

Design and development of performance indexes with Balanced Score Card Approach (Case Study of Pishgam Company)

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Abstract

It seems that in order to remain in the business environment of today, companies are required to control and adjust their processes according to specified strategic goals. In this article and by using "Balanced Scorecard" we try to demonstrate and evaluate corporate's performance based on its strategic goals to see whether the corporate is on the right path or not. The organization for our survey is manufacturer of ball valves in the oil & Gas industry which recognizing its main goals and performance indicators has been implemented in 2014 & 2015. In order to recognize corporate's main goals and indicators, we utilized strategic planning steps and then categorized all the company's activities in six main step. In this process, goals and key performance indicators have been specified which resulted in company's strategic plan. Moreover, company's performance level in each four aspect of "Balanced Scorecard" has been measured between the years of 2014 & 2015.

Keywords: Balanced Scorecard, Performance evaluation index, Oil & Gas equipment manufacturer, Strategy map, Strategy planning.

1. Introduction

In recent years, due to the ever changing environment of markets, companies are striving to maintain their position in the market. It seems that this goal can be achieved only through possessing a competitive advantage, being able to adopt processes according to benchmarking standards and improving the company's performance which in the long run will help them not to only do the right thing but doing the processes in a right, proper way (Punniyamoorthy and Murali, 2008). As time passes companies begin to realize the importance of constant performance evaluation (Projogo & Sohal, 2004) but in the beginning it was believed that evaluating a company's performance is only possible through assessing and comparing the financial measures while in 1992, Kaplan & Norton proved that non-financial measures are as important as financial ones in an integrated system of "Balanced Scorecard". The objective of this paper is to implement the Balanced Scorecard system in a Pishgam manufacturing company of piping material equipment for oil & gas industry in order to investigate the relationship between company's strategy and measurable indicators (Financial/Non-Financial).

2. Literature Review

During past two decades, market economy has grown which in turn forced companies to grow as well. In order to reach the fast pace of growth, companies and organizations tries to expand themselves through branches inside and outside their origin country. Therefore, they were entering new markets and new business environments which were more competitive and volatile (Punniyamoorthy and Murali, 2008). All the changes in the business environment forced companies to set more accurate and detailed strategies for utilizing their resources in order to meet the markets' needs and fulfill stakeholder's expectations (Johnson and Scholes, 2001). In 1980s, many scholars including Kaplan & Norton criticized companies who believed that the only important indicators in performance measurement are financial indices such as net profit, return on investment and etc. The problem with financial metrics is their concentrated focus on short term results while other factors such as quality, process cost reduction, cycle time are also influencing the final performance of the company (Johnson & Kaplan, 1987; Kaplan & Norton, 1992; Lynch & Cross, 1991; Chenhall & Langfield-Smith, 2007). Therefore, combination of evaluating both financial and non-financial metrics resulted in a system known as balanced scorecard. The original version of balanced scorecard presented by Kaplan & Norton was designed based on more financial measures and consisted of three perspectives of customer satisfaction, internal business processes and innovation and learning (Hoque, 2014). In following years and after examining more than 300 organizations, Kaplan & Norton presented series of article (Kaplan & Norton, 1996 a, b, c) in which the original structure was improved and altered into a final one consisting of four perspective of financial, customer, internal process and learning & growth. These perspectives are designed to create a balance between company's short term and long term objectives (financial/quantitative objectives or non-financial/qualitative objectives) (Papalexandris, Ioannou, Prastacos and soderquist, 2005). Moreover, they have emphasized on the fact that there is strong connection between company's strategy map and scorecard's metrics. They

also believed that utilizing the balanced scorecard and company's strategy should become employee's everyday activity (Kaplan & Norton, 2008). Therefore the first step in implementing the balanced scorecard is to recognize company's strategy and design a map based on it. Balanced Scorecard has evolved through years which have made managers consider it not only as a performance measurement tool but as a strategic and management system (Papalexandris, Ioannou, Prastacos and Soderquist, 2005). Although utilizing the balanced scorecard is beneficial for companies but implementing this system requires supporting factors and systems such as IT infrastructure, project management and etc., On the other hand implementing BSC is always accompanied with problems such as employee's resistance to change and misleading decision making information. Below table (table. 1) can be considered as a proof that how understanding and communication of employees and managers in an organization will affect their performance (Stewart, 1999).

