

Dynamic control of the organization strategic plan using SWOT analysis and BSC balanced scorecard

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Abstract

The issue of planning has been proposed in the form of different practices, attitudes, and approaches along with the changes in human societies and to meet the various needs. In strategic planning, goals, policies, and strategies of the organization are determined with regard to the ideals, fundamental missions and the governing values through determining the organization's internal strengths and weaknesses and threats and opportunities arising from environmental factors. However, in evolution of stages, planning undergoes changes and unforeseen influential factors. Inconsistency between strategic plans and today's conditions and non-conformity to internal and external factors result in plan executors' confusion and ultimately being away from goals and objectives. In long-term projects, time changes SWOT matrix input factors, i.e. organizations' internal and environmental factors. Thus, to control such changes and to make logical decisions in the suggested model, change levels of opportunities, threats, strengths, and weaknesses were assessed in certain periods and organization's total situation score was achieved. Implementation method of organization's strategies were then evaluated using BSC model and based on control charts; comparing correlation coefficient of organization's status quo and strategy implementation trend, conformity or non-conformity of executive programs to organization's conditions and goals was specified and future status was predicted based on the past trend.

Keywords: BSC, SWOT analysis, strategy updating, SAP, ETOP, SAW

Introduction:

Nowadays, strategic management is widely used in business and intense competition in global markets. Strategic management must be viewed as a set of decisions and actions by managers at all levels of the organization. It is the set of decisions that can lead to long-term actions at the organization [12].

Strategy, in its new concept, dates back to 1960s. Strategic concepts were first proposed by American Ministry of Defense and were then introduced to business world by Andros et al. It was warmly welcomed by industrial companies. Strategic planning was in full bloom in 1970s and organizations used this approach to develop their competitive advantages; in 1970s, BCG matrix was presented by Boston Consulting Group and a similar method was used by McKenzie Research Company at General Electric Company. Michael Porter proposed new viewpoints in the field of competition, competitive advantages, superiority in price or product differentiation in 1980s. In 90s, Hummel's revolutionary viewpoints which mainly regarded strategy as an intent rather than a program were taken into account. These schools constitute a wide variety of approaches whose both sides are in complete opposition. Classical theorists regard future as an extension of the present and try to adjust their strategies to make optimum use of future opportunities by predicting environmental factors. Critics of this approach do not consider simple and linear models suitable for prediction in today's complex world and emphasize their fruitlessness. Torner states that "our ability to predict is limited because even a small change in seemingly unrelated phenomena can result in main changes in the whole system [4].

Generally, the strategic management process consists of three stages: strategy formulation, strategy implementation, and strategy evaluation [7]; at present, numerous approaches and techniques are used to analyze and evaluate the strategies in the process of strategic management [8]. Among these approaches, analyzing the strengths, weaknesses, threats, opportunities or SWOT analysis is more applicable [11].

Matrix of strengths, weaknesses, opportunities and threats (SWOT)

SWOT analysis should be considered the most important decision support tools used routinely and systematically to analyze the internal and external environment of the organization [19-24-25]. Identifying strengths, weaknesses, opportunities and threats by SWOT, organizations can reduce or remove their strategies based on the strengths and weaknesses, use opportunities or develop them to avoid threats [1]. The strengths and weaknesses are identified by evaluating internal environment and opportunities and threats are identified by evaluating the environment [9].

Generally, SWOT analysis summarizes the most important strategic internal and external factors that may have an impact on the future of the organization [14]. Internal and external environments include variables which are in and out of control of the organization and the management has no short-term effect on both groups. Therefore, analyzing the environment comprehensively is important because it results in identification of these variables and organization's internal and external forces that management is faced with. In other words, these variables and forces may include simultaneous potential effects and may be involved in limitations related to organization performance or goals the organization seeks to achieve [12].

In this model, opportunities and threats represent major desirable or undesirable challenges that the company is faced with in the given environment; in contrast, strengths and weaknesses (competencies, capabilities, skills, and shortages) represent conditions of internal environment of the studied organization.

Once environmental factors (opportunities and threats) and internal factors (strengths and weaknesses) are identified and key factors are distinguished from non-key factors, strategies are proposed and selected.

