

Towards TQM in Service Organizations: Measuring Customer Satisfaction of Saudi Electricity Company Services

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Abstract

This study aims at measuring customer satisfaction of the Saudi Electricity Company Services at Assir region in both technical and customer services. The study reveals that there is a moderate customer satisfaction in four technical services; electricity tariffs, billing methods, failure fixing and power supply connection. The major problems in the technical services provided by SEC are; handling disputed bills and the long time needed for fixing electricity failure and for power supply connection. On the other hand, the study shows that there is a high satisfaction of customers regarding the quality of customer services. When comparing the three groups of subscription, the study shows that the industrial sector has the highest level of satisfaction followed by the residential then the commercial. Finally, respondents think that the overall performance of Saudi Electricity Company in general is moderate. The residential customers are the most satisfied group followed by the commercial then the industrial.

Keywords: Customer Satisfaction, Services, Electricity, Measuring, TQM, Saudi Arabia

1. Introduction

Saudi Electricity Company (SEC) is a joint stock company established in 2000 as a result of the merging of the major regional electricity companies in the country. Prior to the merging, SEC used to be Saudi electricity companies in the Central, Eastern, Western and Southern Regions in addition to the ten small companies operating in the north of the Kingdom as well as all other electricity operations managed by General Electric Company. SEC now covers all the country with huge responsibilities with one structure and one chain of command. This large size of the company poses a challenge to its leadership trying to standardize its operations and maintain a consistent performance. In the Eastern Region, the electricity company that used to run the service in the region was established and run by the giant oil company, Aramco where its accomplishment then was outstanding. However, other companies had experienced some difficulties operating in a growing demand for electricity due to the extreme heat which demands more electricity service and in the expansion in industrialization. The government determines the

prices of the service in two types; residential and commercial / industrial. Each type has different clusters where the more the use of the electricity the higher the prices of each unit. SEC is then restricted and cannot change its prices depending on the costs incurred. Therefore, the company is literally under the control of the government. In the beginning of 2014, Saudi government granted SEC with a loan free of interests approximating \$14 billion in order to help the company to accommodate the growing demand of the service. Moreover, It has been noticed over the last two decades that there is an increase in employees turnover of the company due to the immense pressure and the hostile working environment. Those challenges increase the pressure on the company, its leadership and its employees to run the company in better creative and friendly environment.

One important aspect of SEC operations is its dealing with customers in order to achieve their satisfaction through determining their needs and establishing the operation system that deliver such needs. Measuring customer satisfaction is an important element in the Total Quality Management (TQM) concept. TQM includes elements that constitute its interrelated systems of operations where customer focus is an important element of TQM. In general customer focus in the TQM approach has two sides; assessing customer demands and achieving customer satisfaction. In ISO 9001: 2008 model, inputs of the model require that organizations have to investigate the needs of the customers and design the operation system that would fulfill such needs. In addition, outputs of the ISO 9001 model require achieving customer satisfaction. Hence, measuring customer satisfaction of SEC can lead to better assessment of its operations and better continuous improvement of the company. In achieving that, this current study will attempt to evaluate SEC services at Assir Region in the cities of Abha, Khamis Mushait and Ahad Rufaidah. To achieve this purpose, the first objective of the study is to measure the level of satisfaction of customers regarding four technical services; electricity tariffs, billing methods, failure fixing and power supply connection. The second objective is to measure customer satisfaction of the quality of SEC customer service operations. Third, this current study will attempt to assess the overall satisfaction of customers regarding the general performance of SEC. Finally, the study will investigate if there is any differences in the level of satisfaction between electricity users due to their type of subscriptions; residential, commercial or industrial clients.