Table 1. Employees & Managers communication and understanding of organization's goal

	Well-Performing Org. (%)	Poorly-Performing Org. (%)
Employees have good understanding of organization's goals	67	33
Senior managers are highly effective communicators	26	0

In this paper designing and implementing the Balance Scorecard based on the company's strategy map, in one of the equipment manufacturers of oil & gas industry is discussed. Next part of the paper is dedicated to the introduction of company's vision, mission and the strategy map which was shaped according to the company's strategy. Third part of the article introduces the key performance indexes recognized based on the factors of strategy map and the process of measuring them. The final part of the article discusses the result of implementing BSC in the company, issues encountered during the process and areas for future study.

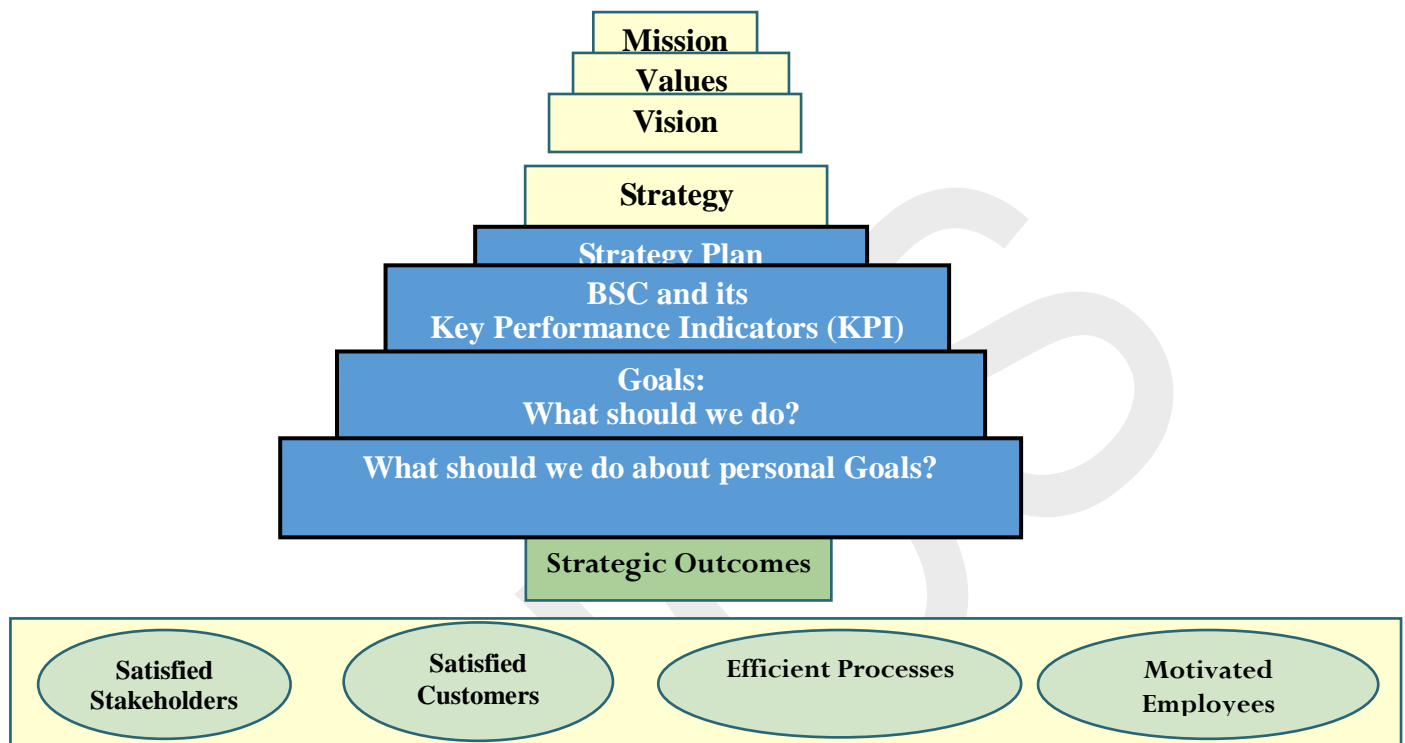
3. Balanced Scorecard in Oil & Gas Industry

Balanced Scorecard" has been utilized in many business fields however, studies in the application and implementation of BSC in the industry of Oil & Gas has been limited.