SWOT model normally consists of a two-dimensional coordinate table. Each of its four areas represents a set of strategy; in other words, four categories are usually presented in this model. These strategies are:

Table 1: SWOT Matrix

weaknesses	Strengths	SWOT
Reduce weaknesses using opportunities	Take opportunities using strengths	Opportunities
Reduce weaknesses by avoiding threats	Reduce threats using strengths	Threats

- Strategies to make the maximum use of environmental opportunities using strengths of the organization (SO strategies).
- Strategies to use strengths of the organization to avoid threats (ST strategy).
- Strategies to make use of potential advantages hidden in environmental opportunities to compensate for the weaknesses of the organization (WO strategy).
- Strategies to minimize losses due to threats and weaknesses (WT Strategy).

In this analysis, the following questions arise:

- 1- What are the major environmental opportunities for us?
- 2- What are the major external threats we are faced with?

- 3- What are our main internal strengths?
- 4- What are our main internal weaknesses?

It should be noted that the above analysis only clarifies a strategic situation in a certain time period. Thus, to follow time trend, change trends must be examined and strategies must be extracted at different time periods because environmental conditions (internal and external) are dynamic and change continuously. Following this trend helps us examine and predict various cases which may happen in the future.

In implementing SO strategies, the organization tries to, by using internal strengths, exploit external opportunities. All managers prefer to be in a position where they can use their organization's internal strengths to take advantage of external events and trends. To achieve such a situation, organizations usually use WO, ST or WT strategies to be able to use SO strategy. When an organization has major weaknesses, it tries to remove these weaknesses or to convert them into strengths. When an organization faces major threats, it tries to get rid of them and change the situation so as to take advantage of opportunities [5].

It should be noted that proper use of SWOT analysis can be a good base for strategy formulation [13]. However, observations show that SWOT analysis has some weaknesses in measuring and evaluation [22] because non-quantitative importance of factors causes SWOT analysis not to result in the identification of the effect of every factor on strategic goals. In other words, SWOT analysis is not an analysis tool to determine the relative importance of factors involved in the strategy and cannot be a proper priority of the strategies extracted based on the four factors of internal and external environmental analysis [13].

It should be noted that SWOT allows an analyst to classify internal factors (strengths and weaknesses) and external factors (opportunities and threats) in relation to decisions and thus enables the analyst to compare threats and opportunities with strengths and weaknesses [23]. Result of SWOT analysis is, in most cases, merely a list of internal and external factors and thus SWOT analysis cannot provide a comprehensive and complete evaluation of strategic decision-making process [11].

Balanced Scorecard Model (BSC)

While continuing to focus on traditional models of financial-accounting evaluation and measurement is considered the cause of many problems of organizations [10], managers' simultaneous emphasis on medium-term financial performance measures result in some activities like development of new products, processes improvement, development of human resources, information technology, customers and market development and finally in long-term profitability due to current activities [6].

It can be said that managers' poor performance is as a result of decisions based on performance measurement systems that are based only on short-term financial performance [15]. This problem can be solved by considering financial evaluation along with other measuring indexes so that long-term evaluation of a business can be provided. In 1992, two researchers named Kaplan and Norton presented the BSC model as a performance evaluation framework with a comprehensive approach to the business performance at an organization based on financial and nonfinancial measures [16].

The BSC model calculates the scores of a set of measures. Therefore, BSC tries to keep the balance between short-term and long-term objectives, financial and non-financial measures, progressive and advanced measures and aspects of internal and external performance [17].

Traditional items of financial performance measurement are one of four functional aspects of the BSC. The other three aspects (non-financial performance measurement indexes) include: customers, internal processes, growth and development. BSC objectives and measures are specified based on organization's vision and strategy; organization's performance is finally presented in accordance with these four aspects [18].

Since its introduction, BSC has been accepted as a strategic management system by many organizations and institutes. BSC helps managers conform their business to new strategies based on growth opportunities and production of products or services with better value-added [20].

Therefore, to evaluate performance of an organization completely, this performance must be evaluated from four aspects:

A continuous process explains these four viewpoints. In fact, this process acts as a cycle and is defined in terms of objectives and criteria. It is useful to focus on allocation of resources and targeting.

Financial perspective:

Financial aspects of an organization cannot be ignored. Financial perspective indexes suggest whether the strategy, implementation, and measures of the organization have improved operational levels.

Customer perspective:

This perspective shows the organization's ability to provide high quality goods and services, customer's satisfaction and effectiveness of the delivery system. Today, many organizations focus on the customer and how the customer views organization's performance.

Business internal processes perspective:

It is primarily based on analyzing internal processes of the organization. These internal processes are the mechanisms by which performance expectations are defined. Customer-based criteria are important, but they should become the criteria that the organization must use to meet customers' expectations. This perspective emphasizes business internal results which lead to financial success and meeting customers' expectations.