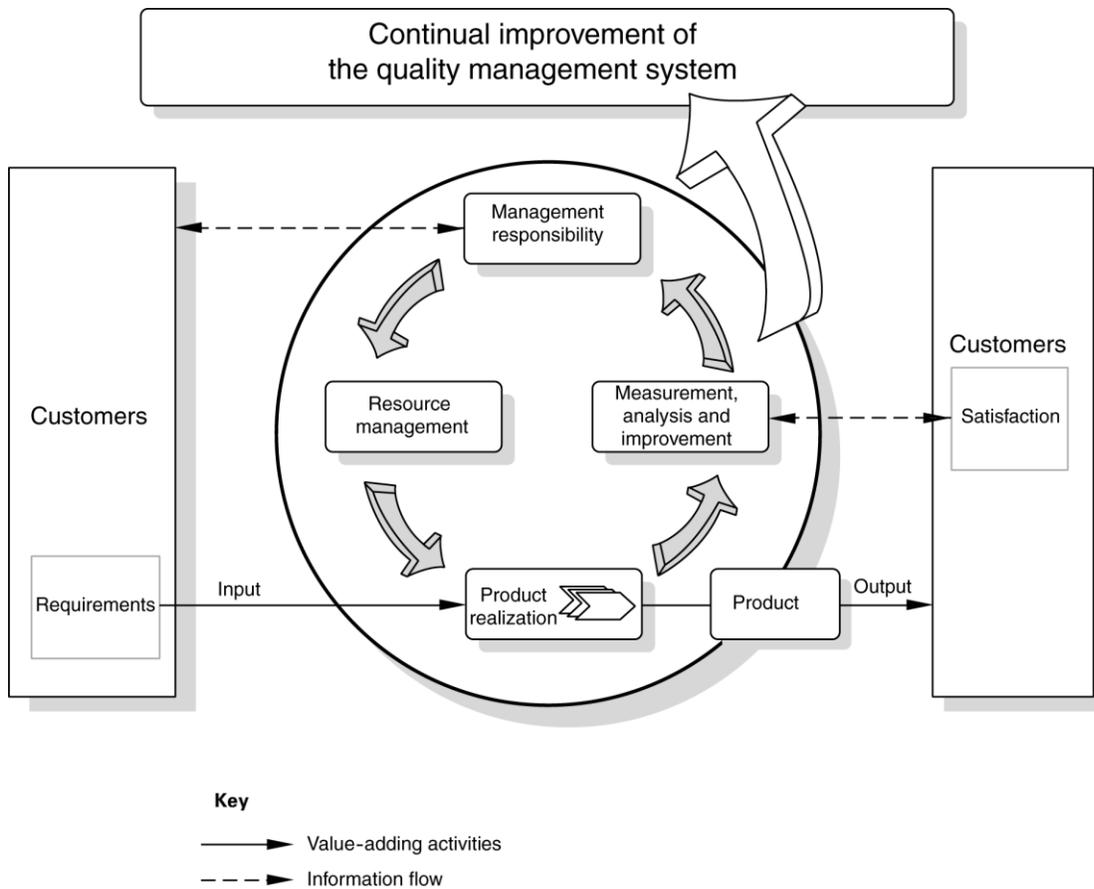
2. Literature Review

2.1 Customer Focus in the TQM and ISO 9000 Model

Quality has different but interrelated meanings such as fitness for use, conformity to specifications and free of defects. However, it has been agreed that quality is simply meeting customer needs and demands. Oakland (1996) emphasizes the concept of meeting customers' requirements in his definition of quality. Total Quality Management is defined by Oakland (1989) as being an approach to improve the effectiveness and flexibility of business participating by all departments, employees and levels of the organization. Pfau (1989) agrees on the concept of the participation of all levels and functions of the organization towards the improvement of the quality of goods and services. However, there is no agreement on the elements that constitute TQM; it depends on the nature, culture and circumstances of business. Nevertheless, it can be claimed that all TQM models such as the quality management systems and the quality awards include customer focus as being a major element of the models. ISO 9001: 2008 includes customer focus as an important pillar of the quality system (Clause 5.2). Figure 1 shows that customer requirements are the inputs and customer satisfaction is the output of the quality system. From that model we may conclude that measuring customer satisfaction is a major

requirement of ISO 9001. In Clause 5.2 of ISO 9001:2008 (2008), it reminds that top management has to be sure that customer requirements are met for the aim of the improvement of customer satisfaction. In addition, another ISO standard (ISO 9004: 2009) in Clause 4.1 demands that the organization should develop a quality system to ensure a focus on customer satisfaction, as well as on the needs and expectations of other relevant interested parties. The US Malcolm Baldrige Quality Award (2014) model for Performance Excellence includes customer focus (Clause 3) in the service sector criteria. The European EFQM Excellence Model (2014) addresses customer results issues in Clause 6 where it covers the dealing of the organization towards its customers in terms of assessing and meeting customer demands and in measuring customer satisfaction.

Figure 1: ISO 9001: 2008 Continual Improvement of the Quality Management



Source: ISO 9001: 2008 (2008) Quality Management Systems – Requirements, International Organization for Standardization (ISO), Genève, Switzerland, Page VI.

2.2 Customer Satisfaction and Service Quality

Customer satisfaction is defined as an evaluation between what was received and what was expected (Oliver, 1977, 1981; Olson and Dover, 1979). Parker and Mathew (2001) treat customer satisfaction as having two approaches; process and outcome of a consumption experience. Jones and Sasser (1995) consider achieving customer satisfaction as being the main goal for service organizations. Moreover, increasing customer satisfaction helps organizations gaining market share, maximizing profits and reducing costs (Heskett et al., 1997; Reichheld, 1996). On that regard, William and Bertsch (1992) emphasize that achievement of a strong customer satisfaction is related to understanding customer needs and expectations. Additionally, Zeithaml (1988) finds out that customers who perceive that they receive value for money are more satisfied than customers who do not perceive they receive value for money.

