

Reviews and ratings agents of Iran Chord Co. Based on performance indicators (Case study: Amol city agencies)

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Abstract: the best competitive advantage and survival of any business is customer satisfaction. Accordingly, the Iran Khodro Company to establish trade representation service has been attempted in various cities. This research seeks to represent the company's ranking in terms of customer satisfaction in the city is Amol. Therefore, the proportional random sampling, the study was conducted on six representative after analyzing the performance indicators and alternatives, separately, agents according to each indicator, and then all performance indicators than TOPSIS technique with the help of our rankings. According to the calculation results with the best performance is represented by 5 Amol, agent 3, 1, 6, 4 and 2 respectively, are the next category.

Key words: Performance indicators, after sales service, Iran Khodro Company, TOPSIS technique

INTRODUCTION

Today, organizations gain competitive advantage over those trying to take advantage of all its facilities and to compete in a world full of war has become to earn more profit, able to maintain its vitality. (Afjeh, 2011)

Experts believe that protect the rights of consumers and suppliers of goods and services are customer-oriented code of survival and one of the most important criteria of each firm's life, especially in regard to after sales service is a durable consumer goods. High quality and reasonable price competitiveness and success in the sale of goods is a necessary condition. However, a sufficient condition for the continued presence in the market for a product,

After sales service is guaranteed. Therefore, consideration of customer demand in existing markets and expanding the significant role it can play. In today's competitive environment, What that welcomed the approach of the goods increases, is quality of after sales service and the only way to achieve a free economy more rapid movement towards globalization compete with similar foreign products, Promotion of quality products and it is establishment of quality assurance and after sales service. The warranty conditions and service is better the customer will look with greater confidence. In developed or developing countries, producers of goods and services, the quality of their products to attract customers, consumer goods with special facilities to deliver. While the buyer will always buy products with more confidence than is warranted. In recent years, increasing circulation and supply of cars and increasing customer expectations caused subject of more interest to those involved in after-sales service of automotive industry and the Ministry of Industry, mining and trade as the custodian of the industry is to be including the condition that it be systematic after-sales service. The guidelines mentioned terms and conditions of service vehicles criteria related to the mediators and dealers after sales service and how to evaluate their performance has been determined. Because every function in an organization is certainly a goal so has customers (2010, Berniker) Kaplan and Norton (2008) in the performance measurement of customer perspective view of the known and Piterz and Wharton (2009) having the customers need and characteristics of successful organizations have expressed and in view of the system and how customer satisfaction and loyalty is considered important indicators of health. (Jabbari, 2010) If the service or quality and provide a balance between customer expectations and what the individual can be released (Itanderson, etal, 2010). This paper reviews performance indicators to the rating agencies after sale services the agency deals with Iran Khodro. The performance indicators developed by Iran Khodro. The aim of identifying the qualitative and quantitative performance indicators to determine the minimum level of after sales service and through their authorized representatives law enforcement vehicle in order to protect the rights of consumers and its executive regulations to provide after sales service is good to ensure optimum customer satisfaction in this manner.

Meanwhile, each of the agencies surveyed in this study based on each individual performance indicators are also ranked, the rating agencies are paid to all indicators.

2. Literature Review:

Human effort is always focused on maximum results may be achieved with the minimum of available opportunities. This tendency can be called to achieve higher performance. At the same time quality of service is one of the most important indicators in assessing the organization's performance and most fundamental step in improving the service, the first step is to measure it (Folan, 2005) Services can be considered those economic

activities that at certain times and places for customers to generate value. Clients participate In the service production process and the time factor is essential in providing services and finally the service delivery system can be include electronic channels and physical channels. (Sorayayi, 2009) Generally, service providers vehicle performance calculated in accordance with the instructions of Iran Khodro (1390) based on the following four criteria are evaluated. (Iran Khodro, 1390)

- 1- Quality of Service (state agency, a skilled workforce, quality systems, and other legal requirements related to quality of service)
- 2 - Speed of service (network repair shop, spare parts, other legal requirements associated with the speed of service)
- 3 - cost (cost of services and parts, other related legal expenses)
- 4 - result of performance (satisfaction, customer results, process results, evaluate the effectiveness of the implementation process)

