International Journal of Business, Law and Political Science
Homepage : https://e-journal.antispublisher.id/index.php/IJBLPS
Email : admin@antispublisher.com

e-ISSN : 3032-1123
IJBLPS, Vol. 3, No. 11, November 2026
Page 1-7
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International Journal of Business, Law and Political Science

Designing a Strategy Map for a Manufacturing Company Based on DEMATEL Technique

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DOI : https://doi.org/10.61796/ijblps.v3i11.573

Sections Info

Article history:
Submitted: August 28, 2026
Final Revised: October 20, 2026
Accepted: October 30, 2026
Published: November 22, 2026

Keywords:
Strategy map
Manufacturing
DEMATEL

ABSTRACT

Objective: *This study aims to examine the role of strategy maps in improving strategic management implementation by establishing an effective connection between organizational strategic objectives and operational activities. It also seeks to identify how strategy maps can help organizations monitor strategic goal achievement, identify implementation barriers, and improve organizational performance.* ***Method:*** *This study employs a qualitative descriptive approach through a literature review of strategic management concepts, strategy implementation challenges, and the application of strategy maps in organizations. Relevant theories and previous studies are examined to understand the relationship between strategic planning, operational execution, performance measurement, and organizational goal achievement.* ***Results:*** *The analysis indicates that strategy maps can improve the effectiveness of strategy implementation by providing a comprehensive visual representation of organizational strategic objectives and their relationships. They help managers translate strategic plans into operational activities, monitor progress toward established goals, identify factors contributing to unmet objectives, and align organizational resources with strategic priorities.* ***Novelty:*** *The novelty of this study lies in emphasizing the strategy map as an integrated management tool that bridges the gap between strategic formulation and operational implementation. Unlike approaches that primarily focus on developing strategic plans, this study highlights how strategy maps can translate organizational objectives into measurable operational targets while identifying the relationships between strategic goals and their implementation outcomes. This perspective provides a structured approach to strengthening strategic alignment, monitoring organizational progress, and improving the achievement of long-term organizational goals.*

INTRODUCTION

Balanced score card is a tool for evaluation and control of programs that is relatively comprehensive and can compensate for the shortcomings of one-dimensional control. The balanced scorecard model is a qualitative and comprehensive model for managing the performance of organizations [1]. This model focuses on the strategies of the organization and creating balance in the important areas of the organization; That is, financial affairs, customers or clients, internal organizational processes, and growth and learning try to manage and evaluate complex organizations. In principle, all organizations, both public and private, for development, growth, and sustainability in today's competitive arena, need to formulate accurate and effective strategies, in the form of which they can measure the efficiency and effectiveness of the organization's programs, processes, and human resources. put Effective organizations are not satisfied with collecting and analyzing data, but use this data to improve the organization and realize missions and strategies. Today, companies have made accountability and responsibility their motto. But what is the manager responsible for? For several decades,

the responsibility of making profits was decentralized. We usually measure the results with money. The profit and loss report prepared in different units and departments is taken from the company's comprehensive financial reports. Does the mission of different parts of the company directly lead to profitability and return on investment? In most cases, the answer is probably no. Knowledgeable executives know very well that in order to succeed in the future, the company must create and cultivate the necessary capacities. On the other hand, the cultivation of such capacities, sometimes in the short term, not only does not bring profit, but also costs.

The main reason why companies need a balanced scorecard lies in this issue. It is easier to understand the necessity of a balanced scorecard for non-profit organizations that do not have a profit goal, such as government organizations, internal headquarters units in industry, and other similar cases [1], [2]. Explaining the expectations, we have from the company's operations and how to meet these expectations requires spending more time and patience. In a research, Ghodratiane t al. [3] designed the strategy map of capital providing companies. Considering the size of the activities of these companies, there is a need for a coherence and inter-organizational alliance and the design of a strategy map to achieve the overall strategy of the organization. In order to achieve the strategy map, first, by referring to the research literature and expert opinion of the professors, a total of 42 strategic objectives were identified in four perspectives. Subsequently, with the conduct of field studies, 27 the Dematel technique, the causal relationships between the goals and the structure of the goals were analyzed for effectiveness and effectiveness. The results of the technique showed that each of the strategic goals of the company is effective and effective for all other purposes; however, the severity of the impact and the effectiveness is different. According to a ten-point analysis, the strategic goals were to increase the company's profitability, improve the final return on investment, increase earnings per share of the company, improve asset turnover, improve financial well-being, improve Capital structure, automation of company processes, growth of the market share of the company (number of customers), innovation in services and growth of profit from each of the company's services. In a research, Rasekh et al. [4] designed the strategic map of the Sports Science Research Institute using the balanced scorecard technique. The results obtained showed that two strategies were based on the financial perspective, five strategies were based on the customer perspective, four strategies were based on the internal process perspective, and one strategy was based on the growth and learning perspective. In addition, there were 15 measures and 19 initiatives in the financial perspective; 55 measures and 54 initiatives and innovations in the customer perspective; 66 measures and 52 initiatives and innovations in the internal process perspective; and five measures and eight initiatives and innovations were in the growth and learning perspective. Bazargani et al [5] in a research presented a method to design a strategy map in the power plant industry. The purpose of this paper is to design a strategy map for a company active in a power plant industry. At the first phase we examined the strengths, weaknesses, opportunities, threats and strategic themes in order to determines the company's strategic goals. Then,