Some research on the topic has even been facilities management related (Hedley et al., 2002; Levin, 2005; Bigliardi and Dormio, 2010; Bigliardi and Bottani, 2010). In facilities management field, the balanced scorecard has been utilized in two ways.

First, the facilities management goals and measures may be combined to be a part of organization wide measures. In this case, the strategic foundations are derived from organizational strategies and vision. Second, there have been balanced scorecards that are specially done from the point of view of facilities management (Nenonen and Lindholm, 2006). In this article implementation of BSC in one of ball valve manufacturers has been

studied. Also, designing the BSC was according to the book of “Balanced Scorecard by Paul Arnion” in which every step of implementing it has been defined thoroughly.



measure something, you can claim that you know it while your inability to present the facts with numbers represents your lack of knowledge” (Niven, 2006).

The importance of the issue is due to the fact that in the ever changing world of today and in order to equip organizations to face the constant market change, it seems necessary to be able to evaluate and measure organization’s performance to check whether they have achieved their goals or not. In this regard, Balanced Scorecard system can assist managers and organizations to analyse and measure firm’s performance. Balanced Scorecard is considered as one of the most important tools aiding organizations to create a strategic information system, influencing customer’s satisfaction and value of the company’s share in the market as well. This tool was first introduced in 1992 by Kaplan & Norton. They believed that “*what you get is what you can measure*”. Balanced Scorecard evaluates firm’s performance from four perspectives of Financial, Customer, Internal Processes and Learning & Growth. Based on previous studies only 5% of employees have thorough understanding of firm’s strategy, only 25% of managers try to turn their organizations into a strategy based one and 85% of managers discuss strategy less than an hour a month (Kaplan & Norton 2001).

By utilizing BSC, measuring a firm’s strategy and goals will be possible. In other words BSC is a system to translate firm’s strategy into an operationalized concept. What should be taken into consideration is that implementing BSC requires a managerial system to

- 1- Create new strategies for achieving goals

2- Providing set of indexes for evaluating firm's performance in accordance with strategic goals

4. The main purpose of implementing Balanced Scorecard

Pishgam co. is one of the main Ball Valve manufacturers in the Oil & Gas industry of Iran and due to the fact that employee's performance has a direct effect on firm's performance, thus measuring staff's efficiency in order to check if they are acting based on company's vision and strategy is considered as an important factor for firms. Employees are firm's intangible asset and by utilizing BSC, a firm would be able to adjust its employee's performance with its main goal, vision and mission.

As it was mentioned before, Pishgam co. is one of the main valve manufacturers in the Oil & Gas industry and is striving to improve its knowledge and skill in this area by utilizing local experts. On the other hand, the company is trying to manufacture the products based on customer's needs, latest standard and with high quality. Due to the fact that employees are considered as valuable assets therefore, the firm is trying to improve their performances by providing a suitable work environment, enhancing their motivation, setting a compensation system and job security. Also, the firm is trying to equip itself for entering new international markets (specifically Middle East market) by constant improvement of procedures, providing an environment for staff to learn and share their knowledge and experience. Another issue which the firm is trying to concentrate on is guaranteeing the profit and share value of the stockholders and fulfilling its duty toward the society and customers while protecting the environment by acting based on environment friendly standards and rules.

As it was mentioned before, first step in designing a BSC is to determine mission and vision of the company.

4.1. First Step: Mission & Vision

For the first step, vision and mission of the company was established through interview with managers and history of company. Defining company's vision and mission was considered as the most important part of designing the strategy map due to the fact that without it no company can survive or even plan for its future.

4.2. Second Step: Determining Key Goals

For the second step in designing a strategic plan, main goals of the company should be determined. In order to recognize that, main processes of the firm were specified and as result main goals of the firm and the ways to achieve it were determined. This should be done through meetings with senior managers of the company. In case of the company we are studying (Pishgam Co.), main goals are specified as below table. (Table 2)

Table 2. Main goals of Pishgam Co.