Haji Mir Bagheri, (1380), in a study entitled "Evaluation of the factors affecting customer satisfaction and after sales service of new products of Iran Khodro and prioritize them" did. He concluded that this study appropriate repairs compared with maintenance of wages has higher priority than other criteria. Rvanbnd, (1382), research entitled "Identification and Evaluation of the impact on customer satisfaction in service after the sale of the automotive industry" did. In this study, two categories of behavioral and physical factors affecting customer satisfaction examined and came to the conclusion that physical factors are more effective than behavioral factors on customer satisfaction. Yang, (2001), a study entitled "Factors affecting the decision to buy a car" did. He examined five factors. (Car prices and the vehicle design, vehicle quality, credibility and brand automotive, automotive after-sales service). And came to the conclusion that all of these factors on effective car buying decision. Research with the aim of "customer satisfaction survey of 10 typical and conventional car market in India from 1998 to 2006" was that the results show in this market, Honda's car has the highest score and automotive engine of India's lowest score. Gamas, (2009), a study titled "Assessment of the problems of waste transport company using AHP and TOPSIS method was to measure the performance of companies around and waste. Vincent and Jane Hu, (2010), Study, "Evaluation of multi-criteria decision-making power to evaluate the performance of manufacturers" did using AHP to rank 5 factors that will and then using TOPSIS three companies were producing power rankings.

3. Research Methodology:

This research is descriptive survey it pays to investigate a phenomenon and performance indicators to measure and compare to the review, then using TOPSIS technique dealers after sales service will be ranked., Statistical personnel are in six dealers in the city of Amol, Iran Khodro and customer service this units. Represented in each of the 20 staff and customers who accidentally information was collected. Dimensions and components based on performance indicators, like type questionnaire was produced by Iran Khodro and its validity was emphasized by experts and company executives. Then, each representing 20 questionnaires were distributed after collecting the data represent the average of 120 questionnaires were taken into account (For each indicator and options). And a decision matrix was obtained.

3-1 TOPSIS technique:

This section analyzes data and rating agencies pay TOPSIS technique. TOPSIS multi-criteria decision making model is one of the best models and it is of much use. This technique is based on the option with the least distance from the positive ideal solution (best possible) and the greatest distance with the negative ideal solution (worst state) to be.

Problem solving with this method involves six steps are:

1. Small and scaling up the decision matrix (N) for which the norm of the scale used.
2. Obtain a weighted scale-free matrix (V)

That to obtain this matrix, the matrix has no scale (N) in the diagonal matrix of weights ($W_{n \times n}$) are multiplied. Weight from ENTROPY method obtains the following:

First step: calculation p_{ij}

$$p_{ij} = \frac{a_{ij}}{\sum_{i=1}^m a_{ij}} \tag{1}$$

Second stage:

Entropy calculation of the indicator $j(E_j)$

$$E_j = -k \sum_{i=1}^m [p_{ij} \ln p_{ij}] \tag{2}$$

Third step:

Calculate the amount of uncertainty d_j

$$d_j = 1 - E_j \tag{3}$$

The fourth step:

Calculate the index weights according to the following formula

$$W_j = \frac{d_j}{\sum_{j=1}^n d_j} \tag{4}$$

3. The positive ideal solution and negative ideal solution.

{Vector of best values each indicator matrix V}=The positive ideal solution (V_j^+)

{Vector of best values each indicator matrix V}= The negative ideal solution (V_j^-)

"Best values" for the positive indicators, the largest negative values for the parameters, the smallest values and the "worst" for positive indicators, the smallest values for the index is negative, the largest amounts.

4. To obtain the ideal distance between the positive and negative options:

$$D_i^+ = \sqrt{\sum (v_{ij} - v_j^+)^2}, i=1,2,\dots,m \tag{5}$$

$$D_i^- = \sqrt{\sum (v_{ij} - v_j^-)^2}, i=1,2,\dots,m \tag{6}$$

5 - Determine the relative closeness (CL) of an option an ideal solution:

$$CL_i = d_i^- / (d_i^- + d_i^+) \tag{7}$$

6 - Ranking of options. CL is that it is better than any alternative. (Momeni, 1389)

Each of the first steps we do for performance indicators. Performance indicators include:

1 - Quality of Service

2 - Speed Services

3 - Cost

4 - The Performance

After taking into account the statistical community and rounding out their results in writing the decision matrix.