Innovation and learning perspective

The criteria "customer and business internal processes" identify the parameters that are considered the most important competitive success factor. Achieving and maintaining success requires that the organizations continually improve their existing products and processes and are able to introduce completely new processes along with the development of their capabilities. This perspective seeks issues that include ability of the staff, quality of information systems and effects of organizational coordination in achieving organizational goals.

Kaplan and Norton's findings confirm the fact that successful companies determine their goals in all four aspects, select some criteria to evaluate their success in these goals in each aspect and determine

quantitative goals of every criterion for the given evaluation periods. Then, they plan and implement executive measures and initiatives to meet these goals. There is a causal relationship among the goals and criteria of these four perspectives that links them together. Therefore, to achieve financial achievement (in financial perspective) we must create value for our customers (in customer perspective) and it would not be feasible unless we excel in our operational processes and make them comply with the demands of our customers (internal process perspective); achieving operational excellence and creating valuable processes are not possible unless adequate working space is created for the staff and innovation, creativity, learning and growth are reinforced in the organizations (learning and growth perspective).

In fact, the balanced scorecard creates a relationship between strategies and objectives at departments, teams, and individuals and represents a comprehensive process to integrate organization programs, resources, and budget. Indeed, it ensures that the allocation of resources for short-term programs is in line with long-term strategies

The name reflects the balance between the following items:

- Short-term goals and long term goals
- Financial and non-financial criteria
- Progressive and regressive indexes
- Internal and external beneficiaries of the organization

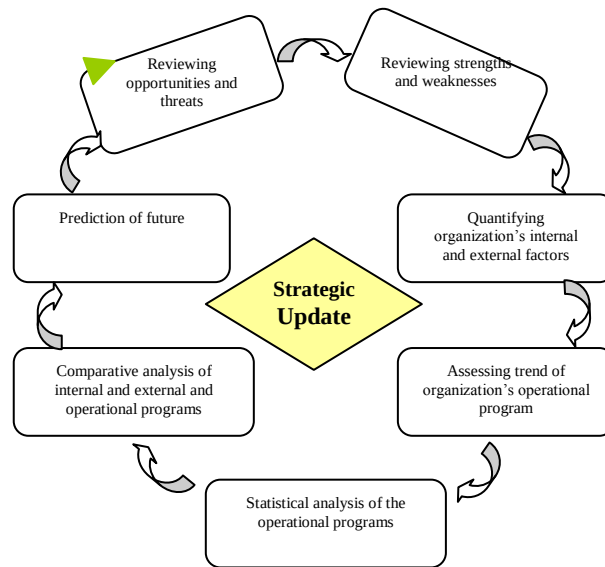
BSC model provides the organization with an integrated picture of the perspectives determined based on strategies in order to control and guide the organization. One of the main advantages of balanced scorecard becomes apparent when the organization moves towards reviews and providing regular strategic feedbacks rather than just operational reviews. In other words, the balanced scorecard causes feedbacks to be reviewed and presented strategically on the processes.

Translating the strategy into operational terms in the form of a strategy map, this model aligns the organization with strategies, changes strategy into routine duty of everybody and provides a balanced framework to evaluate performance, to control strategies and to perform corrective measures.

A model to control and update strategies:

So far, various models have been presented to review organization's status, to compare it with other organizations and companies and to select strategies proportional to organization's situation and goals; however, less work has done on controlling and updating strategies and fewer applicable and comprehensive models have been presented.

The time which is required to execute critical strategies in organizations and major centers with large work area and various processes is usually long. Moreover, initial conditions which are the bases of selecting strategies may significantly change during implementation and thus implementing strategies becomes useless without changing the operational program. Sometimes, a good condition is provided for the organization to improve but the organization does not use this condition appropriately. Thus, to solve these problems, a model has been presented to control and update strategy in seven steps.



Graph 1: strategy control and update algorithm

Step One: Reviewing opportunities and threats

Environmental Threat and Opportunity Profile (ETOP) is prepared to identify the economic, technological, political, social, and cultural factors as well as environmental trends and assumptions related to each factor .

Using this identification and social assumptions (e.g. economic sanctions against Iran), events affecting the activities of a company will be evaluated. It should be mentioned that items mentioned in the column “environmental factors and trends” are different for every company according to the type of activity and its external environment [5].

An example of ETOP is given in the following table.

