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Universities Strategic Evaluation Using Balanced Scorecard

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Abstract**—**Defining strategic position of the organizations within the industry environment is one of the basic and most important phases of strategic planning to which extent that one of the fundamental schools of strategic planning is the strategic positioning school. In today's knowledge-based economy and dynamic environment, it is essential for universities as the centers of education, knowledge creation and knowledge worker evolvement. Till now, variant models with different approaches to strategic positioning are deployed in defining the strategic position within the various industries. Balanced Scorecard as one of the powerful models for strategic positioning, analyzes all aspects of the organization evenly. In this paper with the consideration of BSC strength in strategic evaluation, it is used for analyzing the environmental position of the best's Iranian Business Schools. The results could be used in developing strategic plans for these schools as well as other Iranian Management and Business Schools.

Keywords**—**Strategic planning, Strategic position, Balanced scorecard, Higher education institutions.

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I. Introduction

THE wealth of the nation depends more on its people, management and government, than on its natural resources. Education helps to enhance the knowledge base of the nation and therefore it plays a vital role in shaping the future of the nations. Emerging global trends, new economic challenges, the rapid growth of information technology (IT) and the requirement for multilingual proficiencies are some of the challenges that developing countries have to face. The role of education, especially business education in building work force and management capable enough to cope with these challenges, has placed business education in a much sharper focus than ever before [1]. Nowadays strategic thought and strategy-based actions, enables organizations to cope with and successfully adapt to the future environment [2]. Strategic plans depict the route from the present position to the future desirable position described by the vision [3] and help the organization to improve its performance by better acquaintance of the environment [4]. These are the main reasons why the evaluation of competitive environment of the organization and its strategic position is necessary in strategic planning process [5].

In today's knowledge-based economy, higher education institutions as the centers for developing human resource play an essential role in countries' economic growth and development [6]. So strategic planning has got a vital importance for such institutions [2] and leads them to better future by adapting to the environment beside the educational policies [7].

In this paper we pursue the purpose of developing the BSC strategic model, to evaluate the strategic environment of Business higher education in Iran. This model is customized and implemented for the case of 6 top Iranian business schools and then the position of each has been defined in comparison with the others in the setting. The results of this study can be used directly in strategic planning of these schools as well as all other Iranian business schools. Also it can provide us a holistic perspective of HEI[1]s in Iran.

In this paper at first we review the literature by the structure of: positioning school of strategic planning, university strategic evaluation and balanced scorecard model. Then the research method will be explained, including the BSC model for HEIs and The method used for data normalization, and at last in the research findings the strategic positions of the business schools in the area will be explored accompanying a precise analysis. The paper will be ended with stating the results and some suggestions for further researches.

II. Literature Review

A. Positioning School of Strategic Planning

Strategic planning process has got several approaches which are called strategic schools. These schools that describe the basic approach toward the strategy development in the strategic planning process are classified to various groups. Positioning is a well-known school in strategic management in Iran. In that, analyzing the external environment as well as internal environment, and defining the organization's strategic position in comparison with the other rivals accompanying an analytic approach is the prerequisite of developing strategies [8]. Environmental examination is the initial phase of strategic analysis that contains defining the current strategic position of the organization which is called "strategic scanning" in some papers. Pashiardis [9] claims that, defining the strategic position of the organization is the base of effective strategic planning, because, before any decision, organization needs to know about its environment to adapt to it. Experts in strategic management believe that strategic positioning is the most serious phase of strategic planning process [10]. It's obvious that organizations enhance their chance of developing strategies that optimize the environmental opportunities by analyzing their competitive position. Comparing rivals in the industry, let the manager to define the weaknesses and strengths of each rival versus his organization's strategies.

B. Strategic Planning in Higher Education Institutions

In today's world economy with rapid change, intense flow of information and increasing competitiveness by removing

[1] Higher Education Institution

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the barriers and commercial bounds, higher education institutions in the world smoothly changed to institutions which are lead by competitive market stimulus, commercial and economical necessities, then they get away from their governmental identity [12]. A large number of these institutions nowadays are supplying Great ratio of their resources from external resources as industry and commerce so the limited resources as well as impetus of attracting potential students result in competitive market for HEIs [13]. Their desire to survival in the competitive environment makes them to appeal Management and Strategic planning to increase the adaptability with the environment, customer satisfaction and responsiveness [2, 14]. Herein Mok in his paper, analysis the globalization, competitiveness and their result on the universities reorganizations and governmental delegation to private sector and clarify the role of university in social and economical development of societies [20]. Students to the well-known universities of the world result in the new trends for seeking the potential students all over the world, in support to that Cert. emphasis on the need to use strategic management in higher education than industry [15].

