Strategic planning and performance measurement using balanced scorecard: A case study of Iran Kaolin and Barite company

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CHRONICLE	ABSTRACT
	This paper presents an empirical investigation to measure the performance of a mining firm in province of Semnan, Iran based on balanced scorecard (BSC). The proposed study investigates the present status of the case study in terms of four BSC perspectives including internal process, learning and growth, customer and financial figures. The firm uses BSC for one year and after that, we compared the performance of the firm prior and after BSC implementation. The preliminary results indicate that the firm was able to make a 30% improvement on its performance after one-year implementation of BSC. In other words, the firm was able to make 59% improvement on learning and growth, 33% growth on internal process, 32% growth on customer and 21% improvement on financial figures.

1. Introduction

The success of any business unit depends entirely on the quality of its management and management quality depends on decision quality and information quality on the quality of its measurement and proportion. Therefore, its accuracy and measurement has essential role on the success of the business unit and the weakness of performance evaluation and managerial control system can create some barriers for the growth of organization. There are literally numbers of methods and techniques to measure the relative performance of a firm. Balanced score card (BSC) is one of the most popular techniques for measuring the performance of business units in terms of four different perspectives including internal process, learning and growth, customer and financial figures. Kaplan and Norton are believed to be the first who introduced the idea of BSC (Kaplan & Norton, 1996, 2000, 2002, 2004). Mozaffari et al. (2012) performed a BSC method to measure the performance of a university based organization based on an adaptation of fuzzy numbers for handling the existing uncertainty on the numbers.

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Danaei and Hosseini (2013) investigated the existing strategic objectives in the strategy map of a pipe company located in city of Shiraz, Iran and designed a questionnaire and distributed it among 31 managers, 94 regular employees and 110 customers of this firm for the fiscal year ended 2011. The results of their study indicated that the firm could reach 41.4% of its financial objectives, 87.38% of its customers' requirements, 66.13% of internal processes and 70.94% of its learning necessities according to four major BSC requirements.

Kohneh et al. (2013) implemented a hybrid of analytical hierarchy process along with BSC to measure the performance of five different civil registry offices in Tehran, Iran. They used fuzzy terms to handle uncertainty in input numbers and using some technique convert fuzzy numbers into crisp values. The results of their survey indicated that learning and development was number one priority with relative importance of 0.491, followed by customer with relative importance of 0.293, internal process with relative importance of 0.173 and financial affairs comes at last with relative weight of 0.043. The study also implemented organizational researchers, training, quality, customer satisfaction, performance measurement, expenses and annual budget as major components for analyzing five regions.

Nemati et al. (2013) developed a comprehensive method to learn the impact of knowledge management (KM) practices on organizational performance. They used BSC to materialize this comprehensiveness. In order to prevent research dispersion, the selective indicators in KM were oriented to some critical success factors influencing KM implementation. In addition, they analyzed the factors by path analysis using structural equation modeling (SEM). The results indicated that KM practices maintained some impacts on the overall performance. Finally, KM practices only impacted learning and growth among dimensions of BSC, significantly.

Mozaffari et al. (2013) in a comprehensive investigation measured the performance of Islamic Azad University of Semnan by the utilization of strategy map as a prominent part of BSC. Darvish et al. (2012) evaluated the effect of human resource competencies on productivity by considering different issues such as various competencies associated with human resources, how it was possible to persuade and strengthen such competencies in organizations and whether human resource competencies could impact organizational productivity or not. The results of their survey indicated that that human resource competency could impact organizational productivity. In addition, all dimensions of human resource competencies had significant relationship on organizational productivity.

Ghotbuee et al. (2012) presented an empirical investigation to measure the relative efficiency of seven health care centers in province of Semnan, Iran, which were under the coverage of social security organization of Iran. They implemented a hybrid of balanced score card and data envelopment analysis for performance measurement based on BSC method. The preliminary results indicated that all seven units perform relatively well and the overall efficiency of all units in this province is 0.769.