No.	Main Goals
1	Entering the Middle East market
2	Acquiring the knowledge for manufacturing 36" valves in all classes

3	Training the human resource
4	Increase the satisfaction level of stakeholders

4.3. Third Step: Setting goals in BSC

After establishing the vision and mission of the company and in order to achieve strategic goals, company should start to set goals for the four perspective of the “Balanced Scorecard”. In other words, analysing main and long term goals will be done through Balanced Scorecard. Below figure shows main goals of the company in each perspective of Financial, Customer, Internal Processes, learn & growth.

Fig 2. Main goals of each company in four perspective of BSC



4.4. Fourth Step: Strategy Map

At this stage the company should be able to design a strategy map based on all previous information. Below figure shows the strategy map of company X

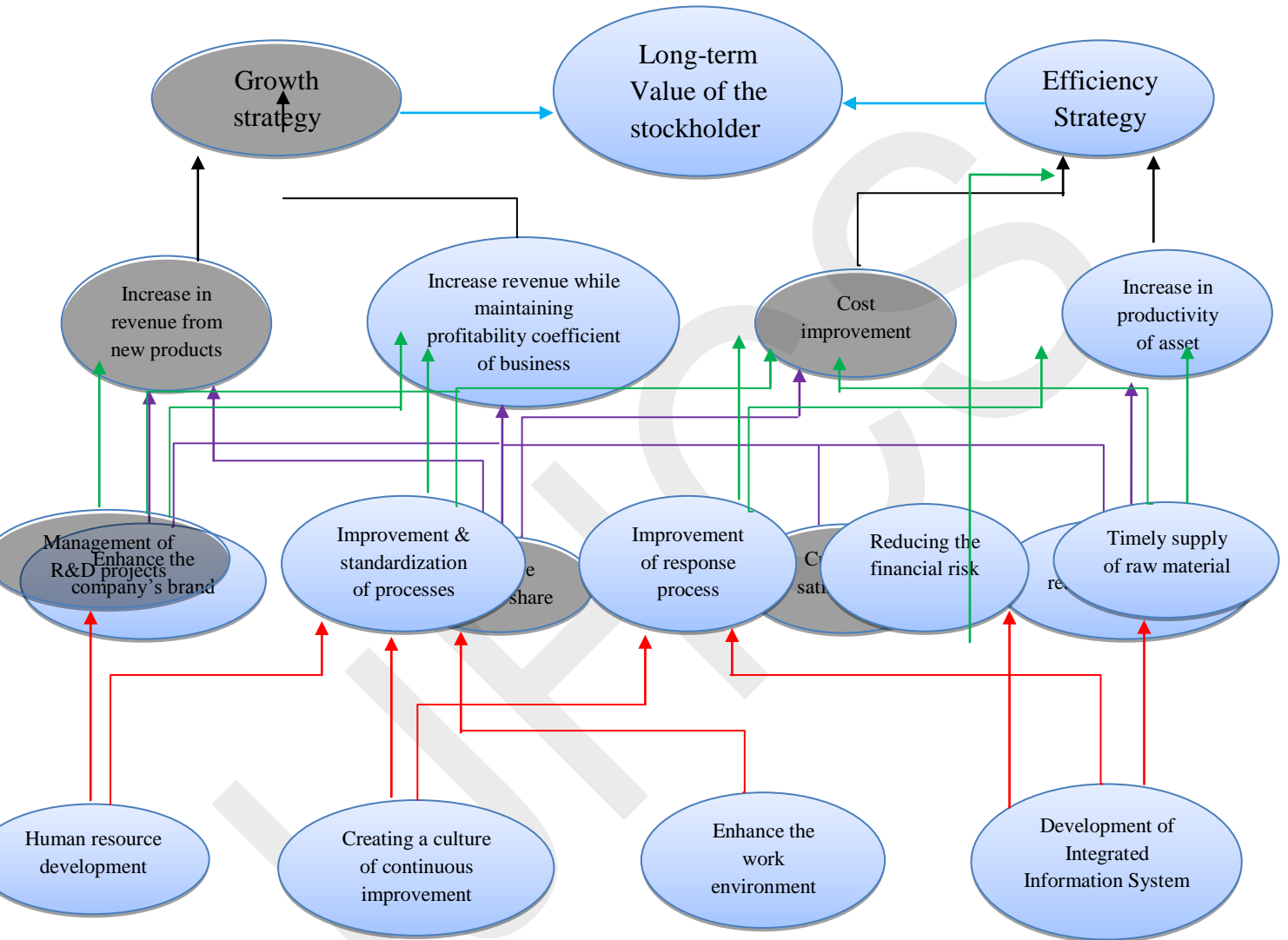


Fig 3. Strategy Map of Pishgam Co.

