

# Developments In Business Simulation & Experiential Exercises, Volume 19, 1992

A Demonstration of Product Quality in a Business Simulation: Version 2 of CEO

Precha Thavikulwat, Towson State University

## ABSTRACT

CEO is a flexible and powerful business gaming-simulation that is administratively facile. Version 2 of CEO incorporates product quality by allowing for defective products, enabling participants to apply principles of classical statistical control and Shingo's zero quality control. Competitive analysis is aided by the tracking, tabulating, and plotting of market transactions. At full power, CEO is especially suitable for assessing business education.

## OVERVIEW

CEO (Thavikulwat, 1991) is a business gaming-simulation flexible enough for any setting where a business gaming-simulation would be suitable. It is designed for the business educator who wants a powerful game that will be distinguished in any assignment, without being administratively time consuming. Of its many unique features, those that enable this flexibility are as follows:

- It can be played as a functional game, as a total enterprise game, or as a total economy game.
- It can be configured by the instructor to emphasize learning by discovery, by perseverance, or by competition (Thavikulwat, 1988).
- It can be played in three modes: independent, batch, and continuous.
- It can be played in phases, with parameters changing between phases (Thavikulwat, 1991).
- It can supply a score for each participant, in addition to a score for each firm.
- It incorporates a real market (Thavikulwat, 1990), in addition to a modeled market.
- Although it can run on stand-alone, 256k, modestly IBM-compatible machines, it also can take advantage of the file-sharing capabilities of microcomputer networks.
- It includes a task-switching program enabling it to reside in computer memory simultaneously with a spreadsheet program, or any other supporting program.
- It includes configuration programs allowing the instructor to reconfigure the simulation safely and easily.

Once configured and set up, CEO becomes largely self-administering. Participants process their own inputs and outputs, relieving the instructor of this burden. File encryption, automatic backups, and consistency checks assure system integrity.

Version 2 of CEO incorporates product quality by allowing for defective products (Thavikulwat, this issue). These defective products arise from causes that the administrator can set, and that participants can discover through experimentation and analysis. Products can be inspected by a continuous sampling plan. Defective products depress demand in the simulation's modeled market and have a caveat emptor impact on its real market.

Production can be configured in either teach mode or test mode. In teach mode, statistics on defect rates are supplied to participants, rendering statistical inference unnecessary. In test mode, these statistics are not supplied. The simulation is pre-configured to start with teach mode, and automatically advance into test mode.

Consumption in the real market can be configured for either the informed variant or the uninformed variant. Informed, participants-as-consumers are given the defect rates of products offered for sale. Uninformed, defect rates are not given, but can be estimated by sampling purchases.

Principles of both classical statistical quality control and Shingo's (1986) zero quality control can be applied. Omega transformation of defect rates is supplied to aid the use of Taguchi (Ross, 1988) methods.

Competitive analysis is aided by a MARKET program that tabulates market transactions and plots product quality, volume, and market growth on relative market shares. A database of all real market transaction is available for analysis.

## SUITABILITY FOR ASSESSMENT

CEO is especially suited for assessing business education. It is flexible, comprehensive, objectively scoring, and largely self-administering. At full power, it is a total economy simulation that accepts a virtually unlimited number of participants and firms, all of which can be active at different times and can advance at different rates. It permits interdependent competition between more educated and less educated participants, so that the abilities of the latter may be assessed with respect to those of the former.

## STATEMENT

I authored CEO, and have used it extensively in teaching business policy and strategic management. CEO is built on MANAGEMENT 500 (Thavikulwat, 1989), a simulation for production and operations management, and includes all its features. Version 1 of CEO (Thavikulwat, 1991) is in print. Version 2 is undergoing review. A copy of CEO together with the instructor's manual can be obtained by calling McGraw-Hill at 800-338-398. I will send Version 2 supplements upon request (Department of Management, Towson State University, Towson, MD 21204-7097; e-mail e7b3tha@towsonvx.bitnet; phone 1w] 410-830-3230, [h] 410-8288353; fax 410-830-3236).

## REFERENCES

- Ross, P. J. (1988), *Taguchi techniques for quality engineering*, NY: McGraw-Hill.
- Shingo, S. (1986), *Zero quality control: Source inspection and the poka-yoke system*. Cambridge, MA: Productivity Press.
- Thavikulwat, P. (this issue), "Product quality in business simulations," *Developments in Business Simulation & Experiential Exercises*.
- Thavikulwat, P. (1991). *CEO: A business simulation to policy and strategic management*. NY: McGraw-Hill.
- Thavikulwat, P. (1991), "Operationalizing strategy with participant-modifiable parameters," *Developments in Business Simulation & Experiential Exercises*, 18, 147.
- Thavikulwat, P. (1990) "Consumption as the objective in computer scored total enterprise simulations," *Developments in Business Simulation & Experiential Exercises*, 17, 167-169.
- Thavikulwat, P. (1989), *Management 500: A business simulation for production and operations management*. NY: McGraw-Hill.
- Thavikulwat, P. (1988) "Emphasizing different modes of learning through a configurable business simulation game," *Simulation & Games*, 19, 408-414.