



ELSEVIER

Forest Policy and Economics 1 (2000) 41–52

Forest Policy
and
Economics

www.elsevier.nl/locate/forpol

Utilizing the analytic hierarchy process (AHP) in SWOT analysis — a hybrid method and its application to a forest-certification case[☆]

Mikko Kurttila^{a,*}, Mauno Pesonen^a, Jyrki Kangas^b, Miika Kajanus^a

^a*Finnish Forest Research Institute, Helsinki Research Center, P.O. Box 18, FIN-01301 Vantaa, Finland*

^b*Finnish Forest Research Institute, Kannus Research Station, P.O. Box 44, FIN-69101 Kannus, Finland*

Received 22 February 1999; accepted 1 April 1999

Abstract

The present study examines a new hybrid method for improving the usability of SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis. A commonly used decision analysis method, the Analytic Hierarchy Process (AHP), and its eigenvalue calculation framework are integrated with SWOT analysis. AHP's connection to SWOT yields analytically determined priorities for the factors included in SWOT analysis and makes them commensurable. The aim in applying the hybrid method is to improve the quantitative information basis of strategic planning processes. The hybrid method was tested in connection with a Finnish case study on forest certification. In the case study, the results were presented in an illustrative way by utilizing the quantitative information achieved by the hybrid method. The results indicated that certification could be a potential strategic alternative in our case study farm. In addition, the needed pairwise comparisons were found useful, because they force the decision maker to think over the weights of the factors and to analyze the situation more precisely and in more depth. © 2000 Elsevier Science B.V. All rights reserved.

Keywords: AHP; Decision analysis; External and internal environment; Forest certification; Strategic planning; SWOT

[☆] An earlier version of the paper was presented at the conference '1997 ACSM/ASPRS (American Congress on Surveying and Mapping/American Society for Photogrammetry and Remote Sensing) Annual Convention and Exposition, April 7–10, 1997, Seattle' and published in the Conference's Technical Papers.

* Corresponding author. Tel.: +358-9-857-05-804; fax: +358-9-857-05-809.
E-mail address: mikko.kurttila@metla.fi (M. Kurttila)

1. Introduction

Forestry and forest planning are influenced by changes within internal and external operational environments. In forest planning, most of the concern has traditionally been placed on the internal environment assuming the external environment to be stable. Recently, applications and methods dealing with changes arising from the external environment have been presented and applied in forest planning. These methods include, for example, connecting the exogenous timber-demand factor and lagged price adjustment to a timber management planning model (Mykkänen, 1995), participatory planning, which means responding to the objectives of external interest groups (e.g. Kangas et al., 1996a; Pykäläinen et al., 1999), and including stochasticity, arising, for example, from changes in timber prices and the level of tree growth, with forest planning by using risk and scenario techniques (e.g. Pukkala and Kangas, 1996). However, common strategic planning approaches are fundamentally based on adjusting to changes in the external environment and there exists a wide range of planning methods that are well-suited for analyzing the interactions of both environments simultaneously. These methods are available and can be further developed to be used in forest planning.

SWOT (the acronym standing for Strengths, Weaknesses, Opportunities and Threats) analysis is a commonly used tool for analyzing internal and external environments in order to attain a systematic approach and support for a decision situation (e.g. Kotler, 1988; Wheelen and Hunger, 1995). The internal and external factors most important to the enterprise's future are referred to as strategic factors and they are summarized within the SWOT analysis. The final goal of strategic planning process, of which SWOT is an early stage, is to develop and adopt a strategy resulting in a good fit between internal and external factors. SWOT can also be used when strategy alternative emerges suddenly and the decision context relevant to it has to be analyzed.

If used correctly, SWOT can provide a good basis for successful strategy formulation. Never-

theless, it could be used more efficiently (e.g. McDonald, 1993). When using SWOT, the analysis lacks the possibility of comprehensively appraising the strategic decision-making situation; merely pinpointing the number of factors in strength, weakness, opportunity or threat groups does not pinpoint the most significant group. In addition, SWOT includes no means of analytically determining the importance of factors or of assessing the fit between SWOT factors and decision alternatives. The further utilization of SWOT is, thus, mainly based on the qualitative analysis, capabilities and expertise of the persons participating in the planning process. As planning processes are often complicated by numerous criteria and interdependencies, it may be that the utilization of SWOT is insufficient. In their study, Hill and Westbrook (1997) found that none of the 20 case companies prioritized individual SWOT factors, one grouped factors further into subcategories, and only three companies used SWOT analysis as an input for a new mission statement. In addition, the expression of individual factors was of a very general nature and brief. Thus, it can be concluded that the result of SWOT analysis is too often only a superficial and imprecise listing or an incomplete qualitative examination of internal and external factors.

Applications for gaining extra value from SWOT analysis in further strategic planning processes have been presented. Weihrich (1982) presented the TOWS matrix, which helps to systematically identify relationships between threats, opportunities, weaknesses and strengths, and offers a structure for generating strategies on the basis of these relationships. Proctor (1992) presented a computer package partly based on Weihrich's TOWS matrix. In Proctor's (1992) package, computer-aided creativity produces words for decision makers to use in identifying strengths, weaknesses, opportunities and threats. In addition, Proctor's (1992) method includes creative generation and systematic evaluation of strategic alternatives. Flett (1989) introduced a method of initiating and crystallizing conceptual thinking. His method is a mix of Kipling's five Ws (What, When, Where, Who, Why), McCarthy's four Ps plus one additional P (Product, Price,

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات