

Using a strategy-aligned fuzzy competitive analysis approach for market segment evaluation and selection

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Abstract

This study applies Five Forces Analysis to evaluate and select market segments for international business using a strategy-aligned fuzzy approach. An illustration segment evaluation procedure is used to demonstrate that our procedure is an effective quantification approach for integrating five forces, generic strategies and marketing information in a group decision-making process. The final decision-maker (DM) synthesizes the total crisp scores of individual alternatives by choosing judgmental coefficients λ based on individual attitude towards core business competitiveness and market risks to accommodate differences among market segments to the specific environment with a better understanding of the decision problem and individual decision-making behavior. In the illustration presented here, the final solution is then obtained by identifying the best market segment for further development and negotiation.

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Keywords: Market segment evaluation; Market segment selection; Fuzzy factor rating system; Strategy alignment; Multiple attributes decision-making

1. Introduction

Market segmentation involves detecting, evaluating and selecting homogeneous groups of individuals regardless of whether consumers or not with the intention of designing and directing appropriate competitive strategies. Market segment evaluation is an essential component international market development. Market segments are defined as groups of consumers who are expected to exhibit similar purchasing responses. Market segment evaluation can help in targeting markets, thus improving the probability of success.

In evaluating different market segments, firms must look at three factors: segment size and growth, segment structural attractiveness, and company objectives and resources. Firms must first collect and analyze data on current segment sales, growth rates, and expected profitability. A review of academic research reveals that existing studies

have relatively neglected segment evaluation and selection. Most existing studies merely evaluate the sales potential, attractiveness, or stability of individual segments, and fail to consider the needs of competitive strategic management.

The model of the Five Forces Analysis is designed to support the competitive strategic management developed by Michael E. Porter in his book “Competitive Strategy”. This model has since become an important tool for analyzing organizational structure in strategic management processes. Strategy is an action plan for achieving organizational mission. Porter (1980) and Hambrick and Fredrickson (2001) pointed out that firms achieve their mission via three conceptual approaches: differentiation, cost leadership and segmentation. One or a combination of these three strategic concepts can generate a system that provides unique advantages over competitors. The strategy of segmentation presents requirements to a market niche segment than the strategy of differentiation or cost leadership.

The attributes of market segments must be associated with firm competitive strategies. The model of five forces

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of Porter thus enables a systematic and structured analysis of market structure and competitive situation. This model can be applied to specific companies, market segments, industries or regions. Therefore, the scope of the market to be analyzed must be determined in a first step. Subsequently, all relevant forces for this market are identified and analyzed. Hence, it is not necessary to analyze all of the elements of all competitive forces in the same detail.

Rigby (1994) managed 25 of the most popular and topical management tools and found that the most commonly used tools were Mission Statements (use by 94% of respondents in the past five years) while the least utilized tools were Value Chain Analysis (27%), Five Force Analysis (24%), etc. Norman (2005) further noted that these old tools are workable in a modern knowledge economy that lacks quantitative information. This study uses a strategy-aligned fuzzy approach for quantifying the Five Forces Analysis qualitative factor. This new model is applied to the new knowledge-intensive worldwide competition business.

Market segment evaluation and selection (MSE/MSS) is a cross-functional, group decision-making (GDM) problem, frequently solved by a non-programmed decision-making process, with long-term strategic implications for firms. Decision groups contain decision-makers/experts (DMs) dealing with specific issues, for example the marketing, sales, market research, and accounting and finance personnel dealing with MSS/ MSE issues, or other experts who are more experienced than others. In reality, the importance of individual DMs against a decision-making attribute may not be equal or uniform. Notably, the final outcome of the GDM process may be markedly influenced by the degree of importance of such individual DMs.

Wind (1978) suggests that it is important to evaluate expected market response, product line implications, management objectives, and available resources. That is, segment evaluation entails strategic consideration of more than merely statistical differences between clusters. Also consider customer tastes and firm ability and desire to serve the market. A good method for aggregating the various influences of individual opinions, evaluations, and ratings from multiple DMs must be considered in strategic problems such as MSE/MSS problems.

According to Montoya-Weiss and Calentone (2001), there are four stages in the market segment evaluation and selection procedure: problem structuring, segment formation, segment evaluation and selection, and description of segment strategy. Defining the problem structure in the decision-making processes is the first step in the method used to support DMs in carefully questioning the need for a decision and identifying available alternatives. No publication treating the stages of problem structuring and criteria formulation can be found in MSS/MSE processes.

During the stage of segment formation criteria, the main task facing firms is assessing the key competitive factors in their industry and translating these dimensions into MSE/ MSS criteria. Additionally, from a long-term perspective,

MSE/MSS is a semi-structured decision-making problem at the strategic management level. The inherent imprecision of the relevant information and decision process associated with such problems is broad, has foresight, and is non-recurring and external. Most of these attributes are evaluated by human perception and judgment, and thus the evaluation is subjective. Accordingly, MSE/MSS problems, particularly for new task situations, typically involve the vagueness inherent in linguistic assessment and multiple attributes/criteria decision-making (herein namely MADM). Approaches employing only exact numerical (crisp) values cannot support decision-making procedures for such evaluation problems.

Harrison and Pelletier (2001) pointed out that successful strategic outcomes constitute a joint function of managerial attitudes toward the decision-making process along with managerial attitudes toward the decision itself. The conclusion of their investigation was that the best type of decision-making is characterized by attainable strategic objectives pursued through an open (dynamic) system rather than a closed (static) system, and the decision results are satisfying rather than a maximized outcome obtained through a judgmental rather than a computational process. Considerable savings and effectiveness in subsequent implementation planning and evaluation could then be achieved.

This study focuses on an MSE/MSS problem in a situation involving the analysis of five competitive forces. The proposed solution methodology is designed to achieve the following characteristics.

- DMs are better off pursuing a satisfying outcome obtained through a judgmental process rather than a maximized outcome obtained through only one computational process.
- The formulations of multiple attributes/criteria must match a company's competitive strategies and the weights of the multiple criteria and the ratings of the alternatives can be associated with fuzzy values.
- Expertise, experience, authority, and the responsibilities of different DMs on specific attributes/criteria and the ratings of alternatives need not be considered uniform.
- The MSE/MSS model must consider the attitudes of DMs regarding the market risks of the individual potential segment.
- Simplify the problem to save subsequent implementation planning and evaluation cost while making decisions effectively without significant loss of quality in the dynamic and uncertain decision-making environment.

This study proposes a pragmatic strategy-aligned method incorporating a judgmental decision-making process for solving the MSS/MSE problem in GDM with fuzzy environments. The remainder of this paper is organized as follows. Section 2 discusses the related literature. Section 3 then describes a review of fuzzy set theory (FST). Next, Section 4 introduces and describes the proce-

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