PERFORMANCE EVALUATION AND IMPROVEMENT TECHNIQUE FOR ORGANIZATIONS

By

Ayman Mostafa Mohamed Abd AL-khalek
B.Sc. Industrial Engineering

A Thesis Submitted to the Faculty of Engineering at Fayoum University in Partial Fulfillment of the Requirements for the Degree of

MASTER OF SCIENCE
IN
PRODUCTION ENGINEERING

FACULTY OF ENGINEERING, FAYOUM UNIVERSITY
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Under the Supervision of

Prof. Dr. Hazim Aly Attia
Professor of Mathematical, Mathematical and Physics Department, Faculty of Engineering, Fayoum University

Dr. Mohammed Fahmy Aly
Assistant professor, Industrial Engineering Department, Faculty of Engineering, Fayoum University

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ABSTRACT

Researches confirm that strategic planning is essential for the improvement of business performance in both small and large organizations. Organizations around the globe follow similar tactics, namely to attempt to execute a strategy to differentiate themselves from their competitors. A popular instrument used to support the strategic management process in organizations is the Balanced Scorecard (BSC).

The BSC is a popular performance-management framework strongly associated with managing the implementation of strategic plans. There is a difference between known performance-management programs and the BSC. The BSC is a full and multi-perspective approach to achieving long-term, sustained growth and viewed more as a strategy-formation system than a pure measurement system.

Constructing the first BSC of an organization is accomplished by a systematic process that builds consensus and clarity about how to translate the mission and strategy of the organization into performance objectives, measures, targets and initiatives in four balanced perspectives: Financial, Customer, Internal Processes, and Employee Learning and Growth. The aim of the scorecard building and implementation process is to cascade strategy down to the operational level where real value is added. This process is also called "Strategic Alignment".

The arguments presented in this dissertation are based on a combination of general literature research on performance management, the BSC and the development, strategic implementation and management of the BSC. The BSC is a good management tool which developing vision and mission statements and strategies, but has some points need to be developed such as weights of perspectives, cause-effect relationships, implementation, time-dimension, communication within an organization, feedback about the organization’s strategy and management commitment.

The first objective of this thesis is to develop the BSC technique. In the scope of the current study, the integrated Fuzzy (GMM) - TOPSIS model is proposed to
estimate BSC indicators weights. The new proposed model is modeled and analyzed using MATLAB.

The new prioritization model solves the main problem of BSC technique with high accuracy. Verification of the proposed Fuzzy (GMM) - TOPSIS model is performed in several cases.

The second objective of this thesis adds new perspective to treat limitation in balanced scorecard implementation. The concept of management commitment is the degree of members' recognition of organizational goals and values that they are willing to work extraordinarily hard to help the organization complete its goals. The origin BSC, perspective "management commitment" and prioritization technique Fuzzy (GMM) - TOPSIS are the new integrated BSC model.

The third objective of this thesis establishes the development of BSC within an organization and applies practical research. The proposed BSC model is applied in Faculty of engineering (A) and results of the performance are found out. The results show that, the balanced scorecard is a successful and acceptable tool for organizations performance measurement and excellent tool to translate organizations strategies to measurable objectives. Results of proposed Fuzzy (GMM) - TOPSIS prioritization model are compared with other reported research works in the literature. Sensitivity analysis for the model provides the smallest ED among other model which means more accurate results of priority. The results from Fuzzy (GMM)-TOPSIS model found out that management perspective has the first priority which means that it is the most important component of the five balanced scorecard perspectives of the faculty performance. The most significant advantage of the use of the balanced scorecard is that it provides a wider development of metrics that are closely connected to the strategic goals of organization (here faculty of engineering).