The literature provides little evidence on strategic planning at the university [17]. In recent years a large number of studies analysis the use of strategic planning in HEIs and tried to correlate the current efforts of the university with the emergent environmental changes [16]. According to that Dyson (2004) develops the Warwick University strategies by the means of SWOT and its relation with scenario planning and resource based planning [18]. Also Mazzarol and Norman probed the strategic factors in educational institutions, and chose the information technology as a competitive advantage for serving in the global class [19].

Gill and Lashine (2002) develops some techniques and criteria to improve educational institutions quality. Another approach for continues improvement in higher education is total quality management concept. The initial application of TQM to higher education was explored by Owlia and Aspinwall (1979). Brewer et al. (2000) applies strategic planning techniques for continues improvement in college of business. Gill and Lashine (2003) probe the potential of business schools in satisfying the needs of society and industry. They probe and propose the positioning strategies of management education, business schools staffing, accommodations and teaching methods strategies [21].

Niculescu (2006) surveyed the strategic position of Romanian business schools in the views of customers and developed the perceptual map to evolve it. Then he emphasis on the use of strategic planning in the Romanian universities and employ of better strategic allocation management in allocation of scarce organizational resources [21].

Strategic management is the logical, systematic and objective way to make great decisions in the organization. This kind of management endeavor to use Qualitative and quantitative information to make effective decisions in the uncertain circumstances. Strategic management process consists of three main elements [15, 16]:

1) Strategic analysis
2) Strategic choice
3) Strategic implementation

In strategic analysis as a first phase, strategist is trying to understand the position of organization in the environment [16]. Plurality of surveys [7, 22, 23, 24] emphasis on the necessity of strategic environmental exact analysis in the HEIs strategic planning. Then Kraus et al. [4] introduce the environmental analyzing as a key of reaching high performance in the universities.

Till now diverse models of strategic analysis with various approaches are employed. Some researchers [7, 25, 26, 27, and 28] deployed the BSC in HEIs. Zheng and Stewart [26] use the Data Envelopment Analysis technique with the efficiency oriented approach to define the strategic position of the universities. So these models with various approaches are chosen according to the environmental characteristics of the industry by understanding the priorities and strategic aims of that industry.

C. Balanced Scorecard

Kaplan and Norton (1992) introduced balanced scorecard as a performance measurement tool for the first time. Till now many changes have been made to the physical design, application and the design processes used to implement the tool, that have enhanced the utility of balanced scorecard as a strategic management tool [30]. The ending purpose of BSC is to providing the key success factors for the managers and aligning the performance with the overall strategy of the organization. Kaplan and Norton claim that BSC could provide the managers, an organization leading tool for achievement in future competitiveness [31].

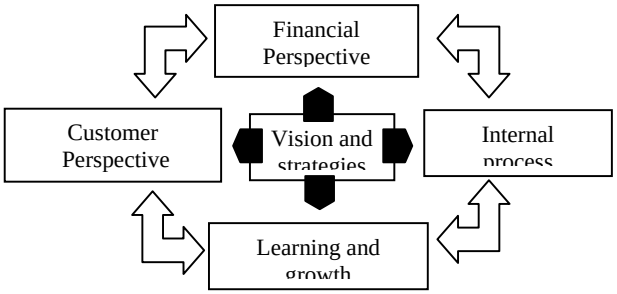
Brady argued the *Balanced Scorecard* as strategic measurement system not only a measure of strategy implementation, so BSC measure the strategies implementations likewise it is a strategic measurement system [32]. Some scholars knew BSC as strategic performance management system that translates the strategic goals of organization to its related performance measures [33]. The purpose of BSC is to implementing organization goals and vision in practice. This model assumes the goals and strategies by translating the organizational goals to key success factors in the BSC four perspectives, as a center of organizational performance control system [34].

