Complementary Methods for Effective Decision Making

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The development and empirical verification of the balanced scorecard (BSC) model, using the multi-criteria decision-making method called the analytic network process (ANP), are the key issues of the presented research. The paper presents the methodology of the prioritisation of the BSC goals with ANP method. Even though the prioritisation of the goals is possible with other method(s) findings from the empirical analysis showed that the ANP is more complementary with the BSC because of the influences among the goals in the BSC. The paper discusses special situations in prioritizing the BSC goals, i.e. understanding the ANP from the perspective of the user and the BSC with strategic goals that do not directly influence any other strategic goal, and proposes solutions. Therefore, it can be asserted that introducing the ANP to implement the BSC and vice versa, improved the decision-making approach and the quality of the obtained results. The research was based on a case study of modelling the BSC for ebm-papst LL Company, a manufacturing company.

Organisations can successfully execute strategies if strategic analyses and strategy maps are designed and understood by employees (Janeš, 2014, 2015). Among the number of approaches for measuring business performance, several have attained a dominant position, e.g. analytic network process (ANP), (Niemira and Saaty, 2004) and balanced scorecard (BSC) (Kaplan and Norton, 2004).

The AHP helps analysts to organise theoretical aspects of a problem into a hierarchical structure, similar to a family tree. By reducing complex decisions to a series of simple comparisons and rankings, and then synthesising the results, the AHP helps analysts to arrive at the best decision, and provides them with a clear rationale for the choices made (Saaty, 2008). In addition to the AHP, the ANP is a useful tool for prediction and for representing a variety of competitors with their interactions and their relative strengths to wield influence in making decisions (Saaty, 2001).

The ANP is employed to identify causal relationships (Janeš, 2014) of a BSC's strategy map (Rahimnia and Kargozar, 2016). The inclusion of a BSC provides a framework to ensure that all important criteria are examined and the relevant ones are included in the decision model. The ANP provides a convenient means of including BSC indicator interactions and their prioritization (Tjader et al., 2014). Both methods support the decision-making process (Novak and Janeš, 2019; Saaty, 2001, 2008), and they have been used in combination with several additional statistical and managerial methods.

The specific objectives of paper are:
- To present ANP and BSC methods used in developing the ANP-BSC models.
- To compare the benefits of the proposed approach.
- To present ANP-BSC models by means of a case study of the ebm-papst Company.

Based on the results, it is recommended that further research be oriented towards expanding the ANP-BSC to other companies, and to use the causal relationships to forecast the future trajectory of the strategy in order to generalise findings and acquire new knowledge (Janeš, Kadoić and Begičević Ređep, 2017, 2018).

Keywords: analytic network process, analytic network process, balanced scorecard, decision making, performance measurement system, strategy

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