Table 1: Decision matrix and index options

Indicators	Cost of Services		Performance Results			Speed of service				Quality of Service			
	Other requirements associated with cost	Cost of services and components	Satisfaction results Agents	Customer complaints	Processes results	Other Requirements	Complaints	Spare parts	Garage and Storage	Other legal requirements	Quality System	Skilled manpower	State Agencies
Agency1	4	5	6	5	4	2	4	7	7	3	4	3	4
Agency2	5	6	8	4	6	4	3	6	4	4	7	5	3
Agency3	3	3	7	3	7	7	5	4	6	4	2	4	2
Agency4	1	7	6	6	5	3	6	2	5	9	3	2	5
Agency5	2	2	4	2	4	6	4	2	3	8	5	6	6
Agency6	6	1	7	5	6	5	1	5	1	5	6	7	7

TOPSIS technique on the matrix at all stages of decision making do.

First step: a scale up without making a decision matrix:

Table 2: Matrix has no scale

indicators agencies	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	C ₇	C ₈	C ₉	C ₁₀	C ₁₁	C ₁₂	C ₁₃
A ₁	0.449	0.419	0.3	0.466	0.379	0.6	0.605	0.394	0.17	0.339	0.254	0.339	0.207
A ₂	0.539	0.524	0.45	0.373	0.506	0.343	0.518	0.296	0.339	0.254	0.424	0.594	0.275
A ₃	0.269	0.314	0.525	0.28	0.443	0.514	0.346	0.493	0.594	0.17	0.339	0.17	0.275
A ₄	0.629	0.105	0.375	0.56	0.379	0.429	0.173	0.591	0.254	0.424	0.17	0.254	0.62
A ₅	0.18	0.21	0.3	0.187	0.253	0.257	0.173	0.394	0.509	0.509	0.509	0.424	0.551
A ₆	0.09	0.629	0.45	0.466	0.443	0.086	0.432	0.099	0.424	0.594	0.594	0.509	0.344

The second stage: Obtain a weighted scale-free matrix (V)

That to obtain this matrix, the matrix has no scale (N) in the diagonal matrix of weights (W_{nxn}) are multiplied. Weight from ENTROPY method obtains the following:

First step: calculation p_{ij}

$$p_{ij} = \frac{a_{ij}}{\sum_{i=1}^m a_{ij}} \tag{8}$$

Second stage:

Entropy calculation of the indicator j(E_j)

$$E_j = -k \sum_{i=1}^m [p_{ij} \ln p_{ij}] \tag{9}$$

	E ₁	E ₂	E ₃	E ₄	E ₅	E ₆	E ₇	E ₈	E ₉	E ₁₀	E ₁₁	E ₁₂	E ₁₃
	0.928	0.911	0.988	0.969	0.988	0.957	0.944	0.944	0.932	0.956	0.957	0.957	0.957

Third step:

Calculate the amount of uncertainty d_j

$$d_j = 1 - E_j \tag{10}$$

	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃
	0.072	0.089	0.012	0.031	0.012	0.043	0.056	0.056	0.068	0.044	0.043	0.043	0.043

The fourth step: Calculate the index weights according to the following formula

$$W_j = \frac{d_j}{\sum_{j=1}^n d_j} \tag{11}$$

	D ₁	D ₂	D ₃	D ₄	D ₅	D ₆	D ₇	D ₈	D ₉	D ₁₀	D ₁₁	D ₁₂	D ₁₃
	0.072	0.089	0.012	0.031	0.012	0.043	0.056	0.056	0.068	0.044	0.043	0.043	0.043

Now, the matrix has no scale (N) in the diagonal matrix of weights (W_{nxn}) are multiplied.

indicators agencies	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	C ₇	C ₈	C ₉	C ₁₀	C ₁₁	C ₁₂	C ₁₃
A ₁	0.065	0.049	0.006	0.024	0.008	0.067	0.056	0.036	0.012	0.024	0.018	0.024	0.015
A ₂	0.078	0.062	0.009	0.019	0.01	0.038	0.048	0.027	0.024	0.018	0.03	0.042	0.02
A ₃	0.039	0.037	0.01	0.014	0.009	0.057	0.032	0.045	0.042	0.012	0.024	0.012	0.02
A ₄	0.091	0.012	0.007	0.029	0.008	0.048	0.016	0.054	0.018	0.03	0.012	0.018	0.045
A ₅	0.026	0.025	0.006	0.01	0.005	0.029	0.016	0.036	0.036	0.036	0.036	0.03	0.04
A ₆	0.013	0.074	0.009	0.024	0.009	0.01	0.04	0.009	0.03	0.042	0.042	0.036	0.025

Third stage: the positive ideal solution and negative ideal solution.