D. Four Perspectives of Balanced Score Card

The BSC according to Kaplan and Norton has four measurement perspectives, which are summarized as follows (Fig. 1):

1) financial perspective,
2) customer perspective,
3) internal process perspective,
4) Learning and growth perspective.

Organizations which use this model, customize it with their own processes and environment, therefore there is no necessity in applying the four perspective of BSC or they could affix another perspective to BSC, according to their needs [34].



Source: Kaplan & Norton (1996).

Fig. 1 BSC perspectives

BSC is effectively used in manufacturing, service and governmental organizations, In spite of BSC usages in industry sector is well documented, and very little research has been reported regarding the adaptation or application of the BSC in the education sector [28]. Amaratunga and Baldry used BSC in measurement of higher education sector, performance, then they confirmed the relation between performance measurement and performance quality based on BSC model [31]. Delker (2003) develops BSC model for the California State University, in his thesis in order to get the Master of Business Administration Degree. In this thesis the BSC measures for university appraisal are evolved and implemented [35].

Cullen et al. (2003) propose the use of BSC in support to underscore the essence of performance management instead of performance measurement, Sutherland (2000) reported that the Rossier School of Education at the University of Southern California adopted the balanced scorecard approach to assess its academic program and planning process [28].

Chen et al.(2006) in their study, have focused on the use of the BSC to establish an evaluation system for the performance of Chin-Min Institute of Technology (CMIT).They have developed BSC as strategic management tool for HEIs in Taiwan.

Umashankar and Dutta (2007) used the balanced scorecard concept and discuss in what way it should be applied to higher education programs/institutions in the Indian context [26]. Papenhausen and Einstein (2006) used the BSC in Management faculty of the University of Massachusetts-Dartmouth. The purpose of they survey was to show how the Balanced Scorecard approach, a performance management system, could be implemented at a college of business [37]. Cullen et al. (2003) developed the BSC model for Management and business administration of Mid Ranking UK University [7].

According to the various deployments of BSC mentioned in strategic management of education sector, in this paper BSC is used for the phase of strategic analysis in strategic planning. We will continue with the research method and results in the following sections.

III. Research Methodology

A. Developing BSC Model for Higher Education Institutions

In order to measure the BSC perspectives for the business schools in this paper, according to the financial, human and data resources as well as time restriction, questionnaire and checklist are used for data gathering. Data for all the perspective except the customer result perspective which is gathered by questionnaire are gathered by the checklist (real data). The checklist contains 36 variables which are measured by interval scale and the Likert scale. The check list is completed for each Business school with the contribution of its management and staff all over its departments.

It was mentioned that be cause of its importance, the data for the customer perspective was gathered by a questionnaire from each business schools customers (students). This questionnaire consists of 9 questions with the Likert scale to measure four essential results for the customers. As a whole 294 questionnaire was completed, 12 questionnaires was unusable, so analysis was conducted on 282 questionnaire which reliability and validity was confirmed with the Cronbach's Alpha and Factor analysis.

Finally the gathered data was normalized with the normalization method, and the score of each perspective is computed by averaging the scores its variables. For computing the overall score of each business school, some weights which are obtained from Group Analytical hierarchy Process (GAHP) are allocated to the BSC perspectives. To this end the AHP questionnaire was developed with 6 pair comparison question between the perspectives. Then the opinions of the business schools teachers were gathered and through the AHP method the weights for each perspective are defined.

B. Data Normalization Method

In this paper the data of 6 Iranian top business schools are gathered with the checklist and the questionnaire tools. Because these data are scaled in various types and dimensions, we have to normalize them with the following method:

a_{ij}: quantity related to variable i for school j

E_{ij} : score related to variable i for school j

L_i : Minimum level of variable i between all schools

$$Li = Minj=1,2,\ldots\{aij\}$$

H_i : Maximum level of variable i between all schools

$$Hi = Maxj=1,2,\ldots\{aij\}$$

R_i : Range of variable i between all schools

$$Ri = Hi - Li$$

For computing normalized score of each variable for each school, the following equations are used:

- for positive variable

$$E_{ij} = \frac{99(a_{ij} - L_i)}{R_i} + 1$$

- for negative variables

$$E_{ij} = \frac{99(H_i - a_{ij})}{R_i} + 1$$

This method allocate 100 to the highest school and 1 to the lowest school in each variable, other schools scores are distributed proportionally between the highest and the lowest schools. This method has got the following advantages:

1) normalize the scales of variables,
2) aggregate the difference of school's scores in each variable,

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3) Facilitate the computation of negative and positive variables together.