Table 2: determining the nature of ETOP environmental factors in a given company

Factors	Environmental factors and trends	Nature of factors in relation to the company
Economic	Inflation	Threat

	Exchange rate	Threat
	Tax	Threat
	Investment security	Neutral
	Energy price	Opportunity
	Industry growth	Opportunity
Technological	New technology	Threat
	Access to energy	Opportunity
	External raw materials	Threat
	Transportation	Opportunity
Political	Political relations with other countries	Threat
	Monopolizing products by the government	Threat
	Government support of export	Opportunity
	Foreign quota	Opportunity
	Standard Institute control	Neutral
	Labor councils	Opportunity
	Environmental preservation	Neutral
	Municipal control	Neutral
	Governmental Tazir	Threat
Cultural and social	People's purchasing power	Threat
	Population growth	Opportunity
	Consumption	Opportunity

Preparing the above table for the organization, evaluating items of this table in the given periods and quantifying its changes, total status of organization's opportunities and threats will be specified and analyzed. One of the easiest methods to quantify this table is to allocate a digit (5- +) to each factor based on its effectiveness and intensity.

Step Two: Reviewing the strengths and weaknesses:

To examine changes in the strengths and weaknesses of an organization, SAP table is recommended. In this table, organization's capabilities and facilities are first identified and evaluated; they can be different for each company according to the type of activities. Then, the effect of these capabilities and facilities on the suggested strategies will be examined. Each of these capabilities and each of these strategies are studied and positive and negative effects of each are determined and analyzed.

An example of this table is shown as follows:

Table 3: determining the status quo of facilities and capabilities of the given company

Factors	Internal factors and trends	Nature of factors in relation to the company
Ability to design and create new product	Designing new products	Middle
	Applied research to improve the formulation	Middle
	Attracting new technology	High
	Post-sale service	poor
Production power	Product quality	Middle
	Production level	High
	Cost price	poor
Human resources power	Level of expertise	High
	Education	Middle
	Motivation	High
Financial power	Obtaining credit and financial liabilities	High
	Investment to gain market share	Middle
Management power	Planning	Middle
	Taking risks and being competitive	High
	Project implementation	High

Step three: quantifying organization's internal and external factors

To do this, SWOT matrix input factors (opportunities, threats, strengths and weaknesses) are considered as four main indexes, each of which is given a weighted index based on importance degree, type and nature of strategies and work trend of the organization. In this case, sum of the coefficients is equal to the unit. Rate of changes of each of the four factors mentioned earlier is measured compared with the previous period based on items presented in the first and second steps and is presented in a table.

Then, a quantitative amount is determined for of the general situation of the organization proportional to strategy groups using simple additive weighting (SAW) method which is one of the oldest methods used in multi-criterion decision-making [2]. This amount represents the rate of changes in the organization with respect to the previous evaluation period.

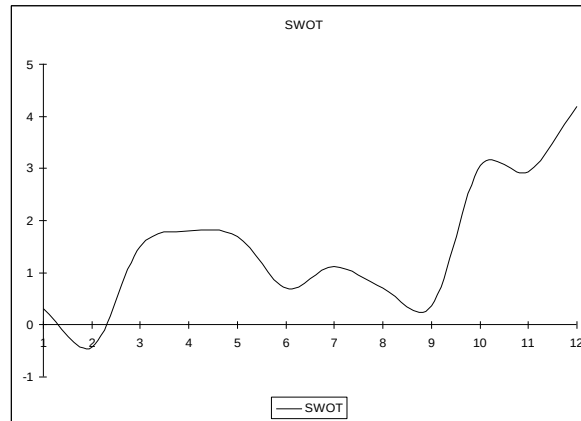
Evaluation periods of organization's situation are determined according to the nature of strategies and the time period planned for executing strategies and other factors affecting organization's situation. Evaluation trend is repeated for each period and the obtained information is recorded in a table.

It should be noted that increased opportunities and strengths and decreased threats and weaknesses are shown with a positive digit in the table, while decreased opportunities and strengths and increased threats and weaknesses are shown with a negative digit.

