

## Evaluating Strategy for Nongovernmental Scientific and Research Institutions Based on Balanced Score Card Model (Case Study: ACECR of Iran)

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**Abstract:** What prevents the strategies from getting operational in organizations is that, strategies remain at general level or general actions and orientations. To alleviate this problem, the researchers who proposed balanced score card model presented the concept of strategy map in this model. Strategy map tries to represent the organization's strategy in the framework of cause and effect relationships and demonstrate how the organization's strategy can be transformed into measurable objectives and specific operations which should be followed by organizational units and organization's staffs. To implement its strategies, the academic center for education, culture and research (ACECR) as one of scientific and research institutes in Iran requires a strategy map to be prepared which will provide the essential framework for implementation of the designed strategic plans. In order to design the strategy map in the present study, we made use of the related literature, references, and opinions of experts, and we prepared 40 indicators for different aspects of balanced score card model. Afterwards, we put these indicators into a questionnaire and asked the ACECR managers to let us know their opinion regarding them. Analysis of filled questionnaires by Friedman test resulted in selection of 30 indicators to be put into strategy map, and the resultant ACECR strategy map was designed deductively since no similar one existed. Subsequently, quantitative measures and objectives were considered for each indicator. Ultimately the status of this institution after the first year of implementing the strategy was analyzed using the obtained indicators and we proposed several strategies for successful implementation of the strategy and reduction of exiting gaps.

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### 1. Introduction

Further need to systematic evolution has been considered by the gradual increase in organizational and management problems, thus scientific and research activities regarding this issue started from beginning of the twentieth century (Kim et al, 2008).

Emergence of strategic management was in the second half of the twentieth century, which is historically subsequent to appearance of scientific management; nevertheless, its evolution and establishment as a management style is relatively modern. Balanced score card model is among the methods for implementation of strategy in organizations and has attracted much attention of numerous companies and organizations in the recent decade (Ali-Ahmadi et al, 2006).

What justifies the emergence of balanced score card is to satisfy organizations' need to a strategic management system by which the role of physical and non-physical assets can be

simultaneously considered in goals and strategies of organization (Guifang, 2009). In addition to financial indicators as functional ones, guide and performance indicators are also considered in balanced score card model (Kaplan et al, 2008).

This model is a technique to transform strategy into action. In other words, it is a method to make operational the vision, mission, and strategies of organizations and its main perspective is to study the future vision of the organization. Balanced score card does not merely play the controlling role and its criteria are not utilized for description of previous performance; rather, these criteria are a tool to explain the organization's strategy and make it possible to reach organizational objectives through coordination of activities at different organizational levels (Kaplan et al, 2008; Woods et al, 2008).

Since many organizations indeed use financial and non-financial measurement indicators of performance with the purpose of gaining tactic feedbacks and controlling current activities as well as

short-term improvement, balanced score card emphasizes on use of these indicators as a part of an information system for employees at all organizational levels. Goals and indicators existing in this model are beyond a collection of financial and non-financial measurement indicators. In a top-down process, these goals and indicators have been derived from mission and strategies of working units (Shvstrandana, 2008).

Balanced score card transforms the mission and strategies of working units into concrete and measurable objectives and indicators. This model leads to equilibrium among the following indicators:

1. Between internal indicators which relate to stockholders and clients, and external indicators which are related to work processes, innovation, learning, and growth.

2. between functional indicators caused by previous activities and guide indicators which lead to formation of performance and future status of organization (Ebrahimi et al, 2009).

Implementation of strategy using BSC model requires the following steps (Kaplan et al, 2007):

- Determination of vision and mission;
- Communication and transfer;
- Programming, determination of desired values, and coordination of executive activities;
- Learning and strategic feedback.

According to Kaplan and Norton who proposed balanced score card, the key to successfully execute the strategy in organizations is that the organization's staff understand it; this in turn includes complex yet essential processes by which non obvious assets are transformed into concrete and obvious outputs. Strategy map is a useful and appropriate tool to fulfill this hard work. In other words, strategy map is a tool which makes a connection between the organization's strategy and the processes and systems which assist the implementation of strategy. This tool provides an organization's staffs a direct and clear insight to understand how their jobs and activities are ultimately connected to comprehensive goals of organization, so it coordinates them in accomplishing their jobs (Kaplan et al, 2000).

Indeed, strategy map forms the foundation of balanced score card; according to Kaplan and Norton, successful implementation of balanced score card is based upon strategy map, i.e. precise determination of cause and effect relationships among organization's strategic goals in four perspectives, including financial perspectives, customer, internal process, and growth and learning (Kaplan et al, 2000; Kaplan et al, 2009).

