

# **Simulations, Games and Experiential Learning Techniques:, Volume 1, 1974**

## **MANAGERIAL STRATEGY AND SYSTEMS - AN INTEGRATIVE M.B.A. COURSE**

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This presentation concerns an experimental integrative course at the M.B.A. level which utilizes group simulation of the strategic planning and control decisions involved in the initiation and development of a new firm, a merger and acquisition simulation, and a portfolio management simulation developed at the University of Texas in Austin.

A foundation for the three semester hour course, basically a review of materials previously covered in other courses, was laid during the first three weeks of the semester. These reviews consisted of reading assignments and individual reports in the following areas:

1. Management Systems
2. Information Systems
3. Strategic Planning and Control
4. Technological Forecasting
5. Simulation in Business
6. Allocation of Resources
7. Statistics and Operation Research
8. Mergers and Acquisitions

The major objective of the course was to involve students in strategic planning and control decisions at the executive level. Specific objectives were to develop an analytical and usable framework of the major managerial concepts, and to analyze the activities of managerial planning and control and the development of business strategies.

Other more specific objectives of the course were to:

1. Involve students in the details of strategic planning and control situations.
2. Provide students with an opportunity to make top-management decisions and to deal with the types of information which must be analyzed, structured, and evaluated at this level.
3. Develop a better understanding of strategic planning and control and improve skills in structuring strategic planning problems.
4. Compare the theories relating to strategic planning and control with the application of these theories in decision making situations at top-management levels.
5. Identify the key elements for the success of a firm and incorporate these elements into an integrated strategic plan.

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6. Demonstrate that strategic planning is exercising choice rather than forecasting conditions.
7. Structure a learning experience which would tend to confirm that strategic planning is more art than science--that strategic planning is a practical art which perhaps is progressing toward a science.
8. Disclose that theory as discussed in the literature does not always work easily or effectively in actual situations.

### **A CASE MODEL FOR GROUP SIMULATION OF STRATEGIC DECISION-MAKING**

A comprehensive case about the beef industry was initially used to involve the students in strategic planning and control. The beef case discussed and presented examples of the analysis and evaluation of data, the development of long-range objectives and strategies, and decision-making at the top-management level. These decisions involved the initiation and development of a new corporation in a selected industry from the idea stage to an established growing-firm stage. The beef industry case furnished a model for the guidance of group simulation of strategic planning and control decisions. The case also included excellent examples of the interdependence and interrelationships of the various basic systems which comprise an overall business system.

Specifically the beef industry case provided examples of the following types of basic decisions:

1. Choice of an industry for investment.
2. Acquisition of a basic company in the selected industry.
3. Projections of sales, growth, profitability, and stock prices.
4. Establishing and developing a highly integrated business firm.
5. Creating an organizational structure for the firm including:
  - 5.1 Provisions for the various functional activities.
  - 5.2 Selection of a Board of Directors, a Chief Executive Officer, a C.P.A. firm, and a Law firm.
  - 5.3 Setting up a research division.
  - 5.4 Establishing an international marketing division.
  - 5.5 Developing the basic policies for the firm.
  - 5.6 Creating a stock option plan for key employees.
6. Engaging in mergers and acquisitions.
7. Developing a strategic plan for immediate, interim, and long-range financing, including the issuance of common and preferred stock.

In identifying prospective firms for acquisition, students used a computer program and computer data. Working capital per share, current assets per share, and whether or not book value per share was greater than market value per share, were used as criteria in filtering the potential prospects. If any of these

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indicators were greater than stock prices, the firm was listed as a prospect. Other measures used in a more discriminating screening were whether or not long-term debt was less than or equal to \$5,000,000, and whether or not long-term debt was less than 5% of total assets. The computer program also provided additional and more detailed information on dividend yield, inventory turnover, receivable turnover, pension expense per year in millions, and long-term debt in million.

### **GROUP SIMULATION OF STRATEGIC PLANNING AND CONTROL**

After a thorough discussion of the beef company case by the entire class, the class was divided into groups and each group was given the assignment of simulating the actions presented in the beef industry case by selecting an industry different from the beef industry and actually making the various decisions described in the beef case.

The specific group assignment was for each group to prepare a class presentation which covered the following:

1. An analysis and selection of an industry for investment and entry.
2. Development of a long-range strategic plan for the new firm.
3. Preparation of an organizational chart for the firm.
4. Explanation of major financial factors utilized in selecting an initial company for acquisition or merger.
5. Projection by years to 1980 of financial status of new firm.
6. Discussion of relevant strategic factors for new firm and industry--for example, share of market, internally derived capital, product lines research and development, acquisitions, and other relevant factors.

This requirement entailed an analysis of a suitable industry as well as some definition of the parameters of the industry being considered. The requirement also called for a consideration of the major criteria both in the development of an ownership strategy and in the making of acquisition decisions. In addition, it involved a long-range projection of broad general trends, the development of broad objectives, and the setting of priorities for the various phases of the strategic plan. The selection of an appropriate strategy by each group called for an evaluation of various feasible alternatives in marketing, production, research, investments, acquisitions, and finance. The intent of this assignment was to bring about the development of a strategic plan which clearly stated the issues and proposed suitable strategic alternatives in the light of these issues.

Each group first had to determine the industry in which it would like to start a new enterprise. Once this decision had been made, a comprehensive strategic plan for the firm had to be developed.

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After preparing various forecasts, identifying objectives, developing policies, selecting strategies, and formulating the basic functional plans, each group made a detailed presentation to the class of their decisions, strategies, and plans. Numerous charts and transparencies were used in the group presentations.

