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INTERACTIVE ONLINE STRATEGIC MARKET PLANNING
WITH THE WEB-BASED BOSTON CONSULTING GROUP
(BCG) MATRIX GRAPHICS PACKAGE

Palia, Aspy P.
University of Hawaii at Manoa

De Ryck, Jan
University of Hawaii at Manoa

Mak, Wai Keong
National University of Singapore

ABSTRACT

The Web-based Boston Consulting Group (BCG) package is an interactive online strategic market planning package that enables competing participant teams in the marketing simulation COMPETE to apply their knowledge of Product Portfolio Analysis developed by the Boston Consulting Group in strategic market planning. Participants with Web-access can use this package on a 24x7 basis to perform static, comparative static and dynamic analyses of their own product portfolios and the product portfolios of their competitors. This package enables participants to generate customized BCG graphic displays and to download and use them in their team reports and presentations at the end of the semester. They can create sophisticated build PowerPoint presentations to illustrate their own brand trajectories and the brand trajectories of their major competitors, as they cover the strategic analysis of the product portfolio. This package facilitates the integration of computers, the Internet and the World Wide Web into the marketing curriculum.

INTRODUCTION

The Web-based Boston Consulting Group (BCG) package is an interactive online strategic market planning package that enables competing participant teams in the marketing simulation COMPETE to apply their knowledge of Product Portfolio Analysis developed by the Boston Consulting Group in strategic market planning (Palia 1991). Participants with Web-access can use this package on a 24x7 basis to perform static, comparative static (Palia 1995) and dynamic analyses of their own product portfolios and the product portfolios of their competitors (Palia 1996). This package facilitates the integration of computers, the Internet and the World Wide Web into the marketing

curriculum.

The primary purpose of this paper is to present this new user-centered learning tool which helps to prepare students for strategic market planning and marketing decision-making responsibilities in their future careers. The objective is to provide participant teams the opportunity (1) to plan, implement, and control a marketing program for their products and (2) to apply strategic market planning concepts and procedures in a dynamic, complex and uncertain simulated competitive environment.

STRATEGIC MARKET PLANNING

The six elements of strategy are the product investment decision, level of investment, functional area strategies, the basis of sustainable competitive advantage, the allocation of resources among strategic business units, and synergy (Aaker 2001). Strategic market planning is a complex problem for multiproduct multimarket firms that have numerous products serving several markets with differing potentials. Some products may be in a dominant position relative to competitors, while others may be in a weaker position. Each product has its own strategy, and may face several competitive products that have their own marketing strategies. Some products may be profitable while others may need cash to finance growth or to fight competition. Faced with this complex situation, the organization must allocate its limited resources among these products in order to optimize its overall performance (Abell and Hammond 1979).

In order to optimize the overall performance of its portfolio of products, the organization first monitors and analyzes the performance of each of its strategic business units (products). The firm conducts this analysis in order to decide which strategic business units to build, maintain, harvest, and divest. One of the best known and widely used models for this purpose is the Boston Consulting Group

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Product Portfolio Analysis model (Kotler 2000).

The product portfolio approach developed by the Boston Consulting Group assigns strategic roles for each product based on the product's market growth rate and market share relative to competitors. These individual roles are then integrated into a strategy for the whole portfolio of products, taking into consideration the product portfolios of the main competitors. The objective is to attain the best overall performance for the portfolio of products, while maintaining cash flow in balance.

The growth share matrix (GSM) and the growth gain matrix (GGM) are used to display the relevant information about the firm's portfolio of products. These displays help to reduce the inherent complexity of the problem to manageable proportions. The heart of product portfolio analysis involves the creation and interpretation of the GSM and GGM displays for the firm and its main competitors.

Each firm's strategic business units (products) are classified into four categories. First, "Cash Cows" indicated by "\$" are products that have a dominant share of slowly growing markets. These products provide cash to pay dividends and interest on corporate debt, cover overhead, finance R&D, and sustain the growth of other products. Second, "Dogs" indicated by "X" are products with a low share of slowly growing markets. These products neither generate nor require substantial amounts of cash, and they are often called "cash traps." Third, "Problem Children" indicated by "?" are products with a low share of fast growing markets. These products require substantial resources to gain market share and to become strong members of the product portfolio. Finally, "Stars" indicated by "*" are high-growth, high-share products whose present modest cash requirements will change to a large surplus when the market matures (Abell and Hammond 1979).