Table 4: changes in organization's internal and external factors during 12 periods

Weighted sum	Weaknesses	Strengths	Threat	Opportunity	Importance index	
100%	20%	40%	25%	15%		
SWOT	W	S	T	O	Review period	
0.32%	2.0%	1.0%	-0.6%	-2.2%	Organization's general status	1
-0.43%	3.0%	-1.4%	-0.8%	-1.8%		2
1.50%	1.0%	2.0%	-0.4%	4.0%		3
1.81%	4.0%	2.4%	0.2%	0.0%		4
1.70%	6.0%	-0.4%	0.0%	4.4%		5
0.71%	3.6%	2.0%	-3.0%	-0.4%		6
1.12%	4.0%	-0.2%	0.4%	2.0%		7
0.70%	-0.1%	3.0%	-3.0%	1.8%		8

0.36%	2.0%	0.4%	-0.8%	0.0%	9
3.06%	5.4%	3.6%	0.0%	3.6%	10
2.93%	5.4%	4.4%	0.4%	-0.1%	11
4.20%	4.0%	6.8%	0.2%	4.2%	12



Graph 2: changes of internal and external factors over 12 periods

Step four: Assessing trend of organization's operational program using BSC technique

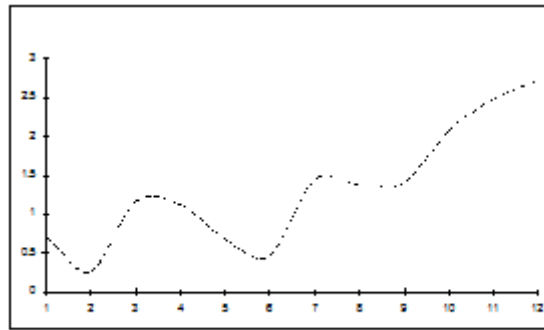
In this step, operational programs which are described as various projects to achieve strategic goals are listed and their effects on BSC indexes at the determined periods (according to periods determined in the third step) are measured and are recorded in a table.

For example, suppose that an organization has selected production of a new product in order to increase profitability as a suitable strategy and has chosen two operational programs of “establishing an assembly line of L90 seat belt and employing a contractor to perform a part of production operation volume” in this regard.

The effect of each operational program on financial index return, customer index return, growth and learning index return and internal processes index return are specified and the operational program is quantified by allocating a weighted index to these four main indexes of BSC using SAW technique. Quantifying steps are shown in the following tables for both operational programs.

Table 5: reviewing implementation trend of the operational program of establishing L90 assembly line

Establishing assembly line of L90 seat belt					Operational program	
100%	30%	10%	20%	40%	Importance factor	
Comprehensive return	Internal processes index return	Growth and learning index return	Customer index return	Financial index return	Review period	
0.71%	0.7%	1.0%	1.0%	0.5%	Organization's general status	1
0.25%	0.5%	0.8%	1.5%	-0.7%		2
1.15%	1.5%	2.0%	0.5%	1.0%		3
1.12%	0.2%	1.8%	2.0%	1.2%		4
0.67%	-0.5%	3.0%	3.0%	-0.2%		5
0.46%	-1.0%	0.0%	1.8%	1.0%		6
1.44%	2.8%	2.4%	2.0%	-0.1%		7
1.37%	1.9%	2.1%	-0.1%	1.5%		8
1.40%	3.4%	1.0%	1.0%	0.2%		9
2.07%	2.6%	0.3%	2.7%	1.8%		10
2.48%	2.5%	3.1%	2.7%	2.2%		11
2.72%	2.6%	1.8%	2.0%	3.4%		12

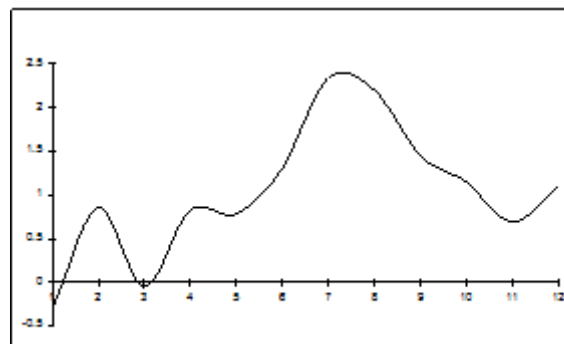


Graph 3: changes in operational program (1) over 12 periods

Table 6: reviewing implementation trend of the operational program of employing a contractor

Employing a contractor to perform a part of production operation volume					Operational program	
100%	30%	10%	20%	40%	Importance factor	
Comprehensive return	Internal processes index return	Growth and learning index return	Customer index return	Financial index return	Review period	
-0.30%	-1.0%	0.0%	-1.0%	0.5%	Organization's general status	1
0.86%	2.0%	0.2%	0.2%	0.5%		2
-0.05%	-1.0%	1.5%	-1.5%	1.0%		3
0.82%	0.0%	2.0%	1.5%	0.8%		4
0.78%	0.0%	1.2%	0.9%	1.2%		5
1.31%	2.0%	-0.5%	1.0%	1.4%		6
2.34%	2.5%	0.9%	2.5%	2.5%		7