Fifth Step: Allocating Key Performance Index (KPI)

At this stage, appropriate KPIs should be defined for the goals in each aspect in order to be able to measure them.

Financial Perspective

Table 3. Main goals and KPIs in financial perspective

No.	Goal/Target	Performance Index
1	Increase of productivity of assets	Current asset to current liability
2	Cost Recovery	Reducing the cost of raw material in total cost
3	Increase revenue while maintaining profitability coefficient of business	Increase in sales volume
4	Increase in revenue from new products	Income from sales of new products

Customer Perspective

Table 4. Main goals and KPIs in customer perspective

No.	Goal/Target	Performance Index
1	Customer retention & customer attraction	Number of customers attracted to total customers
2	Customer satisfaction	Average delay in delivery of goods
3	Enhance the company's brand	Customer's recognition of the company
4	Increase market share	Company's market share of total market demand

Internal Processes Perspective

Table 5. Main goals and KPIs in internal processes perspective

No.	Goal/Target	Performance Index
1	Timely supply of raw material	Number of delayed days in the supply of raw material
2	Improvement & standardization of the processes	Utilization rate of machines (production)
3	Improvement of response processes	Reducing the response time to customer's questions and special requests
4	Reducing the financial risk	Number of months that the company's liquidity can cover the payments
5	Management of Research & Development projects (R&D)	Number of registered product design in company (R&D)

Learning & Growth Perspective

Table 6. Main goals and KPIs in learning & growth perspective

No.	Goal/Target	Performance Index
1	Human resource development	Average number of training hours per year by internal/external experts
2	Development of Integrated Information System	Number of units covered by Integrated System
3	Enhancement of working environment	Motivation index (based on answers of different department's employees)
4	Creating a culture of continuous improvement	Percentage of recommendations for process improvement by staff

4.5. Sixth Step: Measuring the KPIs & Reports

After setting KPIs for each perspective of Balanced Scorecard, the company would be able to take reports in different time periods in order to see how every department works. BSC Designer Pro 7.4.1.33 is a performance management application which works based on "Balanced Scorecard". The core of application is based on strategic maps and enables company to create those strategic maps, trace the cause and effect relationship between elements of map and performance evaluation. The application enables companies to enter the data/variables and present graphic tables in order to check whether the company has achieved the goal or not. Therefore, you would be able to see the connection between strategic goals and action plan details. Due to the fact that evaluation of the company will be done in a year, the results of the beginning will be compared with the results at the end of process.

Table 7. Results of implementing BSC in Pishgam Co.

No.	Perspective	Goal (%)	Value of 2014	Value of 2015
1	Financial	100	30	40
2	Customer	100	36	40
3	Internal Process	100	56	60
4	Learn & Growth	90	35	47

5. Conclusion

One of the important factors in controlling the systems is "Performance Evaluation" which requires data from each department's performance. In balanced Scorecard, main goals of the company have been divided in four categories of Financial, customer, internal process, Learn & growth in order to get information from these departments individually.

In this article as the first step, main processes of a ball valve manufacturer (Pishgam Co.) in the oil & gas industry from four perspectives has been identified then KPIs were defined for

each goal and via BSC Designer application the status of these goals and firm's performance have been presented in the form of charts and tables. The importance of implementing balanced scorecard in organizations is due to the fact that constantly being aware of company's status will help managers to make better decisions in critical situations. By clarifying organization's goals for employees and presenting them with methods to achieve those specified goals, the organization can be sure of taking the right path to success. In this survey, authors strived to scan the company (Pishgam Co.) thoroughly in order to find the gaps between employees, managers and customers. By implementing BSC in Pishgam Co. all the important factors in each perspective for managers were revealed so they were able to make better decisions to satisfy their customers. In the end, we should thank all the managers and employees of Pishgam Co. who helped us in the process of data collection and implementation of balanced scorecard. Below figures are the results of implementing BSC in each perspective for Pishgam Co.