As the researchers who proposed balanced score card believe, the best way to draw the strategy map is to use top-down approach. Such an approach starts with analyzing organization's goal and destination, and draws the paths for reaching the mentioned destination. To this end, top managers of organization should first analyze the mission and values of organization, i.e. why this organization exists and in what values this collection believes. Afterwards, using this information, managers can determine the vision, i.e. what the organization intends to be according to its philosophy of existence. This vision must provide a clear reflection of organization's goal (cheng et al, 2008).

Similar to balanced score card, strategy map is useful for both profit companies as well as governmental and nonprofit organizations; since its four perspectives can be changed (increase or decrease) concerning the activity field of the organization, customer perspective can be regarded as the first perspective for nonprofit organizations. Therefore, a standard pattern exists for designing the strategy map, and similar to balanced score card this pattern has four separate perspective including financial perspective, customer, internal processes, and learning and growth. After designing the strategy, managers of organization can hence draw a strategy map suitable for their organization considering the nature and activities of their organizations (Kaplan et al, 2008).

In 13th November 1990, the Iranian Supreme Council of the Cultural Revolution (SCCR) approved a bill; according to its definition, ACECR is a bridge between university and society. This institution presently considers its main goal as realization of the ideals of Islamic Revolution in universities and higher education centers, accomplishing high goals of Islamic Revolution, consolidation of religious tendencies among students, development of technology using Iranian experts with the purpose of removing scientific and cultural dependencies, and establishment of the higher education system in universities based upon Islamic values. According to statute of ACECR, goals of this institution are as follows: 1. Development of research and vivification of research mentality in society to reach self-dependency; 2. Development of cultural issues in society through collaboration with Hawza and universities; 3. Development of applied and semi-industrial projects through connection with scientific and research centers in order to make use of research findings; 4. Accomplishing developmental and applied research; 5. Continuing research project in ACECR up to semi-industrial and industrial stage; 6. Providing scientific and technical services in different fields which are essential for society; 7.

Encouraging and attracting young and talented students and researchers, and programming and providing the required conditions and facilities for their scientific and research activities based on understanding real problems of society; 8. Holding official programs of scientific-practical courses according to rules of Iran's higher education.

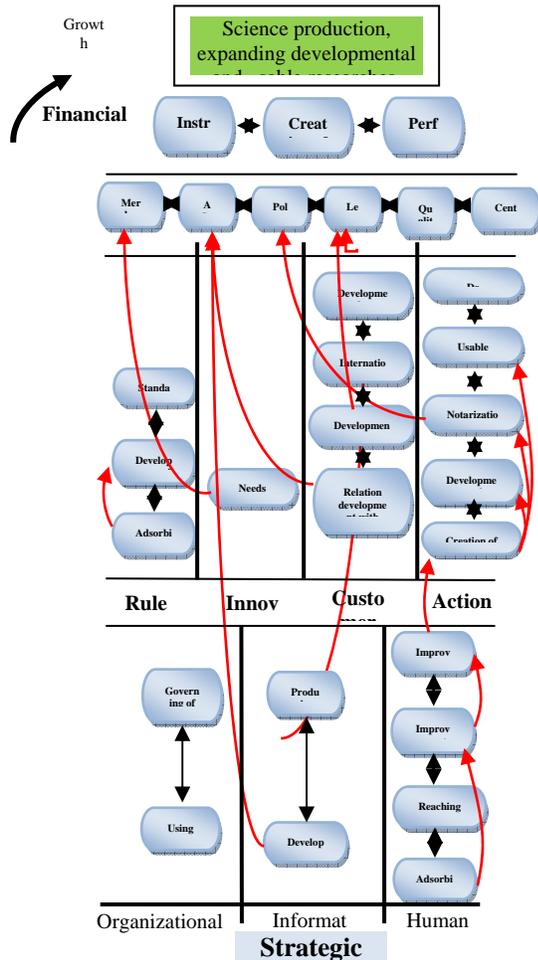


Fig 1: Strategic Map of ACECR

**2. Methodology**

The methodology used in this study is descriptive, analytic, practical, and also case study in ACECR. The population under study included ACECR managers in deputy of education and deputy of research, who were 210 individuals. The sample in this study was 132 managers of ACECR deputies of education and research based on De Morgan's table and according to random stratified sampling.