IV. Research Findings

A. Validity and Reliability Analysis

Reliability and validity tests are necessary for questionnaires to make their results applicable. Then in this paper validation and reliability analysis is conducted in order to define the reliance of the Questionnaire. The Reliability is measured by Cronbakh alpha and the validity is measured by factor analysis and the factor space analysis. In table I, measurements of alpha for the all the variables and the questionnaire as a whole are exhibited.

TABLE I
CRONBAKH ALPHA SCORES

	Variable	*Related questions*	*Cronbacs alpha*
1	questionnaire	Questions 1-9	0.6262
2	Factor 1	Questions 1-3	0.7011
3	Factor 2	Questions 4,5	0.578
4	Factor 3	Questions 6,7	0.7776
5	Factor 4	Questions 8,9	0.7029

As it is shown in Table I, the questionnaire's overall alpha score is 0.6262, so the questionnaire is reliable. Validity determines if the questionnaire capable of measuring the factors, developed for. Factor analysis is one of the validity defining methods between various methods for defining the questionnaire validity.

TABLE II
FACTOR ANALYSIS RESULTS

Questions	Factor 1	Factor 2	Factor 3	Factor 4
Q1	**0.750**	0.151	0.217	0.073
Q2	**0.781**	0.111	0.157	-0.050
Q3	**0.682**	0.041	.350	-0.128
Q4	0.024	0.140	**0.55**	0.16
Q5	0.122	0.025	**0.735**	0.033
Q6	0.104	0.120	0.235	**0.958**
Q7	0.049	-0.057	0.165	**0.333**
Q8	0.129	**0.494**	0.334	0.143
Q9	0.082	**0.990**	0.099	0.061

Table II exhibits the question factor loading on the factors that questionnaire aims to measure. Factor loading more than 0.3 is confirmed in the literature. In this paper the Varimax rotation method for factors rotation.

It's clear that, the Factor analysis results in 4 factors which are equal to the questionnaire factors. Also the factor loading on the questions confirm the validity of the questionnaire. In table III, the variance of the each factor and the aggregate variance of the all factors which is (65.61) are exhibited. The questionnaire is more suitable with the increase in magnitude of this variance.

TABLE III
FACTORS VARIANCE DISTRIBUTION

	Factors	*Variance*	*Aggregate*
1	Factor1	14.96	14.96
2	Factor2	14.43	29.38
3	Factor3	14.24	43.62
4	Factor4	11.99	65.61

B. Business Schools Assessment

In this section the described methodology is implemented for the data of 6 top Iranian business schools. In table IV the assessment results of the schools in BSC model perspectives, and the perspectives weights from AHP technique are exhibited. Final results of the business schools assessment by the overall score (weighted average of perspectives score) are shown in Fig. 2, then the schools can be compared with each other. In Fig. 3, schools are assessed and compared with each other in all the four BSC perspectives.

TABLE IV
BUSINESS SCHOOLS SCORES IN BSC PERSPECTIVES

BSC perspectives	*A*	*B*	*C*	*D*	*E*	*F*	weights
Learning and growth	25.74	31.18	55.02	55.01	29.30	36.72	0.45
Internal process	32.63	45.85	49.45	28.01	74.92	47.69	0.46
Financial	75.87	40.63	22.26	64.14	63.81	56.22	0.08
Customer	57.87	36.19	50.05	22.52	55.19	75.90	0.54
Overall score	57.65	48.58	66.048	49.66	67.68	74.55	

According to Table IV, school F has got a significant advantage in customer perspective which is the most important perspective based on the experts weights (0.54). As a result the school F is the best (74.55) in the overall score. In addition by comparing the other perspectives, it is understood that school F implement customer oriented strategy. According to the results school F has got a moderate position in scores distribution between the perspectives, the only weakness of these schools is in the Learning and growth perspective which refer to deficiency in teachers, weakness in using modern educational technologies and teachers development programs. So these schools should develop their strategies on this perspective.

School D in spite of its advantages in the Learning and growth and financial perspectives, is not good at overall score because of the weakness it has in customer perspective. School A has got deficiency in Learning and growth and Internal process perspectives and has got strong points in Customer and Financial perspectives. The weakness of this school in Learning and growth perspective has got an infection on its overall score.