the strategic objectives were prioritized using SIR and DEMATEL. We expect that the designed strategic map could assist the company to implement its proposed strategies with the help of Quality Function Deployment. Shahsavari and Mousavi [6] in a research presented a framework for drawing a strategy map by combining SWOT, QSPM and DEMATEL methods. This research focused on assessing the internal and external factors and selecting the best strategies for this company. After selecting the best strategies, the strategy map of company based on the balanced scorecard is developed. This strategy map can help mangers to understand the company's strategies and its implementation. Finally, the relationships in the strategy map have been evaluated by DEMATEL method. The effective and affected factors are high quality of work and the growth of company's profit, respectively. In a research, Akbarian et al. [7] drew a strategy map in a balanced scorecard using correlation analysis and regression relationships.

Despite these advancements, conventional strategy maps often assume unidirectional or purely qualitative links between objectives, overlooking complex feedback loops within manufacturing systems [8]. Originating from the Battelle Memorial Institute, the DEMATEL technique provides a rigorous structural modeling approach capable of visualizing complex causal relationships and distinguishing between cause and effect factor groups [9], [10].

In oral strategy map drawing in the balanced score card, the relation between different aspect are not clear and the relation of strategic objectives are not specifying and there are not interaction between them. Therefor the quantitative and accurate method for drawing strategy map is essential. In this paper, after reviewing of strategy drawing methods in the balanced score card, we used Regression and Correlation Analysis for identification relation between Strategic Objectives in the Balanced Score Card and strategy map drawing according to last actual data of the National Iranian Oil Refining & Distribution Company.

RESEARCH METHOD

The present research is considered to be in the category of applied research, and in terms of data collection method, it is placed in the branch of descriptive research and in the sub-branch of case study [11]. Library studies (books, theses, domestic and international articles) have been used to collect the subject literature. During several meetings, interviews have been conducted with some relevant industry experts, and the opinions of these people have been used in extracting the objectives of the strategic map and other research data and information [12]. Fifteen questionnaires have been used to extract relationships between objectives.

RESULTS AND DISCUSSION

In order to determine strategic goals, in the meetings that took place with the presence of a group of experts and in the style of brainstorming, twenty goals were proposed in the four layers of the strategic plan, and by holding joint meetings, non-

strategic, repetitive goals were removed and some of them were combined. Finally, we achieved twelve goals as follows [13], [14], [15]:

Table 1. Strategic Goals

Financial	Profit	Increase in income	Reduce costs
Customer	Increase in cargo	Speedup delivery	Increase customer satisfaction
Internal processes	Increase the speed of business	Improve internal processes	Diversification of services
Growth and learning	Improving the level of knowledge and awareness of employees	holding educational courses	Empowering operational staff

The degree of influence of the goals of growth and learning on each other is extracted as follows:

Table 2. influence of the goals of growth and learning on each other

	Improving the level of knowledge and awareness of employees	**Holding educational courses**	**Empowering operational staff**
Improving the level of knowledge and awareness of employees	0	0	4
Holding educational courses	0	0	3.85
Empowering operational staff	0	7	0

The degree of influence of the goals and internal processes on each other is extracted as follows:

Table 3. influence of the goals and internal processes on each other

	Increase the speed of business	**Improve internal processes**	**Diversification of services**
Increase the speed of business	0	1	0
Improve internal processes	2.24	0	0
Diversification of services	4	0	0

The impact of the customer's goals on each other is extracted as follows:

Table 4. influence of customer's goals on each other

	Increase in cargo	**Speedup delivery**	**Increase customer satisfaction**
Increase in cargo	0	0	4.1
Speedup delivery	3	0	0
Increase customer satisfaction	0	1	0

The impact of financial goals on each other is extracted as follows:

Table 5. influence of financial goals on each other

	Profit	**Increase in Income**	**Reduce costs**
Profit	0	0	1.15
Increase in Income	4.25	0	0
Reduce costs	0	3.1	0

CONCLUSION

Fundamental Finding : Uncertainty of the general course of the company's movement, low participation and commitment of employees to the organization's goals, unsatisfactory productivity, failure to achieve short and longterm goals, inability to be flexible with changing environment, failure to correctly predict future conditions, etc. are among the problems. Organizations are on the way to excellence. One should not expect to be able to overcome all these problems by using one tool or one idea or one movement. However, the starting point of Mesraneh's movement towards success and the realization of the company's goals can be called the precise determination of goals and the road map to reach the desired and expected point. In this research, an attempt has been made to introduce a method for this important matter. **Implication :** The findings imply that effective strategic planning requires clear alignment between the organization's mission, vision, values, and strategic goals. Employee involvement in the goal-setting process, supported by collaboration between management and different organizational units, can strengthen commitment and participation in achieving organizational objectives. **Limitation:** The study does not explicitly discuss its limitations. However, the proposed strategic planning approach may require further validation to determine its effectiveness in different organizational contexts and industries. **Future Research :** Future research should focus on developing measurable performance indicators for strategic goals, evaluating the effectiveness of strategy maps, and examining the alignment between organizational objectives and employee performance. Further studies should also

investigate the role of employee participation, budget allocation, performance evaluation, and reward systems in improving the implementation and achievement of strategic goals.

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