Table 1: Indicators extracted in order to design the strategy map

Indicators title	Perspective
1 Gain improvement	Financial
2 Creation of new financial sources	Financial
3 Equipment development in accordance with program needs	Financial
4 Expansion of educational center with country region needs	Customer
5 Quality improvement with employment based perspective	Customer
6 Scientific level upgrade in non-government high education organizations	Customer
7 Identification ACECR to society (National, Regional, International)	Customer
8 Scientific poles development for science edges expansion	Customer
9 Identification of products merchants and ACECR services	Customer
10 Skilling short time educational courses	Internal processes
11 Fundamental, developmental and acting researches development	Internal processes
12 Co-increase creation in capacities and educational & research assists development between units and ACECR research centers.	Internal processes
13 Programmed acting researches and implementation of produced results	Internal processes
14 Production, adsorption and nationalization of needed technologies	Internal processes
15 Development of short time educational courses	Internal processes
16 Presenting educational services in international level and foreign students adsorption	Internal processes
17 Science-acting educational centers development with relative performances and experienced preferences	Internal processes
18 Providing base and development of communication and assists with international research & educational organizations	Internal processes
19 Identification of needs, research and education chances of country and region	Internal processes
20 Development of communication with Science and hygiene ministries to get needed Ruler certificates	Internal processes
21 Adsorbing of supports and assist of coherent government's organizations	Internal processes
22 Standardization of certificates and going to present international certificates	Internal processes
23 Improvement the scientific level of ACECR members	growth and innovation
24 Improvement of staff members pyramid	growth and innovation
25 Reach to universal rules in employment of personnel	growth and innovation
26 Adsorbing of scientific power of elites	growth and innovation
27 Expanding perspective of notification of educational acts and ordering of notification sites	growth and innovation
28 Producing of book, software and educational sources for short time educational-experienced courses	growth and innovation
29 Using of new technologies and IT in ACECR	growth and innovation
30 Attention to Islamic rules and ACECR culture government	growth and innovation

Table 2: Balanced score card model of ACECR (education and research) (The indicators' numbers are in accordance with Table 1)

Indicators and measures of financial perspective:

Indicators	Main goals	Criteria	Quantitative goals (%)
1		Cost/Income	From 70 to 65
		Annual increasing of monies (%)	10
2		Annual increasing of received loans (%)	5
		New services income/all of income	5
		Ratio of store rotation	7 (Increase)
3		Territory skeleton space/available space	80

Indicators and measures of customer perspective:

Indicators	Main goals	Criteria	Quantitative goals
4		Created centers in unreached regions	Minimum 10 centers
5		Employment for students (%)	10 % increase
6		Scientific level within non-government educational organizations	Better rank
		Mean acceptance of graduates in MSc level	Minimum 20 %
7		Results of opinion projects	85 % national notification
8		Science and technology pole	one
		Science and technology pole	three
9		Doing environmental researching	Minimum 10 projects

Indicators of internal processes perspective:

Indicators	Main goals	Criteria	Quantitative goals
10		Increase of students numbers of experienced educational courses/students numbers of general educational courses	From current 20% to 30%
		Short time experienced courses numbers/all of courses numbers	75% to 85%
11		Scientific articles	Minimum one scientific-research article or 2 scientific-promotional article for any staff member
12		Number of courses that ran in accordance with experienced and scientific capacity of ACECR	Minimum 100
		Rank	One of 5 best organizations
13		Technology	6
		Rank of organization within all of organizations	Best
		Date of completing of network	Until end of program
14		Projects with assist numbers/all projects numbers	3%
		Projects with assist numbers/all projects numbers	5%
15		Numbers of all of students of short time and experienced educational courses	From 300 hundreds to 500 hundreds persons

Indicators	Main goals	Criteria	Quantitative goals
		Students numbers in special courses/numbers of students in experienced courses	Minimum 50%
		Numbers of approved courses	From 61 to 200 courses
		Numbers of international students/numbers of all students	1%
16		Acting in Islamic countries	Minimum 3 countries
		Research and identification of possibility of accepting science-acting students from regional countries	Minimum 10 projects
17		Increasing capacity of students reception	25000 students
		Accepting students in BS/Skill	From 40% to 60%
18		Treaty numbers with international organizations	Minimum 20 cases
19		Projects numbers	Minimum 10 projects
20		Increase of certificates numbers (%)	10%
21		Being member of committees and general and governmental societies	10% increase
22		Association with credible international companies to get justification	Minimum 10 companies

Indicators of financial growth and innovation perspective:

