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THE DEVELOPMENT OF AN IMPROVED BUSINESS GAME

FOR USE IN

MASSEY UNIVERSITY MARKETING COURSES

A thesis presented in partial
fulfilment of the requirements for the degree of Master
of Agricultural Business and Administration in
Marketing at Massey University.

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1978

ABSTRACT

The thesis is a response to a problem situation in which a business game, having been used in undergraduate courses for several years, was thought to be inadequate by course and game administrators. The problem is first defined and objectives for the study are set. This is followed by a comprehensive overview of business gaming and a more specific review of the processes and problems of business game design. A description of the game in use, MARKSIM, is given. The MARKSIM experience at Massey University is evaluated from the game administrators' and game players' points of view, the latter by a survey of 41 second and third year marketing students. The specifications of a more satisfactory game are derived from this evaluation and alternative means of acquiring such a game are investigated. The solution chosen as most appropriate is to modify the game already in use and this is carried out.

Improvements to the game include reparameterization of the game to reflect the New Zealand business environment, adoption of a two-product product mix, inclusion of optional qualitative administrator inputs reflecting advertising efficiency and annual report quality, superimposition of a share market on the model business community, increased market research capabilities, and general improvement of the game's robustness against administrator and player errors.

Evaluation of the resultant game in terms of the problem situation is not possible within the time horizon of the thesis.

Program listings are appended.

ACKNOWLEDGEMENTS

For their contributions to this thesis I sincerely thank David Bridgeman-Sutton for ideas and enthusiasm, Lance Pearson for computer expertise and being available when most needed, Lyn, my wife, for endless typing and encouragement, and Professor Wayne Cartwright for supervising my work.

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CHAPTER 1. Introduction

1.1 The Problem Situation

A business game called MARKSIM has been in use as a teaching aid at Massey University during the academic years, 1974, 1975 and 1976. This game is centered on the 'marketing' functional area of business and has been played by Marketing Strategy classes at the 200 level. The game has been played by students in parallel courses at Otago University and Waikato University.

The game, written by P.S. Greenlaw and F.W. Kniffen of Pennsylvania State University in 1964 [10], models an unspecified consumer durable product in a three-firm competitive industry selling to three market segments.

Teaching staff using this game at Massey University have been pleased with the educational effects of gaming sessions but have felt that the game, in its original form, was inadequate for use in this particular environment. The four principal problems initially reported were:

(i) The game involves firms and markets of vastly greater size than those found in the New Zealand business environment.

(ii) Some decision variables which the administrating staff consider highly important in the New Zealand context are absent from the game.

(iii) The 'response to decision' behaviour of the three market segments inadequately reflects established theories.

(iv) The administrating staff consider that more flexibility of, and more control over, computational aspects of the game would be of advantage.

The author's experience with MARKSIM prior to writing this thesis includes:

(i) Implementation of MARKSIM on Massey University B6700 computer, 1974.

(ii) Running computational aspects of MARKSIM, 1975.

(iii) A dissection of the response function segment of the game resulting in the unpublished report "Analysis of Response Functions used in MARKSIM" submitted as a partial requirement for the Masterate course 56.401 Marketing Models, 1975.

(iv) A re-specification of the parametric structure of the game, including reduction of scale and refinement of the market segmentation structure, and reorganization of the computational procedures, 1976.

Conclusions drawn from this experience were:

(i) The game concept and basic structure are theoretically sound.

(ii) The response function structure is flexible and appropriate, although the original parameters assigned by Greenlaw and Kniffen were inappropriate for New Zealand usage.

(iii) Computerization of the computational aspects of the game has been inadequately executed, resulting in a computer program which is difficult to 'read' for debugging purposes and is not robust against operator errors or game player errors.

After the re-parameterization of MARKSIM in 1976 the initial problems of game scale and market segmentation were overcome but it was increasingly obvious to the game administrators and the author that the game was unsatisfactory for the 200 level Marketing course. At this time the major problems were considered to be:

(i) too low a level of complexity for the game players,

(ii) no way of building into the game the efforts of players in preparing analyses of play, promotion plans and 'annual reports',

(iii) the lack of robustness of the computer aspects of the game.

1.2 Objective of the Study

The objective of this study is to produce a marketing game for use in marketing courses at Massey University which incorporates features considered desirable in this context. The reference point for the study is the business game MARKSIM.

The use of a reference game such as this is recognized as a constraining influence on the study but is justified on the grounds that marketing game experience at Massey University is almost entirely related to MARKSIM. The author considers that this experience and information is specific to the MARKSIM experience at Massey

University and can not be used as a general evaluation or knowledge of business gaming. It would therefore be inappropriate not to base the study on the MARKSIM game as the wealth of direct knowledge available could not be used.

1.3 Thesis Guide

In order to achieve the objective as stated, the thesis first reviews business gaming in detail, investigating the educational validity of the technique, analysing characteristics and use of business games and commenting on the problems, limitations and prospects of business gaming. In Chapter 3 the thesis reviews in more detail the processes and problems of designing business games. The material in this chapter is also directly related to evaluating business games and as a basis for both design and evaluation has a strong influence on the remainder of the thesis. Chapter 4 presents a description of the reference game MARKSIM and Chapter 5 evaluates the MARKSIM experience at Massey University arriving at a summary of suggested improvements to MARKSIM in this context. Chapter 6, entitled "Implementation of an Improved Game", opens with a discussion of alternate strategies to provide an improved game. Three alternate strategies are discussed and modification of MARKSIM is chosen as the most appropriate. Improvements are then applied to the basic model, the relationships between variables, the presentation of game performance, and administrative aspects of game play.

Computer programs, data files, decision forms, tabulated survey results and a discussion of functional equation forms used are appended to the thesis.

At the time of presentation of the thesis the modified game has been implemented on the Massey University computer system and has had several successful runs. It is envisaged, however, that parameterization of the game may need refining after more extensive in-use testing with student players.

The thesis contains no formal conclusion. The time horizon allowed for presentation of the thesis precludes comprehensive in-use testing of the modified game because this can only be accomplished by using the game in marketing courses for an extended period. The increased and optional complexity of the game, together with the other modifications will improve its efficiency as a teaching tool and will provide lecturers with a more potent and relevant vehicle for teaching marketing management skills to both elementary and advanced students. The degree to which lecturers use the potential of the improved game is beyond the influence of the author. The result of this thesis has been simply to remove some of the constraints on teaching efficiency imposed by the original MARKSIM game.