School B has got deficiency in all four perspectives; the outcome is the shortage in the overall score.

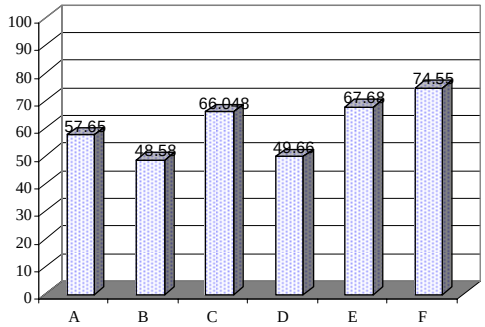


Fig. 2 The overall scores of schools in BSC perspectives

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School C has got medium scores in all perspectives except financial perspective which has the lowest importance. School E has got an advantages in customer, financial and internal process perspectives and it has deficiency in learning and growth perspective.

In overall score schools F, E and C are sequently higher than others with an insignificant difference. Then school A, D and B are sequently in lower places.

According to the results, it can be deduced that customer oriented schools are more successful than other schools in the views of the business schools experts.

By comparing the weights of perspectives in the views of experts, learning and growth and customer perspective are more important than internal process and financial perspectives, so the schools E, F with the higher scores in customer perspective are the highest schools in the overall scores. Beside this these is a weakness between schools' scores in learning and growth perspective, in comparison to the other perspectives. Then these schools need to emphasize on this perspective in their organization development plans.

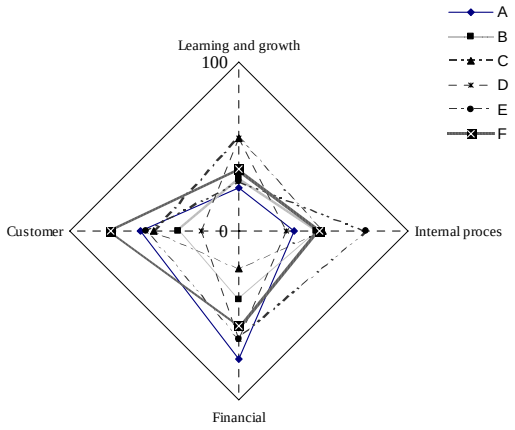


Fig. 3 Position of business schools in BSC perspectives

V. Conclusion and Further Research

A. Conclusion

In this paper BSC strategic model is used to evaluate the strategic position of higher education institutions, with the use of tools as questionnaire and checklist for Iranian top business schools. These schools are assessed in the strategic perspectives of BSC model, and their strategic positions are defined in comparison to each other. Also the validity and reliability analysis on the research tools have been done.

According to the findings, school F has got a comparative advantage on the customer perspective, therefore it has a customer oriented approach. Because of its importance according to the expert's weights to the BSC model perspectives, school F received the best overall score. Schools C and D have got an advantage in learning and growth perspectives, this perspectives is weaker than other perspectives in this study as a whole. School D because of its weakness in customer perspective, hasn't got a good overall score but school C owned the third place by the means of this perspective. The weakness of school A in the learning and growth perspectives has got a significant negative impression on its overall score.

School B by the means of its weakness in all perspectives, gets the weakest position in comparison to other schools. School C except the financial perspective has got good scores in other perspectives and the School E has got a comparative advantage in the internal process perspective and it has a significant weakness in the learning and growth and customer perspectives.

B. Further Research

Strategic management is ever one of the issues that attracted the business managers, and this is more important for the higher education institutions which are the pathfinder of science and technology. Strategic management concept contains the planning and changes which are necessary for organizations development. Finding about the position of the organization in comparison to the rivals, in the industry is one of the vital and basic phases of strategic management and planning. So one of he strategic management schools is strategic positioning, which study the organization and its environment with analytical approach, then develops strategies for the organization.

In strategic management literature, various models are used for measurement and it's clear that each model pictures its own view of the strategic environment. In this study with a strategic approach, the strategic positions of Iranian top business schools are assessed by the means of BSC model. In further research, others models like SWOT analysis. Value chain, portfolio analysis and the DEA technique can be used with the same variables and compare the results with each other. These models are complementary to each other and the strategies should be developed according to the set of this models results.

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