

# Using BSC for Fault Finding in organization with AHP Method

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**Abstract.** Fault finding is a systematic and scientific way to identify, classify and stem problems and their impact on organization performance and plan for solutions. This study is performed in two phases. In the first phase causes and conditions are identified and in the second phase solutions are proposed to resolve them. Fault finding is one of the most comprehensive performance assessment ways. Balanced scorecard includes new tools that can assist organizations in measuring their performance. It can also be used to determine the problems existing in the organization. Balanced assessment is including financial criteria that reflect the result of the work has been done in the past. It also includes operational complementary criteria in customer satisfaction, internal process and improvement activities and organization innovation. In this study, problems of a company like measures of financial, customer, internal process and learning and growth are considered. Then the identified priorities are classified. Then solutions are proposed to resolve the cause. Research method in this study is descriptive-survey. Reports and documents of the company are the main source that is used. Firm problems and solution's priorities are identified with AHP method using EXPERT CHOICE software.

**Keywords:** Balanced scorecard, Fault finding, Analytic hierarchy network (AHP)

## 1. Introduction

Organizations face uncertainties, irregularities and inconsistencies in their internal and external environment. Hence they must be flexible, creative and competitive to be able to continue their survival. In practice different types of techniques, rules and innovative methods are combined with theoretical concepts which have been used for fault finding and solving in organizations. Organization development and organizational fault finding are highly interdependent and share the information that is collected from evaluation of organization performance and recognize the best plan. Fault finding is a systematic and scientific approach to identify, classify and stem problems and their impacts on organizational performance. In order to collect, classify, stem and find appropriate solutions to reform problems balanced scorecard is used. Moreover, financial performance factors that create value and competitive superior performance are considered with balanced scorecard. This approach with four financial, customer, internal processes, learning and growth perspective can compare the present status of organization with its optimal and determine the performance gap. Then classifying and stemming problems and their impacts can offer solutions to fix them.

Kaktoos company is one of the largest industrial complexes in the country started its activities in 1992. Its products include trailers (tent, transit, insoles, dump truck, tankers, back breaking) and prefabricated components. This company is seeking to find answers to its questions in order to increase customer satisfaction, global market share and innovation of its product.

## 2. Literature Review and Hypotheses

### 2.1. Fault Finding

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Performance measuring system enables managers to compare the performance of their organization with their competitors and colleagues and identify the gap between intended goals of organization and actual process by creating an effective managerial frame (Van Vuuren, 1997). Knowledge helps the organization to determine the strengths and weaknesses which leads to identify existing problems. Balanced scorecard is one of the performance measuring tools which able to calculate gap between the desired goals of organization and actual process with investigation of various aspects of organizational performance.

The balanced scorecard is one of the new methods for performance measuring. It is a management system that manages the implementation of strategies and measures performance in four areas of learning and development of internal processes, customers, stockholders and financial areas.(Kaplan & Norton, 1992)

To measure customer status we should be aware of value creation factors which was divided into the following two categories – product or service characteristics: including customer waiting time, price, quality, manner of performing and differentiated products or services and hearing the voice of customer through the communication channel (Grönroos 2007, McColl-Kennedy et al. 2009).

The following criteria can be considered (Richard et al, 2008) to measure organization performance:

- production operation
- production cycle time
- chain reaction time
- material productivity
- amount of waste

Internal process perspective contains measures which can include skills and professional excellence and technologies such as awareness, applications, infrastructure, improvement of information processing, motivational work environment and personal evaluation criteria.

## **2.2. Research Question**

The main research question in this research is “What are the problems of Kaktoos corporate based on the pattern of balanced scorecard approach?”

We have these sub-questions:

What are Kaktoos’s problems in terms of financial measures?

What are Kaktoos’s problems in terms of customers measures?

What are Kaktoos’s problems in terms of internal measures?

What are Kaktoos’s problems in terms of growth and learning measures?

## **2.3. Hypotheses**

The main hypothesis is that “There are significant differences between current status and desired status of company of performance measures of balanced scorecard.”

We have these sub-hypotheses:

There are significant differences between current and desired status of company in financial measures.

There are significant differences between current and desired status of company in customers measures.

There are significant differences between current and desired status of company in internal measures.

There are significant differences between current and desired status of company in growth and learning measures.

## **3. Research Method**

This research intends to carry out fault finding studies to solve problems and identify improvement approaches in Kaktoos Company with balanced scorecard approach. So this is a practical research. Method that is used is survey. Data is analyzed using non-experimental method with expert choice software.

Data gathering tools are questionnaire, interview. The company's document has been used in this research. The main tool of data gathering has been questionnaire. All managers and experts are asked to assign weights to problems'causes in order to priority solutions. This research has been used a structured interview. All documents in the archives of the company has also used.

The techniques has been used for ranking the solutions have been proposed. In fact analysis of a greater problem into smaller problem and relation between variables are expressed. This technique is one of multi criteria decision making models.

### 3.1. Variables

The balanced scorecard is a model for organizations to evaluate performance based on four perspective of financial, customer, internal processes and growth and learning and quantitative goals of each measure and classify them as the balanced scorecard model.

Financial aspect: increase revenues, reduce costs, risk and the effective use of assets and increase productivity are key elements of financial goals. sales growth, profit margin and rate of return can be measured.

Customer aspect: measure customer satisfaction, customer loyalty, market share, attracting and keeping customers. Customer satisfaction of after sales services, price and repurchases of organization are important.

