

Sustainable technological competency using fuzzy analytic hierarchy process and fuzzy TOPSIS

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Abstract

Over the last few decades, companies have invested in sustainable technological competency that such an investment would improve operating efficiency and thus improves financial and non-financial performance. The principle of core competency is the basis of acquiring competitive advantage. Technological competency is the most tangible type of the core competencies in the firm level, which helps the firm to make the best use of its opportunities by producing new products and also by extending new processes inside the firm, relative to the competitors. The firm whose technology competency level is higher than rivals, will generate and introduce more innovative products. The model of this study is tested on a sample of 12 experts in 4 coil companies in Iran which own about 90% of the market share in the coil industry. In this research, technological competency factors (technology management, process technology, product technology) are prioritized according to the competitive advantage levels and competitive priorities by using fuzzy analytic hierarchy process and fuzzy TOPSIS with the aim of maximizing the financial and nonfinancial performance at coil manufacture industry. The results of using two fuzzy techniques to prioritize competencies indicate that in the coil industry in Iran, process technology is of greater importance than product technology and technology management.

Keywords: Sustainable technological competencies, Fuzzy Analytic Hierarchy Process. Fuzzy TOPSIS.