, several programs complement and supplement the main program. The authors will have an IBM PC present for a hands on demonstration.

### FEATURES

Game features include:

1. Automatic feed back to players on input violations and game play errors.
2. An optional quarterly performance evaluation which evaluates the current and cumulative performance on nine different criteria.
3. An optional summary of requested decisions and implemented decisions.
4. Optimal market research reports.
5. A marketing data history file usable with other computer packages.
6. A pro forma package which lets teams test decisions before submission.
7. A work sheet program which will help to optimize short term production decisions.

One of the advantages of the game is the ease with which spread sheets and sales forecasting packages can be used in conjunction with the game. This, along with the work sheet package, permits students to concentrate upon strategic dimensions rather than operating dimensions. The potential to rely upon other computer packages such as spread sheets and sales forecasting packages reinforces the need to master these packages as a part of the managerial role.

The presentation covers topics in hardware requirements and program familiarization, including how to actually start using a game. Copies of the program demonstrated will be available for interested persons.

### GENERAL DISCUSSION OF THE MICRO COMPUTER VERSION OF MANSYM

1. Equipment requirements -- The game is written in a run time version of FORTRAN 77 for use on IBM and IBM compatible micro computers with 256k or more memory using MS-DOS or PC-DOS 2.0 or higher. Two disk drives are needed. Diskettes must be double sided double density diskettes.

2. Diskette configuration -- Three diskettes are provided. The first diskette permits preparation of data files. The menu permits elect of which options are to be used with any of the 12 standard games, or users may make up their own game. This diskette includes 75 different files. The largest file is the configuration program entitled CONFIG.EXE. Two files are the data files generated by the configuration program. They must always be present on the diskette despite the fact that they are written over each time a new file is configured. One of these two files is copied to the game diskette and (if necessary) copied to a master diskette and (if necessary) copied to a master diskette for student use. The file entitled STARTHIS is the starting history file for the configuration of MANSYM generated when the program CONFIG.EXE was executed. It must be copied to the game diskette. Note that there must be a separate diskette for each different game. Both of the diskettes should be copied onto bootable diskettes -thus the diskettes provided should be retained as back up diskettes. Bootable copies are made by formatting a blank diskette using the command `FORMAT B: /P <CR>`. This assumes that the A drive has a copy of DOS with the format command on it. Once formatted with the COMMAND.COM file, the configure diskette should be placed in A drive and the formatted diskette in B drive. Then type `COPY*.* B: <CR>`. The same procedure should be used for the game diskette -- indeed a game diskette must be made for each game to be run. It is also recommended that a back up diskette be maintained for every game. This diskette will only contain files and thus need not be bootable (i.e. include the COMMAND.COM file plus the two hidden files) but it must be correctly formatted.

The master game diskette includes a STARTHIS file for the two product version of Small Kitchen Electrical Appliance industry with all options operating for game number one. If the standard file is not going to be used, the STARTHIS file must be erased from the game master diskette. This is done by placing the game diskette in A drive and typing `ERASE STARTHIS <CR>`. Then place the configure diskette in A drive and the game diskette in B drive. Next type `COPY STARTHIS B: <CR>`. Game play is now ready to commence.

The second file is entitled BEGINHIS and is the starting history file for each team (the student diskette includes a starting history file with all options turned on for game number one). Thus any deviation from this configuration will require that a master file diskette be made available to game players. When the configuration is complete, the configuration diskette should be in drive B. Then type `COPY BEGINHIS B: <CR>`. These

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instructions will copy BEGINHIS to the blank diskette. Then write protect this diskette by covering the small rectangle cut out on the right side of the diskette. Make this available to each student. The student manual tells the student how to copy this file onto his/her own diskette.

### HOW TO MAKE TEST RUNS OF THE MICRO VERSION OF MANSYM

These instructions assume that back-up copies of each of the three diskettes have been made. The test runs are made both to check the viability of the game and to introduce the administrator to the game. Before making test runs the student manual should be read under the assumption that the full 2 product version of the SKEA (Small Kitchen Electrical Appliance) game will be played. This is necessary because test run output is provided so the administrator can compare the output generated against the output provided.

The full version of the game means that all options are running. These options are:

1. Use of Performance Evaluation which produces a grade on nine performance criteria.
2. Use of curved grade option which curves the weighted grade produced from the performance evaluation option.
3. Use of the market research option automatically distributed to each firm.
4. Use of the sales forecasting suboption in the market research option. This option provides data from which to prepare sales forecasts tailored to the individual firm.
5. Use of the echo option. This option provides a summary of the decisions made and decisions implemented so firms can easily identify input errors which change the decision.
6. Use of the message option. This option permits the instructor to write messages about the game situation which are included with the output received by all firms.

While this list of options is not exhaustive, it is representative.

With the above in mind, the instructor should read the student manual as though he/she were going to play the game. Since the test run involves 5 firms, the instructor should prepare 5 diskettes with the STUDENT file on them. This is done by booting up the computer with MS-DOS or PC-DOS (2.0 or 2.1). Note that other disk operating systems for IBM PC compatible machines may not work. If starting with 5 blank diskettes, be sure to format each diskette before copying. After formatting the blank diskettes, the student diskette is copied by inserting the original (back-up) diskette in drive A and the blank in drive B. Then type: COPY \*.\* B: <CR> . This procedure should be repeated until five diskettes are ready for running the test run.

From the student manual, note that one of the program files on the student diskette is INPUT.EXE, used to prepare the input of the decisions to the game runs. Please read the instructions for using this program to prepare the inputs for the game run. Then use the program to input the following decisions. Be sure to label each firm with its appropriate number and game number. A test run may then be commenced.

There are three different circumstances that might be faced when preparing regular runs of the game. They are:

1. The beginning quarter of play.
2. Regular runs after the first quarter of play.
3. Reruns of the previous quarter of play.

Historical data for the game is maintained in 4 different data files. One data file called MKTRES includes present and past market research data. One file (called STARTHIS) represents all data for the beginning of play. One file (called NEWHIST) represents the conditions for the quarter being printed out. One file (called OLDHIST) represents the conditions for the quarter just prior to the quarter being printed out. Proper maintenance of these files is critical to successful play. This can be explained by recognizing that the game must be run based upon a source of information about circumstances at the beginning of this quarter (equivalently the end of the previous quarter). The ending circumstances must also be recorded as input for the next quarter. During the running of quarter one of year one the program accesses STARTHIS and writes out NEWHIST. During the running of quarter 2 (and all subsequent quarters) the program accesses the NEWHIST file and writes out the NEWHIST file. When the program writes out the NEWHIST file, the NEWHIST file is erased. To preserve the data in the NEWHIST file, a copy of it should be made just in case it becomes necessary to rerun the quarter. This change must be made just before quarter two (or any quarter other than the very first quarter of play) is run. In summary, the OLDHIST file is merely put aside in the event that you wish to make a correction to the last run.

#### A. Making Game Runs

Game runs are made by insuring that the correct game diskette and a diskette from each team with the current decision on it are present. In the case of a test run, the instructor or administrator will have entered the decisions on each of these diskettes. Note that the CONFIG program on the CONFIG diskette is used to set up the STARTHIS file for all but the test runs. It is assumed that the STARTHIS file has been completed. First type: MANSYM <CR> . The program then begins by asking if this is the first run. If answered yes, then the program automatically accesses the STARTHIS file. Since the test run is made for two quarters, begin the test run by answering Y <CR> . For the second and subsequent quarters, type N<CR> . In that event, the program will ask whether an error is being corrected or not. If so type Y<CR> . After doing so the computer will automatically access the OLDHIST file. If not correcting an error, enter N<CR> and the computer will ask whether the NEWHIST file has been copied onto the OLDHIST file. Remember that this move is made in the event that an error was made in the current run and that it is necessary to rerun the current run. If the files have been switched, then type Y<CR> and the program will proceed. If the files have not been switched, then type N<CR> and the program will abort (i.e. stop). The procedure to be used to save the previous quarters history time is to type: ERASE OLDHIST<CR> and then type COPY NEWHIST OLDHIST. This should be done just before making any run except the first run or when correcting the previous run.

At this point the program has the necessary historical data to run. Now the teams' decisions (and the market research history if that option is being used) must be entered. The following prompt will appear on the screen to enter each teams decisions:

PUT THE DISKETTE FOR TEAM \_ IN DRIVE B.

Pause

Please press return to continue.

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Then put the diskette for the team indicated in drive B and press <CR>. After doing so a message will appear indicating which team and game has been entered and which team and game were expected. This is done to permit verification of correct input. The program reads each team's decisions in sequence. If they are entered in the wrong order they will be assigned the wrong team. Each team enters the team and game number at the end of each decision card. The program reads the data from "card one" when it prints out the message indicating which team was expected on the diskette and which team was shown on the diskette. The program asks if the data on the diskette is to be entered into the file or if another diskette should be read instead. If the correct diskette has been inserted, type N <CR> indicating that a different diskette does not need to be read or Y <CR> if a new diskette does need to be entered. If Y is entered, a prompt will appear to request that the diskette be inserted for the appropriate team number. Caution: accuracy here will save time in the long run.

After entering all of the team's diskettes, an instruction will appear to prompt to remove the last diskette and to press <CR>. Instructor's inputs are then requested. These inputs include an externally imposed income or expenses. Note that externally imposed income must be entered as negative other expenses and shows up on the income statement as negative other expenses. An entry must be made for each team and each entry must be separated by a comma. In a five firm industry, for example, with no other expenses imposed externally (i.e. by the instructor) type 0, 0, 0, 0, 0 <CR>. The program would then print out a separate line for each team indicating what the other expenses were. An opportunity is then given to retype this input in the event it is in error.

Next the actual current indices for economic conditions, raw material prices, and consumer prices are entered. Again these must be entered on the same line each separated by a comma. These inputs will be echoed on the screen and an opportunity is given to retype. Next enter the forecast economic index, raw material price index, and consumer price index for the following quarter, each separated by a comma. Note that this is not a commitment for the next quarter, but a forecast subject to error. Again the input will be echoed on the screen with opportunity to revise. The quarterly interest rate for the next quarter is entered last. Note that this represents a commitment by the bank that the rate will be as indicated in the next quarter.

An instruction will then appear to reinsert the diskette for each of the teams in drive B. Finally a reminder appears to prepare the printer to print out the results. It is necessary to insert the diskette for each team twice because all of the teams' decisions must be entered before demand and sales can be allocated to each firm. When the diskette for each team is inserted the second time, a new history file for that team is written on the diskette as well as a market research file if appropriate.

The preceding instructions and game are demonstrated in the special session, and complimentary copies of the program are available on request. The authors will happily answer questions from any interested parties.