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A COMPUTER SIMULATION INTERFACE FOR COMPETITIVE AND FIRM ANALYSES

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ABSTRACT

A computer simulation interface procedure is described whereby the Business Management Laboratory business game was modified to generate data records compatible with dBASE III Plus microcomputer data base software. The data base schema consisted of 108 variable data values which were produced for each firm participating in the business game for each decision cycle. An alternate version of the database was produced as a Lotus 1-2-3 electronic spreadsheet.

Students in a graduate business policy course were instructed in the utilization of the database as the source of data for two major analyses. The first analysis effort was a competitive analysis of the industry environment as simulated in the business game. The second analysis effort was an in depth analysis of the student team's own firm in the business game. Student evaluations of this approach have been very favorable.

INTRODUCTION

As the primary educators of future business executives, business schools frequently teach strategy formulation in their business policy courses by utilizing the case method. Cases describing typical business situations offer numerous benefits to the educational environment; however, deficiencies of the case method tend to handicap the teaching of strategy formulation. For example, business cases generally require the student to accept the factual data (e.g., financial statements) without challenge of the data source or an understanding of the underlying transactions.

SIMULATION GENERATED DATA

The author teaches a graduate business policy course which emphasizes strategy formulation. Business cases typically found in most available textbooks failed to provide adequate sources of data to analyze. A more dynamic and ongoing data source was needed to teach strategy formulation.

Attention turned to the possible use of a business game simulation as the mechanism from which to generate the needed data. Selection of the business game was based upon three requirements: (1) it must be capable of producing a competitive environment scenario that would be sufficiently comprehensive to be realistic and challenging, (2) the typical student must be able to grasp a basic understanding of the business game within a relatively short time period, and (3) the logistics of running the business game would permit a short turnaround time to the student. The Business Management Laboratory (BML) business game of Jensen and Cherrington was selected based on these three requirements. A decision was made to approach strategy formulation by partitioning the analyses into two components: one an analysis of the industry competitive environment; two, an in depth analysis of the student's own firm.

In order for BML to provide the data needed for the competitive analysis and the firm analysis, it became apparent that a rather extensive database had to be established and maintained. A data

base schema of 108 variable data values was defined. Since microcomputers were readily available, dBASE III Plus was selected as the software to manage the database. The command structure of dBASE III Plus provides quick access to the database as well as user directed screen and hard copy output. An alternative version of the same database was provided as a Lotus 1-2-3 spreadsheet.

INTERFACING THE SIMULATION AND THE DATA BASE

Availability of the source code of BML for the microcomputer BASIC language version permitted a new subroutine to be written to generate records for the database. The physical format of the generated records conformed to the system data format (SDF) of dBASE III Plus and were produced in the BASIC subroutine by PRINT USING statements. Sequence pointer files (NDX) files were created and updated on each decision cycle.

The Lotus 1-2-3 version of the database necessitated a somewhat cumbersome procedure during which a copy of the full dBASE III Plus database was translated by means of the Lotus 1-2-3 utility program.

Copies were made of both data base versions with the sequence pointer files to floppy disks for distribution to the individual student teams.

COMPETITIVE ANALYSIS

The primary purpose of the competitive analysis was to provide a mechanism whereby the student teams could access the data base produced from the decision cycles of BML and analyze significant strategic factors that define the nature of the competitive forces existing among the firms managed by the individual student teams. In order to provide for some direction and consistency of analysis, students were required to follow a standard analysis procedure furnished to the students in an outline form. Emphasis was placed on the use of graphs which facilitate the analysis of numerous interacting strategic factors.

FIRM ANALYSIS

The primary purpose of the firm analysis was to focus on the specific strategic factors for the student's own firm. Written instructions outlined a standard analysis procedure based on the Dupont formula. Again emphasis was placed on the use of graphs. Strategy implementation was approached from three functional perspectives: (1) marketing and sales, (2) plant and production, and (3) finance and administration.

CONCLUSION

Analyses of the competitive environment and the firm using data generated by the student themselves have significant meaning to the students. Rather than being obscure topics mentioned briefly in business policy textbooks, competitive analyses and firm analyses can become a hands on, lasting experience.