2. The proposed study

This study investigates the effects of the implementation of BSC on measuring the relative performance of and Iranian firm called Iran Kaolin and Barite company located in province of Semnan, Iran. Iran Kaolin and Barite company was established in 1992 and it produces and provides mineral products needed by industries such as oil and gas drilling, chemical and ceramic. The company is one of major producers of industrial mineral powders such as Barite, Bentonite and Hematite according to API, OCMA & ASTM standards, micronized calcium carbonate, Kaolin, Talc, Feldespar, Silicaflour and other mineral powders. The firm is also active in exporting its products to the countries in the Persian Gulf region and CIS countries.

In order to measure the performance of this firm, we consider the present status of the firm, setup some targets and measure the performance of the firms one year after in terms of four BSC perspectives.

3. The results

We first present details of different attributes used for measuring BSC performance in our implementation. Table 1 summarizes all necessary attributes.

Table 1
The summary of BSC figures prior to implementation

Perspective	Value added process	Attribute	Unit	Identity	Present	Ideal	Score	Overall
Learning & Growth	Improving knowledge of employee	Improvement in educations	Person	Positive	2	10	89%	
		Improvement in short courses	Hour	Positive	24	100	19%	29
	Treatment process	Visit drainage treatment ponds	Dropout	Negative	50	20	20%	
Internal process	Production process	Volume of production	Tonnage	Positive	42000	47050	25%	
	Maintenance process	Production interruption	Hour	Negative	52	10	71%	32
		The value of equipment	Currency	Positive	200	1000	42%	
	Quality control process	Lesions	Percent	Negative	40	10	40%	
	Process	Quality of product	Based on 7	Positive	5	7	60%	
Customer		Sales increase	Percent	Positive	25	60	80%	53
	Marketing process	Identifying new markets	Case	Positive	2	5	80%	
		Variety of Customers	Case	Positive	18	30	89%	
		Percentage of debt reduction	Percent	Positive	8	10	19%	
Financial	Financial process	Percentage Increase in working capital	Percent	Positive	12	15	20%	80
Total								48

As we can observe from the results of Table 1, there were some serious issues on all measures of BSC methods and presently the performance of the organization is around 48%. In order to improve the performance of the firm, the management team executed some programs and after one year we repeated our assessment on the firm. Table 2 summarizes the results of our survey as follows,

Table 2
The summary of performance measurement after BSC implementation

Perspective	Value added process	Attribute	Unit	Identity	Present	Ideal	Score	Overall
Learning & Growth	Improving knowledge of employee	Improvement in educations	Person	Positive	3	10	30%	
		Improvement in short courses	Hour	Positive	40	100	40%	35
	Treatment process	Visit drainage treatment ponds	Dropout	Negative	28	20	71%	
Internal process	Production process	Volume of production	Tonnage	Positive	45200	47050	96%	
	Maintenance process	Production interruption	Hour	Negative	30	10	33%	52
		The value of equipment	Currency	Positive	300	1000	30%	
	Quality control process	Lesions	Percent	Negative	35	10	29%	
	Process	Quality of product	Based on 7	Positive	5.5	7	79%	
Customer		Sales increase	Percent	Positive	30	60	50%	70
	Marketing process	Identifying new markets	Case	Positive	4	5	80%	
		Variety of Customers	Case	Positive	22	30	73%	
		Percentage of debt reduction	Percent	Positive	10	10	100%	
Financial	Financial process	Percentage Increase in working capital	Percent	Positive	41	15	93%	97
Total								62

As we can observe from the results of Table 2, there have been significant changes on the performance of the firm in terms of four different BSC perspectives. In other words, learning and growth has increased from 29 to 35, internal process was improved from 32 to 52, customer was upgraded from 53 to 70 and finally, financial figures were improved from 80 to 97 percent. Overall performance of the firms was improved from 48 to 62 percent leaving us to conclude that BSC has been able to make some changes on the business unit.

4. Conclusion

In this paper, we have presented an empirical investigation on measuring the relative performance of an organization based on the implementation of balanced scorecard. We have setup some figures in terms of four BSC perspectives and measured the performance of the firms one year before and after the implementation of the BSC technique. The results have indicated that there had been some improvements on the performance of the firm in terms of four different BSC perspectives. In other words, learning and growth was increased from 29 to 35, internal process was improved from 32 to 52, customer was upgraded from 53 to 70 and finally, financial figures were improved from 80 to 97 percent. Overall performance of the firms was improved from 48 to 62 percent leaving us to conclude that BSC has been able to make some changes on the business unit.

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