2.20%	4.0%	-1.0%	1.5%	2.0%	8
1.45%	2.0%	0.5%	2.0%	1.0%	9
1.14%	1.0%	-2.0%	2.0%	1.6%	10
0.69%	1.5%	-1.6%	3.0%	-0.5%	11
1.10%	1.0%	-3.0%	2.5%	1.5%	12



Graph 4: changes in operational program (2) over 12 periods

Step Five: Statistical analysis of the operational programs

This comparison whose objective is to recognize the status of operational programs is made at the end of review periods and shows how much organization's operational programs have had positive effects.

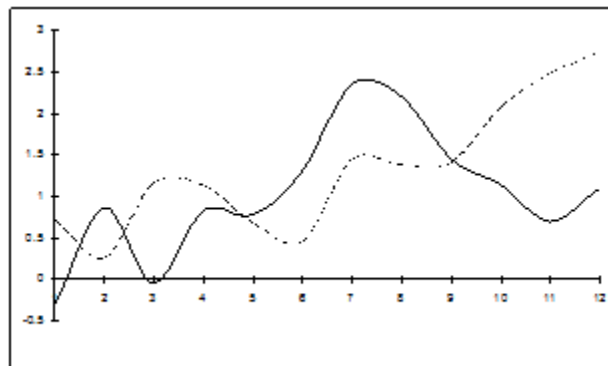
To do this, four statistical indexes (i.e. average comprehensive return rate (R), standard deviation of comprehensive return rate (σ), change coefficient of comprehensive return rate (CV) and skew return rate ($SKEW$)) are used.

Results of the comparison of four indexes listed in two operational programs of (1) establishing L90 assembly line and (2) employing a contractor to perform a part of production operation volume are as follows:

Table 7: comparing statistical indexes of comprehensive return rate for two operational programs

Operational program 2	Operational program 1	Statistical index
1.02	1.32	R
0.77	0.78	σ
0.75	0.58	CV
0.071	0.54	SKEW

Since operational program 1 had higher average comprehensive return rate and lower change index during the evaluation period and since it had more positive and higher skew level than program 2, it can be claimed that program 1 showed more growth and improvement.



Graph 5: comparing operational programs 1 and 2 over 12 periods

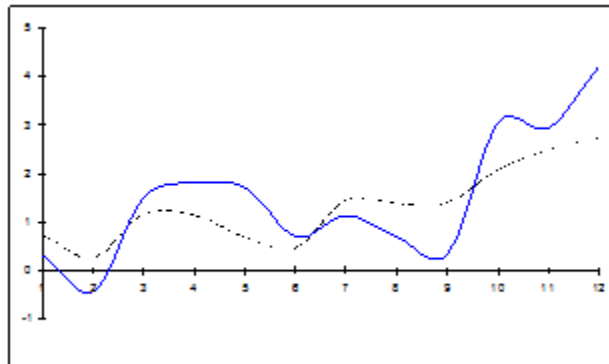
Step six: Comparative analysis of internal and external factors and operational programs

Evaluating operational programs doesn't seem sufficient without reviewing internal and external factors and their interactions. To carry out a comparative study, results obtained in the third and fourth steps must be examined continuously. The following graph shows the behavior of factors affecting the organization and organization's response to the changes. To analyze this behavior, coefficient correlations of "comprehensive return rate of operational programs" and "weighted sum of average changes of internal-external factors" are used.

Table 8: correlation coefficient of comprehensive return rate of the operational program and changes of internal-external factors

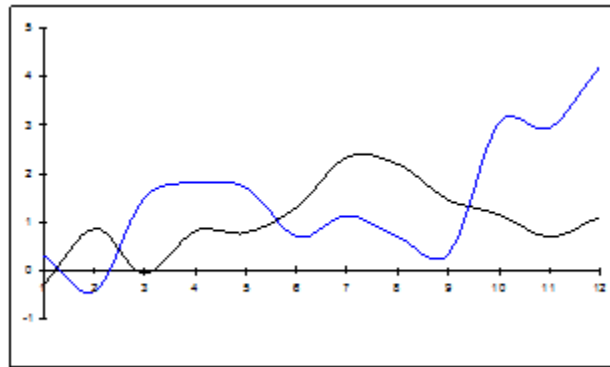
Correlation coefficient	Operational program
0.84	Operational program 1
-0.042	Operational program 2

High and positive correlation coefficient of comprehensive return rate of operational program 1 and changes of internal-external factors shows that environmental changes are in line with the program 1. It justifies decline of comprehensive return rate in periods 2 and 6. Moreover, higher and more central average return rate (results of previous step) shows that trends of this operational program have a positive trend.