2015

2014

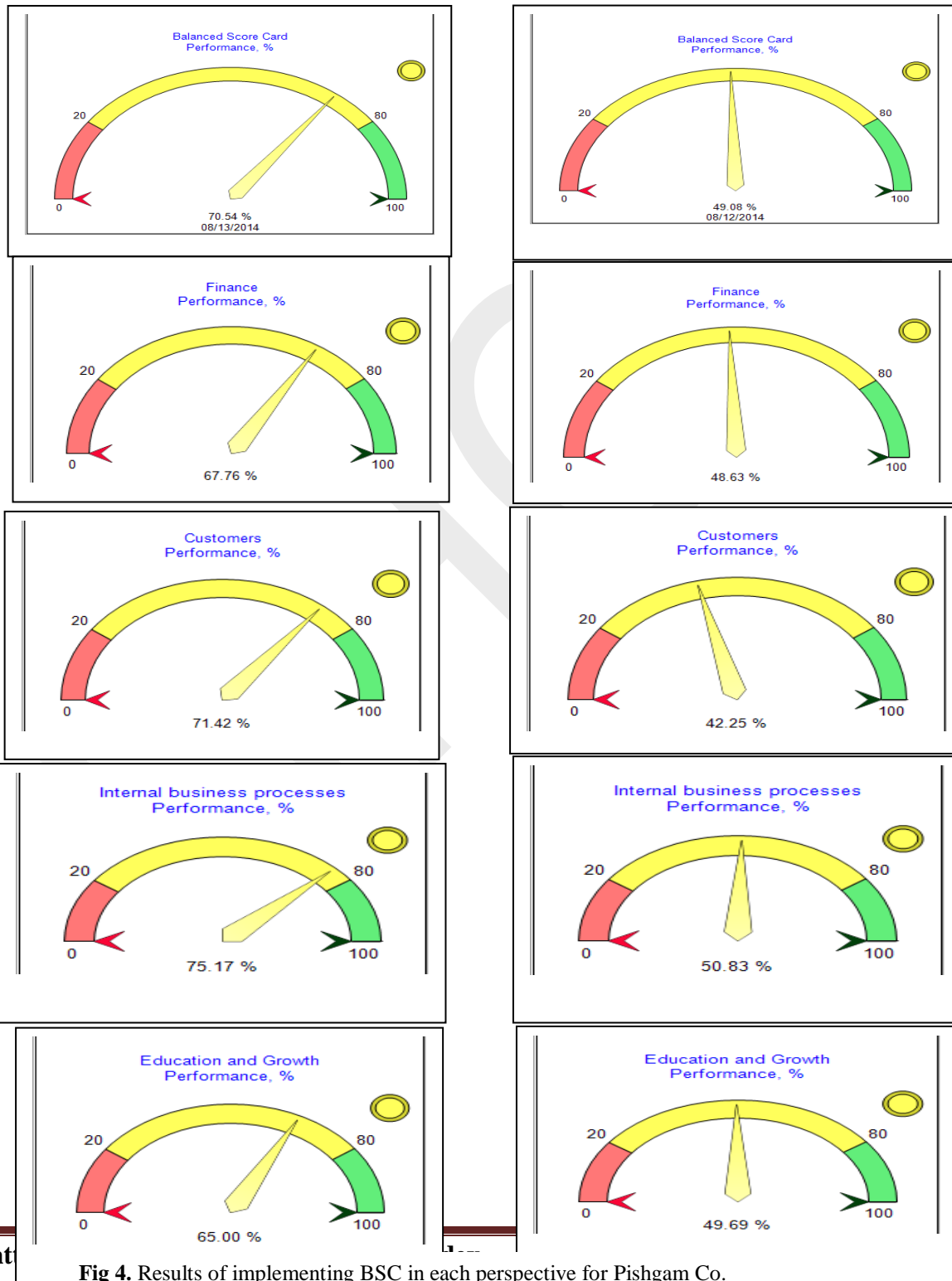


Fig 4. Results of implementing BSC in each perspective for Pishgam Co.

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