Internal process aspect: processes with superiority over them can create value for customers and shareholders. It measures development of new products, production, after sales services and continuous improvement. It consists of deviation of production plan, improvement the way of communication with distributors, advertisement and internet sales, market share in target market, attraction an interaction with customers and project progress.

Growth and learning aspect: this aspect consider the learning activities has been used in order to identify and use the best practices in and outside the organization. This includes using information technology, involving staff in decision making, implement new ideas and the continuous improvement, appreciate the creativity and innovations and use of new technology in related processes.

### 3.2. Sample

All managers and experts of Kaktoos company were statistical society. The number of Kaktoos company managers and experts were 45.

### 3.3. Data Analysis

After fault finding and classification of priority, problems were identified according to causes, then solutions to solve them were proposed and prioritized.

Problem weight	Cause description	aspect	Problem description	Cause symbol	priority
0/066	Lack of development of an integrated management system	Growth and learning	Lack of integrated management systems to achieve macro organizational objectives	R21	1
0/054	Lack of internal sale system	Customer	Traditional communication with customer	R16	2
0/056	Lack of market research and customer identification team	Internal processes	Lack of a mechanism for development of marketing and customer identification	R12	3
0/060	Lack of the necessary mechanism to prevent duplication of production	Internal processes	Lack of a mechanism for development of marketing and customer identification	R17	4
0/052	Lack of a mechanism to develop relationships with distributors	Internal processes	Lack of proper communication and establishment of communication channels with selling agencies	R8	5
0/053	Lack of expertise and efficient forces utilization	Growth and learning	Weakness of maintenance, improvement and development systems of HR	R11	6
0/045	Lack of sales engineering	customer	Low speed of product return causes investigation	R5	7
0/042	Lack of coordination between procurement and financial systems to provide customer resource	Internal process	Delay in delivery of customers orders on time	R6	8
0/036	The high response speed to customer complains	customer	Customer dissatisfaction of how to answer complains	R4	9
0/047	Lack of inventory control system and MRP	Internal process	Weakness in production planning system and deviations from planning	R10	10
0/037	Lack of industrial accounting system	financial	Lack of awareness in value added and cost	R2	11

/0041	Lack of effective education system to provide (offer) training during the service and arrival(at the beginning)	Growth and learning	Lack of attention to the educational process in promoting HR and organizational performance	R18	12
0/043	Lack of recommendations system	Growth and learning	Lack of understanding the importance of employee involvement and develop creativity and motivate of employees	R20	13
0/033	Failure to fulfil the duties of management accounting	financial	Deficiencies in reporting system and financial reporting	R1	14

Fig.1: Final lists of causes and problems

Problem weight	Solution description	Cause description	Cause symbol	priority
0/097	Development of integrated management	Lack of development of an integrated management system	S14	1
0/092	Design and implementation of modern communication system with customers and sale through the site	Lack of internet sales system	S10	2
0/089	Establishment of market research and customer recognition teams in the company	Lack of market research and customer recognition teams	S9	3
0/086	Using modern techniques of quality management and self – control training	Lack of appropriate mechanisms to prevent duplication of production	S11	4
0/080	Establish and develop appropriate communication systems with sales agencies (representative)	Lack of a mechanism to develop relationships with distributors	S6	5
0/073	Job classification plan and employing efficient forces	Lack of employing expertise	S8	6
0/073	Establishment of sales engineering	Lack of sales engineering	S4	7
0/069	Establishment of purchase engineering unit and coordination system between procurement and financial unit	Lack of coordination between procurement and financial system to provide customer resource	S5	8
0/064	Establishment of an independent voice of customer unit in the sales department and the systematic follow up customer complains	The low response speed to customer complains	S3	9
0/063	Establishment of planning and inventory control system and efficient use of planning systems	Lack of inventory control system and MRP	S7	10
0/056	Establish a system of industrial accounting	Lack of industrial accounting system	S2	11
0/054	Establish a education system during the working (sand arrival based on job qualification conditions	Lack of effective education system to provide training on the job	S12	12
0/053	Design and implement of a recommendation system	Lack of recommendations system	S13	13
0/050	Clear job description of accounting unit	Lack of fulfil the duties of accounting unit	S1	14

Fig.2: Prioritization of final causes and the solutions

#### 4. Conclusion

According to Fig.2 all of the company 's problems causes investigated and based on the main and subsidiary hypotheses the causes were prioritized using AHP (Saaty, 2008) in financial, customers, internal processes, growth and learning aspects. According to cause prioritization, executive solutions were prioritized. For resolving the problems substantial strategies were performed. To decrease (reduce) the recruiting of new force and leaving old forces one of the substantive mechanism is related to human resource management and using qualified personnel. As the response speed to customer is low and financial estimate for capital assets and the product's cost accurately is not available so accounting and sales unit must be equipped with qualified personnel and modern techniques.

Finally these recommendations can be made for improving the situation.

- Development of integrated management.
- System integration includes internet, internal and external network which can step in this direction enhancing the informatics forces and using the integrated backup system.
- Design and implement modern communication system with customer
- In implementing this strategy tools and required techniques for customer relationship, accurate and timely information on customers need are organized and used in the same direction.
- Establish a market research team in company and customer identification
- With establishing market research team and identifying potential customers can take a long step towards gaining more market share, sales growth.
- Using new and modern techniques of quality management and self – control training.
- applying quality management techniques and modern methods is required.

- Create and develop appropriate communication system with a sales representative.
- To have a principled systematic and appropriate communication with sales representatives.
- Consider to human resources of each company is the most important asset of any company. Their proper management in objectives and company's macro strategies is essentials.

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