Graph 6: changes of internal-external factors and operation program 1

Concerning program 2, the negative sign of the correlation coefficient shows that changes in return rate of this program (organization's response) is not logical. Although the negative value of the correlation coefficient is not significant, the organization must analyze the reason.

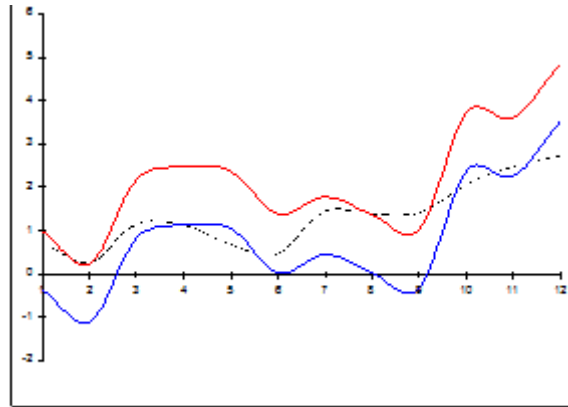


Graph 7: changes of internal-external factors and operation program 2

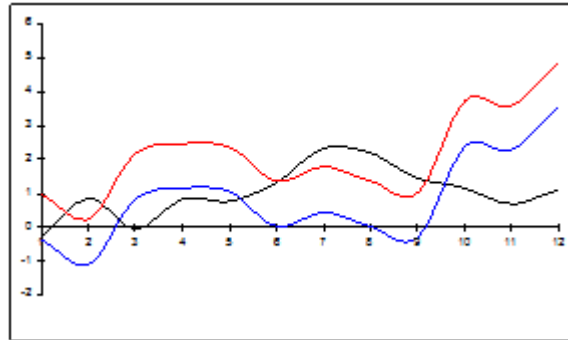
Despite decreased weighted sum of internal and external factors during periods 6 to 9, comprehensive return rate of this operational program increased and vice versa for periods 10 to 12. This phenomenon can be due to changes that occur in environmental threats and opportunities on the one hand and strengths and weaknesses of the organization on the other hand. Thus, the organization must examine this trend carefully and take step to modify it by analyzing reasons and recognizing problems.

Describing control limits based on change trends of internal-external factors plays an important role in showing change trend of operational program; relations can be compared better using graphic charts.

For example in the following graphs, to draw positive and negative control charts, a sigma is considered for graph of changes in internal and external factors. It clearly shows that status of operational program 1 is in more harmony with internal and external factors and that it has a better status than program 2.



Graph 8: control limit of internal and external factors and operational program 1



Graph 9: control limit of internal and external factors and operational program 2

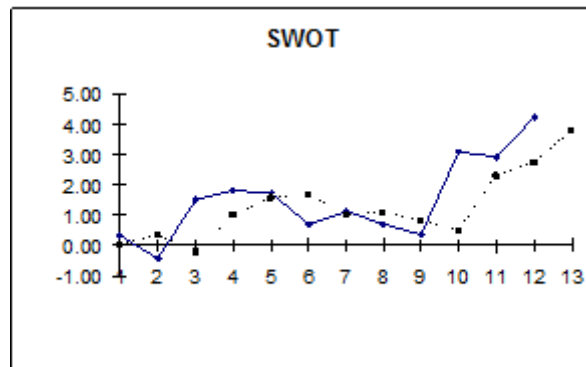
Step Seven: predicting the future

Another advantage of dynamic control of changes of internal and external factors, strengths, and weaknesses and interoperability of organization's operational programs is its ability to predict the future trend of changes in the organization.

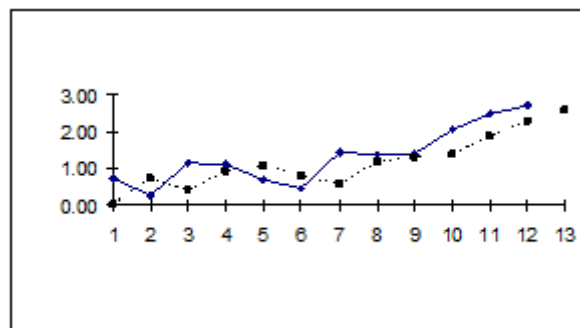
The prediction which is based on an assumption can certainly be more accurate than a guess using certain techniques. Whenever a decision must be made about the future, a prediction is essential for decision-making [3]. Future trend can be predicted according to the available information. The change trend of evaluation period 13 is predicted using the exponential smoothing technique.