The interactive Web-based Boston Consulting Group (BCG) graphics package enables competing participant teams in the COMPETE marketing simulation to generate customized GSM and GGM graphic displays online for their own and competing firms. The customized graphic displays are generated based on underlying performance data files that are generated and uploaded to the Web server by the professor. Once these customized graphic displays are generated, participants can download and use them in their team reports and presentations at the end of the semester. They can create sophisticated build PowerPoint presentations to illustrate their own brand trajectories and the brand trajectories of their major competitors. They can illustrate alternative target portfolios as they cover the strategic analysis of the product portfolio (Palia 1996).

THE MARKETING SIMULATION COMPETE

COMPETE (Faria, Nulsen, and Roussos 1994) is a widely used marketing simulation designed to provide students with marketing strategy development and decision-

making experience. Competing student teams are placed in a complex, dynamic, and uncertain environment. The participants experience the excitement and uncertainty of competitive events and are motivated to be active seekers of knowledge. They learn the need for and usefulness of mastering an underlying set of decision-making principles.

Competing student teams plan, implement, and control a marketing program for three high-tech products in three regions within the United States. The features and benefits of each product and the characteristics of consumers in each region are described in the student manual. Based on a marketing opportunity analysis, a mission statement is generated, specific and measurable company goals are set, and marketing strategies are formulated to achieve these goals. Constant monitoring and analysis of their own and competitive performance helps the teams better understand their markets and improve their decisions.

Each decision period (quarter), the competing teams make a total of 74 marketing decisions with regard to marketing their three brands in the three regional markets. These decisions include nine pricing decisions, nine shipment decisions, three salesforce size decisions, nine salesforce time allocation decisions, one salesforce salary decision, one salesforce commission decision, twenty-seven advertising media decisions, nine advertising content decisions, three quality-improvement R&D decisions, and three cost-reduction R&D decisions. Successful planning, implementation, and control of their respective marketing programs requires that each company constantly monitor trends in its own and competitive decision variables and resulting performance.

Web-based Boston Consulting Group (BCG) Matrix Graphics Package

The Web-based BCG Matrix Graphics Package is an interactive online strategic market planning graphics package. This package differs from the PC-based COMPETE PPA Package developed with Borland's Turbo C Version 2.01 programming language. The web-based graphics package has a modular design. Following the eighth decision run, the simulation administrator uses windows script files (front end) to transform the COMPETE simulation output for each industry into a ppa.dat file. Next, the administrator renames the generic ppa.dat file in each industry folder to an industry-specific file name such as ppaC.dat for Industry C, and uploads the file to the corresponding Industry C folder on the web server.

Later, the competing participant teams log in to the COMPETE Online Decision Entry System (CODES) website. Their login is validated against a database of participating teams for each industry.

When they select the Product Portfolio Analysis option from the CODES Main Menu, the web application selects the correct data file for their industry and presents them

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with several options. They can select the company, year, product, region, sales revenue scale, color by (a) strategic business unit, (b) region or (c) product, linear or log relative market share scale, fixed or floating 10% industry growth rate line, and black or white background color. After the options are selected, they click the Submit button to generate the graphic display link to a postscript file. Later, when they click on this link, the graph is opened in a Postscript Viewer. The process can be repeated with different display settings. The graph can be imported into Microsoft PowerPoint or Microsoft Word for subsequent presentation or report respectively.

GSM and GGM displays are generated at the end of the second and third year of operations and permit the participant teams to conduct static, comparative static, and dynamic analyses of their own product portfolio and the product portfolios of their main competitors. By superimposing the display at the end of the third year of operations on the display at the end of the second year, the participant teams can determine the trajectories (direction and degree of movement) of each of their products. Competitor product trajectories can also be generated and analyzed. Based on these displays, the competing participant teams can (1) check for internal balance in their product portfolios, (2) look for trends, (3) evaluate competition, (4) consider factors not captured in the portfolio display, and (5) develop possible "target" portfolios along with associated strategies for achieving them.

Design Framework

A modular design was used. The Web-based BCG Graphics package has three functional blocks for data collection and transformation, graph generation, and graph presentation. Figure 1 illustrates the data flow among these elements.

The following tools were used in the development of the Web-based Boston Consulting Group Graphics package:

1. Web-based PPA.exe (Graphics back-end) Freeware LCC32 compiler, developed by Jacob Navia. DISLIN graphical library, developed by Helmut Michels.
2. Web-based Front-end (Data front-end) Javascript and VbScript
3. Windows Script Files ActiveState Perl 5.6 Windows Scripting Host 2.0

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