### **WRITTEN CASE ANALYSIS**

A case was assigned as an in-class examination to reinforce the simulated industry presentation, especially the strategic planning and the acquisition and merger strategies. A computer Break-Even program was used in establishing advertising rates in the newspaper case. The Johnsonville-Courier News, a case written at The University of Texas at Austin, was selected as midterm examination. Students were given this case for study a week in advance of the quiz date and were given three hours in class to answer the following questions:

1. Outline your strategic plan for The Johnsonville-Courier News.
2. Define the market parameters for the newspaper and project what the paper's share of market would be in five years.
3. How would you present the strategic plan to the President, Bill Burke, age 60, third-generation owner who rebuilt the paper in the thirties.

After the exam was graded one class period was used to discuss the examination and to relate the strategic planning and control aspects to earlier readings, the beef industry case, and to the group presentations. The nature and importance of time horizons in strategic planning and control was an important factor in each of the cases studied, in the group reports, and in the courses of actions required on the final examination.

### **A PORTFOLIO MANAGEMENT SIMULATION**

A \$25,000,000 computer portfolio simulation was used during the last six weeks of the course to involve students in decision making in a dynamic environment. The class was divided into portfolio management teams and weekly portfolio decisions were scheduled. Each portfolio management group was given an investment portfolio which had been operating for some time and which started with cash assets of \$25,000,000.00.

The computer program included the various regulations of the SEC and other decision rules such as required reserve fund, liquidity, turnover rates, percent of portfolio in one stock (5%), percent of portfolio in shorts, cut loss rules, sell signals, a filter for screening potential stocks for the portfolio, provision for setting and revising specific weekly, annual, and midyear profit objectives on each stock in the portfolio, updating of prices on stocks in portfolio and the Standard and Poor's Index. The weekly screening and evaluation of potential industries and companies for investment was an important aspect of the portfolio management simulation.

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Portfolio management decisions were made and stock prices were updated weekly. Standard and Poor's Index of 500 stocks, as of Friday each week, was used as an indicator of percentage change in the market. The simulation permitted transactions in stocks and bonds listed on the New York Stock Exchange, the American Stock Exchange, and Over-The-Counter stocks. Short sales also were possible.

The portfolio simulation consisted of two versions. In the "actual" version the program screened the potential stocks selected by the portfolio management team and listed in a "buy" list those stocks which met the buy criteria. Also the program screened the current stocks in the portfolio and indicated those which should be sold as well as the number of shares to be sold. The actual buy and sell decisions, the updating of prices of stocks in the portfolio, and the selection of potential stocks for screening by the program were made by each portfolio management team. In addition, the management team could adjust their midyear or annual estimates of the projected increases or declines in stock prices.

Students received two computer outputs weekly. One was a report of their profit performance and the current status of the portfolio. The second output, called a "shadow" program, was a report of the mechanical decision actions of the computer which were an implicit part of the computer program. This output presented a report of the profit performance and current status of the portfolio based on the mechanical application of the buy and sell decision rules included in the program and automatic adherence to SEC regulations and restrictions.

The "shadow" version of the portfolio program also recorded the updated market prices and value of the stocks as in the "Actual" version, and mechanically bought and sold based on the decision rules in the computer, adhering mechanically to the various regulations and constraints and to the other decision rules in the program.

Students were not required to follow buy and sell signals or to adhere strictly to SEC regulations. Human decisions could be made which differed from the mechanical rules followed in the "shadow" program, thus allowing a comparison of the results of mechanical decisions and human decisions. The result of this process provides feedback as to the appropriateness of managerial strategies, and monitors the policies chosen to attain stated goals.

Actually, the program output provided both feedback and feedforward information--feedback data and evaluation on past

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performance and feedforward projections of trends of past performance into the future. Students had the benefit of comparing the results of their decision actions with those of the computer which mechanically applied both decision rules and SEC regulations and constraints. The use of parallel human and mechanical decision outputs which are comparable has some interesting aspects of coordination and control in situations similar to portfolio management. In the reviews of the portfolio management results, students were asked each week to justify their strategic choices.

Each management group received a weekly report on:

1. Current assets.
2. Status of Reserve Fund--or noninterest-bearing compensating balance held by a bank for services rendered.
3. Twenty Percent of Realized Gains--reserve of twenty percent of all gains realized from sale of securities. These gains earn interest but are not available for reinvestment.
4. Present Total Market Value of Portfolio.
5. Estimated Management Operations Budget--annual fee needed to break even on cost of operations.
6. Starting Unit Value--value per share of fund at the beginning.
7. Present Unit Value--current assets divided by number of shares currently outstanding.
8. Prior Maximum Unit Value.
9. Total Transactions as a Percent of Current Assets--a turnover ratio of assets which shows how speculative or trading oriented a portfolio management group has been to date.

The program also computed various profit or loss percentages which allowed a quick comparison of profit objectives with actual profit.

The program printout indicated the status of performance toward goals by noting that (1) goals were not being met, (2) it was still feasible for management to meet its one year goals, or (3) management had already reached its goals or could meet the goals by simply investing in interest-bearing documents.

### **SUMMARY**

The complexity and dynamics of decision-making at the top management level requires the integration of an array of numerous systems and technologies in an environment which fosters both opportunities and constraints. The portfolio management simulation involved the students in the dynamic behavior of real-world interactive systems. This simulation provided students with an opportunity for evaluating policies, constraints, and decision rules in a complex system. In addition, students could readily observe the impact of their

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decisions on performance. The other simulations used in the course also involved students in the phenomena, types of analysis, and decision-making at the top management level.