+A	0.013	0.012	0.01	0.01	0.01	0.067	0.056	0.054	0.042	0.042	0.042	0.042	0.045
-A	0.091	0.074	0.006	0.029	0.005	0.01	0.016	0.009	0.012	0.012	0.012	0.012	0.015

Fourth stage: obtain the ideal distance between the positive and negative options

d_i^+	$d_1^+=0.087$	$d_2^+=0.1$	$d_3^+=0.069$	$d_4^+=0.103$	$d_5^+=0.063$	$d_6^+=0.101$
d_i^-	$d_1^-=0.085$	$d_2^-=0.063$	$d_3^-=0.096$	$d_4^-=0.093$	$d_5^-=0.104$	$d_6^-=0.097$

Fifth stage: Determine the relative closeness (CL) of an option an ideal solution:

$$Cl_1=0.493 \quad cl_2=0.387 \quad cl_3=0.582 \quad cl_4=0.474 \quad cl_5=0.621 \quad cl_6=0.491$$

Sixth stage: the ranking of options.

Option has the best performance has the highest CL.

$$A_5 > A_3 > A_1 > A_6 > A_4 > A_2$$

After the rating agency based on the indicators, the indicators, we ranked them according to the following.

3-2-The First Indicators: Quality Of Service:

Quality indicators are included below:

State Agencies, Skilled manpower, Quality System, Other legal requirements.

We do all the above steps and ranking of options adapted.

Calculations are in accordance with the following results:

$$A_5 > A_6 > A_2 > A_4 > A_1 > A_3$$

3-3-The Second Index: Speed Of Service:

Speed of service includes the following options:

Garage and Storage, Spare parts ,Customer Complaints and other legal requirements associated with the fast service. We do all the above steps and ranking of options adapted. Calculations are in accordance with the following results:

$$A_3 > A_1 > A_4 > A_2 > A_5 > A_6$$

3-4- The Third Indicator: The Cost Of Services:

Cost of service includes the following options: Cost of services and Components and other legal requirements related to the cost of services.

We do all the above steps and ranking of options adapted. Calculations are in accordance with the following results:

$$A_5 > A_3 > A_6 > A_4 > A_1 > A_2$$

3-5- The Fourth Indicator, The Indicator Function:

The performance indicators include the following options: Satisfaction results are representative, Customer Complaints, Processes and results. Progeny ranked options are as follows:

$$A_3 > A_5 > A_2 > A_6 > A_1 > A_4$$

RESULTS AND DISCUSSION

In this study, we examine the performance of Iran Khodro Co. after-sales service agencies, and ranked them with TOPSIS technique.(In Amol city) First of all agencies' rankings were based on each index options and It was found that the quality of service indicators agency5,and speed of service agency three, and cost indicators agency 5, and the resulting performance indicators agency three have the best quality performance. Also, after review of all agencies' performance indicators it was found that agency 5 has the best performance. Since the agency5 in indicators such as speed of service, performance and performance results is poor. It is suggested that, these executives agencies network development and relief with automotive repair shop, good repair to stop the vehicle at the time of conventional, supply and proper distribution of parts, the process of investigating and responding to customer complaints, also comply with the relevant clauses in the law that protect consumers' vehicle and regulations relevant to the evaluation of customer satisfaction, effectiveness of implementation processes, indices associated with the procedures of quantitative and qualitative level of after sales services industry, performance close to their ideal level. To improve performance, recommended agency personnel with

training and skills, effective quality management systems, table setting and maintenance of standard rates, compiling the price of spare parts and supervision fees received from customers units to increase their functional level. It is also proposed to accordance with its internal regulations to determine a method for monitoring, control and performance evaluation of offices, systems of reward and punishment based on the performance of regional offices, regional offices in order to motivate companies to participate in projects and programs also generation and evaluation of customer satisfaction and loyalty in their best strategy agencies increase in the level of performance and functional factors.

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