Indicators	Main goals	Criteria	Quantitative goals
		Annual educational capitation	70 hours
23		Composition of personnel based on educational diploma	2.7 to 6 (PhD) 17.28 to 22 (MSc) 29.26 to 34 (BS) 12.08 to 14 (Skill) 38.68 to 24 (Diploma and lower)
24		Professor assistant and higher levels/all of staffs	25%
25		Composition of personnel based on employment	39.7 to 45 (official and agreement) 60.3 to 55 (full time treaty)
		Composition of personnel based on employment group	13.7 to 20 (staff) 86.3 to 80 (non-staff)
26		Inventor/staffs	3%
27		Results of opinion	30%
28		Sources numbers	20 title (annual)
29		Specialty of monies to new technologies and IT	20% increase
30		Numbers of mentions to any person for disregard of rules	0
		Numbers of published books and seminars about ACECR culture	Minimum 30

Data collection was fulfilled through library study, questionnaire, interview, and study of existing information resources. To study the related literature and access to similar studies, library study was used. Indicators, measures, and quantitative objectives

were extracted using questionnaire and interview, and data were analyzed using SPSS 16.0 software.

Considering the related literature and studying the vision, mission, long-term goals, and macro-strategy of ACECR in fields of education and research, 40 indicators were prepared for the first questionnaire as Likert scale and this questionnaire was handed in to ACECR managers nationwide. Friedman test indicated that mean values of 30 indicators out of the 40 indicators were significantly higher than average. After determining the indicators, several measures were considered for each indicator and the chosen measures for each indicator were determined in a questionnaire. Finally, some of quantitative objectives were determined from the organization's documentations and a limited number of them from interview. Considering the determined indicators and the cause and effect relationships, strategy map of ACECR was designed in fields of education and research.

After designing the strategy map, as well as extraction of indicators, measures and quantitative objectives, we compared the current status with pre-determined goals in first year of the program implementation through analysis of obtained indicators, in order to find out how much the strategy has been successfully executed in different mentioned perspectives in first year of the program implementation, and then we analyzed the existing gaps.

Indicators and measures in the two questionnaires were designed such that they were suitable for an institution such as ACECR. To this end, subsequent to initial design, the related questionnaires were analyzed in several stages and their relevance to the subject as well as being understandable was studied. After the final questionnaire was yielded, it was handed in to experts and its reliability was confirmed by Cronbach's alpha test.

### 3. Results

Considering the mentioned issues in previous sections, the strategy map, table of indicators, and table of balanced score card model of ACECR are provided in this section.

All analyses have been made based on existing documentations and opinions of managers. To avoid a long discussion, comparative graphs (existing status and expected program status for each indicator) have not been shown here. Following comparison and analysis, we have studied and analyzed the related existing gaps. Measures and quantitative objectives were designed in accordance with the strategic program and other documentations of ACECR; in case that no definition existed in the program, it was

obtained by interview with experts in the organization. Relationship of the extracted indicators with the goals existing in the ACECR strategic program was determined; nevertheless, to summarize the discussion, we do not mention the goals in table.

### 4. Discussion and conclusion

Analysis of strategy implementation status

In this section, we have analyzed the gaps subsequent to comparison of the level of fulfillment of indicators existing in the strategy map with their expected value in the program. To avoid long discussion, comparative graphs are not provided.

Financial perspective

In general, since more than 90% of ACECR's budget is provided by its income, this has led to remarkable importance of this perspective and the strategies of its subset.

From previous times, strategy of ACECR top managers has been physical development as well as ownership of ACECR assets, and this can obviously be observed from the indicators related to this perspective. The only existing problems are Iran's economical conditions, avoiding the payment of bank loans due to execution of contraction policies, and decrease in the budget allocated to ACECR because of change in government's policies, and executors of the program does not have a considerable role regarding these problems. Totally, performance of the program executors can be considered satisfactory and to a high extent in accordance to the program.

#### Customer perspective

Managers have satisfied the expectations regarding the indicators of this perspective as well as physical development of this institution in most Iranian cities and special attention to employment due to possessing the Organization for cooperation in graduates' employment whose responsibility is to provide job opportunities for those graduated from universities. Furthermore, possessing a wide network of scientific-practical centers nationwide has to some extent satisfied the society needs in this field. Also, the existence of such centers plays a major role in making people familiar with ACECR. Generally, indicators of the customer perspective have been in agreement with the program.

