

8th International Strategic Management Conference

Analysis of the Turkish Consumer Electronics Firm using SWOT-AHP method

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Abstract

SWOT analysis is a strategic planning method used to evaluate the Strengths, Weaknesses/Limitations, Opportunities, and Threats involved in a project or in a business venture. It involves specifying the objective of the business venture or project and identifying the internal and external factors that are favorable and unfavorable to achieve that objective. Turkish electronics industry is continuously working to produce innovative, high quality and globally competitive products. The Turkish electronics industry began to develop rapidly in the second half of the 80's. In this study, SWOT Analysis was used as a method to analyse a consumer electronics company from Turkey and we determined strategies according to the SWOT factors. Analytic Hierarchy Process (AHP) method is integrated to support decision situation about strategies which is determined with SWOT analysis. So the SWOT matrix is converted into a hierarchic structure and the model is analyzed with the Analytic Hierarchy Process.

Keywords: Strategic management, SWOT analysis, AHP, Consumer electronics.

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1. Introduction

Strategic management has been widely used by all enterprises to withstand fierce market competition. The strategic management process consists of three stages: strategy formulation, strategy implementation, and strategy evaluation. SWOT analysis of external opportunities and threats as well as the internal strengths and weaknesses of the enterprises is important for strategy formulation and development (Chang, Huang, 2006).

The two main components of SWOT are the indicators of the internal situation described by existing Strengths and Weaknesses and the indicators of the external environment described by existing Opportunities and Threats (Markovska, Taseska and Jordanov, 2009).

However, the use of this method gives rise to some important advantages and disadvantages. The advantages, for instance, may include the idea that this method is very simple and everybody can use it without having advanced

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knowledge or external technical support. The disadvantages refer to a variety of shortcomings regarding this method such as its simplistic, static and subjective character. These shortcomings have influenced the transparency of the results of SWOT analysis. In order to overcome some of these challenges, this study draws information from the annual environmental reports of companies in which they disclosed real and more accurate data and overcame the subjectivity of managers' answers, which can be a prevalent problem on similar research efforts (Nikolaou and Evangelinos, 2010).

The methodology that is used to enable the SWOT analysis for reducing fatigue related human errors on board includes the identification of relevant factors in terms of SWOT groups (namely strengths group, weaknesses group, opportunities group and threat group). According to this

1. The number of factors within every SWOT group (namely strengths group, weaknesses group, opportunities group and threat group) was fixed at ten; otherwise, the number of pairwise comparisons needed in the analysis would increase rapidly and pose problems for further comparisons.

2. Pairwise comparisons among factors were conducted within every SWOT group. When making the comparisons, the questions at stake were: (i) which of the two factors compared was greater, and (ii) how much greater? With these comparisons as the input, the relative local priorities of the factors were computed using SWOT analysis.

3. The pairwise comparisons were made amongst the four SWOT groups. The factor with the highest local priority was chosen from each group to represent the group. These four factors were then compared and their relative priorities were computed in the second step. These were the scaling factors of the four SWOT groups, and they were used to analyze the overall priorities of the independent factors within them.

4. The pairwise comparisons were made between alternative strategies subject to all SWOT factors. While making the comparisons, the questions at stake were:

- (i) which one of the two strategy-alternatives was better in maximizing or responding to the specific factors regarding strengths or opportunities, and which one of the two alternatives was better in minimizing or avoiding the factors regarding weaknesses or threats; and (ii) how much better is that alternative? The overall importance of the strategy-alternatives was analyzed in this manner. In SWOT analysis, multiple perspectives are always needed (Srivastava, Kulshreshtha, Mohanty, Pushpangadan and Singh, 2005).

The Analytic Hierarchy Process (AHP) is a theory of measurement through pairwise comparisons and relies on the judgments of experts to derive priority scales. It is these scales that measure intangibles in relative terms. The comparisons are made using a scale of absolute judgments that represents, how much more, one element dominates another with respect to a given attribute. The judgments may be inconsistent, and how to measure inconsistency and improve the judgments, when possible to obtain better consistency is a concern of the AHP. The derived priority scales are synthesized by multiplying them by the priority of their parent nodes and adding for all such nodes.

To make a decision in an organized way to generate priorities we need to decompose the decision into the following steps.

- 1 Define the problem and determine the kind of knowledge sought.

- 2 Structure the decision hierarchy from the top with the goal of the decision, then the objectives from a broad perspective, through the intermediate levels (criteria on which subsequent elements depend) to the lowest level (which usually is a set of the alternatives).

- 3 Construct a set of pairwise comparison matrices. Each element in an upper level is used to compare the elements in the level immediately below with respect to it.

- 4 Use the priorities obtained from the comparisons to weigh the priorities in the level immediately below. Do this for every element. Then for each element in the level below add its weighed values and obtain its overall or global priority.

Continue this process of weighting and adding until the final priorities of the alternatives in the bottom most level are obtained. To make comparisons, we need a scale of numbers that indicates how many times more important or dominant one element is over another element with respect to the criterion or property with respect to which they are

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