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A GRAPHICS APPLICATION EXTENSION
FOR A SIMULATED DECISION SUPPORT SYSTEM ENVIRONMENT

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ABSTRACT

A procedure is described whereby a structured set of graphics produced by
the Harvard Graphics personal computer software package was interfaced
with the Business Management Laboratory (BML) business game
simulation. BML was modified to produce data records for a data base
schema of 108 variables which was maintained in both Lotus 1-2-3 and
dBASE III Plus formats. An interface was developed to import data into
Harvard Graphics from the Lotus 1-2-3 spreadsheet database to produce 28
graphs for a competitive analysis and 18 graphs for a firm analysis.

The graph parameters (e.g., graph type, color/pattern selections, data
ranges) were specified so that the graphs could be easily updated from the
most current data changes contained in the database. Individual graphs then
were displayed on a color monitor while hard copies could be produced by a
variety of personal computer interfaced printers and plotters.

TEACHING STRATEGIC MANAGEMENT ANALYSIS
USING A BUSINESS GAME SIMULATION

The author is a teacher of a graduate business policy course who wished to
create a course environment which approximated the analysis and decision
making conditions that a business manager might expect to encounter in a
typical business firm. A decision was made to utilize a business game
simulation to generate data to be analyzed and engender managerial
decision-making. The Business Management Laboratory (BML) business
game of Jensen and Cherrington which simulates a firm that manufactures
stainless steel flatware and kitchen aids was selected as the underlying
structure for the competitive environment of the course. Three functional
categories encompasses included: (1) marketing and sales, (2) plant and
production, and (3) finance and administration. BML was modified to
produce a data record containing 108 variables for each of eight firms each
decision cycle. These data records were used to maintain a database in both
Lotus 1-2-3 and dBASE III Plus formats. Two major analysis projects were
outlined for the students: (1) a competitive analysis and (2) a firm analysis.

Identifying and assessing significant strategic factors that explain the nature of
the competitive forces existing among the firms was the principal focus of the
competitive analysis. From the data available in the database, a well-
prepared analysis can clearly delineate the strategies pursued by each
competing firm. The competitive analysis was performed after four of the
eight total decision cycles.

Strategic factors for the individual firms were the core of the firm analysis.
The analysis procedure utilized the concepts upon which the well-known
Dupont formula is predicated. The firm analysis was performed at the
conclusion of the simulation.

PROBLEMS ENCOUNTERED IN USING THE DATA BASE

Two problems in particular emerged as students utilized the database. The
first problem concerned the inability, both human and computer hardware,
to focus on large quantities of data. Although the query capability of
dBASE III Plus performed as specified, monitor displays tended to be
somewhat burdensome to assimilate. The second problem concerned the
difficulty in interpreting values of dependent or related variables as they
changed from one decision period to another. For example, trend analyses
tended to be difficult to assess from the data base queries.

In addition, difficulties increased as the size of the database increased. This
was certainly the situation for the two problems above. Maximum data base
size for the entire simulation was 108 variables for each of 8 firms for a
total of 8 decision cycles.

ROLE OF THE DECISION SUPPORT SYSTEM

The evolving technology of decision support systems (DSS) offers:
significant potential as a method to teach the fundamental tools of
information management to business decision-makers; in this case, to

Harvard Graphics software was selected to be interfaced with the Lotus 1-2-
3 database. Selection was based on the capability of the package to produce
the desired graphs, ease of providing and maintaining the interface with the
data base, and the degree of user friendliness of the graphics package itself
(e.g., ease of learning).

Students were furnished a floppy disk (one for the competitive analysis, one
for the firm analysis) which contained a chart record for each graph. The
parameters in the chart record included such specifications as graph type,
color/pattern selections, data ranges, titles and variable names, etc.
Individual students were encouraged to supplement the specified graphs with
customized graphs derived from the database for their competitive
analysis and firm analysis.

Computer generated graphics can significantly enhance the decision
maker’s understanding of the numerous relationships reflected by the data
typically captured in a data base from a business game simulation. This is
certainly evident as the number of decision variables increases and the
nature of the relationships increases in complexity.