#### Internal processes perspective

The main viewpoint of ACECR managers in this perspective has been to specialize the activities. The second issue is entering the international arena, which requires fundamental changes in different perspectives; no specific output has been yielded in spite of holding numerous meetings, formation of

different workgroups, and establishment of international domain in practice.

Expectations have been satisfied to a high extent in specializing the activities and development of courses and it has a promising future.

Regarding the entrance into international arena, as was mentioned before, infrastructures have been established; however, no notable success has been acquired so far. As internal market is saturating now, entrance into international arena is a vital issue considering ACECR potentials; it should be noted that time is the determinant factor.

In needs assessment, there is a gap compared to the program in both national and local levels.

Interaction with executive agencies is among the most important strategies which has attracted the managers' attention. It is noteworthy that, changes in government's policies in many years has influence much the success of ACECR programs. Therefore, membership in numerous committees and workgroups in provinces and at national level can guaranty the interests of ACECR.

### **Growth and innovation perspective**

The most fundamental perspective among the mentioned ones is the growth and innovation perspective. Though managers try to consider this issue and understand that human resource is the most valuable wealth of ACECR, most activities related to human resource have a delay compared to the program which indicates insufficient attention of managers to employers of this institution.

Although there are gaps concerning the information wealth, they can be compensated by a new version.

Considering high importance of organizational wealth for managers, there is a gap in this domain in comparison with the program. Presently, a shift in generations is observed in ACECR; indeed, youths of the years 1979-80 who established ACECR and formed its values are currently being retired and their positions are provided to the next generation. Has the next generation been trained enough to maintain these values and are the experiences, opinions, and achievements of experienced individuals documented in the organization? Managers are responsible for transferring these knowledge and values from the antecedent generation to current generation; however, the managers' performance in this field has not been satisfactory from the researcher's point of view.

We have so far mentioned the general analysis of strategy in different perspectives of balanced score card model in ACECR. In following, we present some solutions for improvement of the current status.

### **Suggestions yielded from this study**

1. More attention to welfare of staffs is a significant step to coordinate them with the organization's strategic program;

2. In addition to welfare of staffs, another factor which increases the staffs' commitment for executing the program is their participation in design of the program. General revision of the program with participation of staffs in middle and lower positions enhances the program's execution guaranty;

3. A relatively suitable control system exists for the program; however, it has not been considered to confirm the statistics provided by the units. So it is essential to reinforce the controlling system of the program for confirmation of the statistics' validity;

4. Another approach for reinforcement of this controlling system is to prepare a systematic and pre-determined monitoring plan to update the program;

5. Motivating the managers, other than those of central unit who have satisfactory participation, to better participate in strategic program of ACECR;

6. Making use of a foreigner expert consulting team during the organization's strategic management process;

7. Another factor which increases the commitment to program execution is causing motivation. These motivations may be financial or non-financial, such that the performance of each unit should be analyzed at the end of each year; the level of deviation from the program should be determined for each unit and the results should be reported. Also, staffs of the units with satisfactory performance should be appreciated; nevertheless, such a system does not exist at present;

8. Since most activities of ACECR are accompanied by marketing, implementation of a comprehensive marketing system in ACECR collection is essential. Certainly the establishment of such a system will alleviate the major problems of this institution in identification of markets, finding projects, needs assessment, etc. especially at international level. It should be mentioned that there are serious problems in most programs for recognition of opportunities and needs.

9. The present management system of human resource suffers from numerous weaknesses and even its most primitive components have not been executed. Revision of current status and establishment of a comprehensive system of human resource management will decrease the problems existing in the program in human wealth perspective.

### **Suggestions for improvement**

1. Considering current conditions in the region, suitable opportunities exist for activity in Iraq and Afghanistan, even holding basic and primitive programs; however, this may encounter with

prevention of rivals, which should be taken into consideration. In general, strategy of ACECR for entrance into international arena should be totally revised due to change in political conditions of Iran in the world; otherwise, the present approach would not lead to successful outcomes.

2. In the perspective of organizational wealth which is of high significance for ACECR, it was mentioned that there is a major change in this organization, i.e. retirement of present managers and their replacement with young managers with different ideas and values. To transfer the values and experiences of previous generation to this generation, existence of a knowledge management system and its establishment in ACECR can play a vital role in such a transfer. Furthermore, by projects such as extraction of the knowledge of managers and key individuals, their valuable experiences can be documented. This documentation can even be presented in ACECR culture, since no published work exists so far; but as the managers believe, the most significant reason for success of ACECR has been following the ACECR culture.

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