Table 9: predicted values for period 13

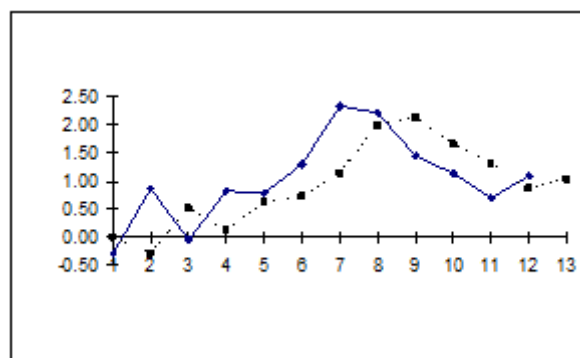
Comprehensive return of operational program 2	Comprehensive return of operational program 1	SWOT	Review period
-	-	-	1
-0.30	0.71	0.32	2
0.51	0.39	-0.21	3
0.12	0.92	0.99	4
0.61	1.06	1.56	5
0.73	0.79	1.66	6
1.14	0.56	0.99	7
1.98	1.18	1.08	8
2.13	1.31	0.81	9
1.66	1.37	0.49	10
1.29	1.86	2.29	11
0.87	2.29	2.74	12
1.03	2.59	3.76	13



Graph 10: trend prediction of internal and external factors based on exponential smoothing technique



Graph 11: trend prediction of operational program 1 based on exponential smoothing technique



Graph 12: trend prediction of operational program 2 based on exponential smoothing technique

Concerning the calculations, increasing changes of organizations' internal and external environment along with positive changes in trend of operational programs 1 and 2 are predictable in 13th evaluation period.

Advantages of the suggested model:

Main advantages of the presented model are as follows:

- **Simplicity and understandability:** the presented model is a combination of very simple techniques and models which lack complex and hard calculations and are easy to work with. Learning and implementing this model doesn't need significant energy and time compared with complex models.
- **Flexibility:** this model is designed in a way that it can be used in executive organizations and manufacturing and service centers. Moreover, various techniques and algorithms can be used during its steps; to quantify factors, TOPSIS and DEMATEL techniques can be used instead of SAW.
- **Comprehensiveness:** all factors affecting decisions of a company including external factors (opportunities and threats) and internal factors (strengths and weaknesses) are examined and updated at the given periods; finally, operational programs and executive trend of the organization are controlled.
- **Presentation of graphical and schematic reports:** senior managers of organizations usually tend to receive a simple and exact report according to which they can observe general or operational status of the organization and can plan for the future after being aware of the status quo.

Conclusions:

Organization's success depends on determining goals or target, reviewing and selecting the route, obtaining information about the conditions, existing obstacles, and changes in the route and finally controlling to prevent deviation from the route. It needs a dynamic and purposeful programming.

Strategic management is presented as a useful and powerful tool for long-term planning in an organization so that all activities and processes are described and implemented in order to gain goals and ideals of the organization, and its ongoing positive trend is maintained. However, initial conditions based on which decisions are made do not always remain constant and change over time. These changes can have positive or negative effects. Thus, presence of a model to control and update organization's strategies is essential.

In this recommended model, both external and internal factors are first identified and reviewed. Then, to analyze and understand conditions better, information must be quantified. In the third step, the suggested model is explained quantitatively based on the above four factors using SAW technique. Since this trend is repeated and updated for various periods, all periods can be compared to the previous ones. In the next step, status of operational programs must be reviewed; considering the effect of the operational program on BSC model indexes and quantifying the program using SAW technique, a quantitative amount is achieved to show the status of every operational program.

Collecting initial information about internal and external factors and operational programs, performing statistical analysis, and drawing control charts are the easiest way to analyze the trends and draw a conclusion based on data. Comparing the graph of changes in internal-external factors and operational programs, cases in which implementing the operational program does not conform to organization's

internal and external factors or in which conditions are not used appropriately, are shown apparently; executors and programmers are warned to bring the conditions back into the normal and acceptable trend by establishing analysis teams and making use of problem solving techniques. Finally, change trends can be guessed for future periods based on model data and predicting techniques.

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