Service quality has been defined as being the difference between customer perception of quality and the delivery of the service to customers (Gronroos, 1984 and Parasuraman et al.1988). Oliver (1993) reports that service quality is a casual antecedent of customer satisfaction, due to the fact that service quality is viewed at transactional level and satisfaction is viewed to be an attitude. Parasuraman et al. (1988) provide five dimensions of service quality; reliability, responsiveness, assurance, empathy and tangibles. In a study of customer services of Saudi Airlines in Jazan Province, Al-Medabesh and Ali (2014) find customers to be satisfied with some services; reservation, boarding, cabin crew, food and beverages and entertainment services. Another study in Saudi Arabia by Kadasah (2014:1) shows that service quality of both the major telecommunication companies; Mobily and STC to be moderate. Another study by Kadasah (2014:2) to measure service quality of Saudi Telecommunication Company using SERVPERF scale, reveals that the company, in general, does not provide good service quality to its customers. Another study in Bangladesh (Masud, 2014) of customer satisfaction of Jamuna Banks in that country reveals that this bank is not providing that services for which it was committed. Specially, the customers of savings accounts are dissatisfied with bank services. In that study, the author recommends that the banks are required to focus more on the service they provide to satisfy customers for maximizing the goals of that organization. A study about Italian banks, Munari et al. (2013) find out that customer satisfaction is no longer a staff activity but more of a line activity. It is the responsibility of top management and a key indicator in the staff incentives programs.

3. Methodology

The population of our study are the users of the electricity services in Saudi Arabia while the sample of our study includes Assir Region in the south of Saudi Arabia in three cities; Abha, Khamis Mushait and Ahad Rufaidah. The first two cities are heavily populated major cities in the region while Ahad Rufaidah is a medium-sized agricultural city. More than 235 questionnaires are distributed in the three cities by one of the researcher to clients who are visiting the company offices for their dealings with SEC. We receive 117 questionnaires where 82 of them are usable for analysis. The researchers design the questionnaires in two categories; general profile information and five scale Likert scale questions investigating the degree of satisfaction of SEC services. The scale includes five categories; highly satisfied, satisfied, moderate, poor and very poor. The representation are shown in Table 1.

Table 1: The Representation of the Different Levels of Satisfaction

| | Mean Average Range | Level of Satisfactin |
|---|---------------------|----------------------|
| 1 | From 1 to < 1.80 | Very poor |
| 2 | From 1.80 to < 2.60 | Poor |
| 3 | From 2.60 to < 3.40 | Moderate |
| 4 | From 3.40 to < 4.20 | High |
| 5 | From 4.20 to 5 | Very high |

The researchers observe the validity of the research instrument and the reliability of data entered into SPSS software data analysis system. The questionnaire is reviewed by different employees working in Saudi Electricity Company along with some different clients of the company. Pearson correlation test has been used to measure the internal consistency of research questions at each dimension and how correlated the dimensions together. Results are shown in Table 2. This table shows that the statistical indicators for correlation (consistency) between each dimension total and the grand total for the questionnaire ranging from (0.65 ** 0.88 **), which indicates a statistical significant consistency for the research questionnaire.

Table 2: Pearson Internal Consistency (Construct Validity)

| | Dimensions | Correlation |
|---|-------------------------|-------------|
| 1 | Tariff Prices | 0.69** |
| 2 | Billing Methods | 0.69** |
| 3 | Failure Fixing | 0.81** |
| 4 | Power Supply Connection | 0.87** |
| 5 | Customer Service | 0.76** |
| 6 | Overall Satisfaction | 0.65** |

() correlation is sig. at (0.01) .**

The researchers conduct Cronbach’s Alpha test to measure the reliability of data entered into SPSS software program. The purpose of this test is to be sure that data cells included in the system are safe. Results are shown in Table 3.

Table 3: Cronbach’s Alpha values

| | Dimensions | Cronbach's Alpha |
|---|-------------------------|------------------|
| 1 | Tariff Prices | 0.76 |
| 2 | Billing Methods | 0.84 |
| 3 | Failure Fixing | 0.88 |
| 4 | Power Supply Connection | 0.83 |
| 5 | Customer Service | 0.77 |
| 6 | Whole Questionnaire | 0.94 |

Table 3 shows that the values of Cronbach’s Alpha are greater than .05 which indicate high values of the test. Therefore, those correlation values make data entered into SPSS safe for assuming reliability.

3. Findings

3.1 Types of Electricity Subscription

The respondents of the questionnaires are asked to specify their categories; residential, commercial or industrial. Table 4 depicts the distribution of respondents among those three categories.

Table 4 : Types of Electricity Subscription

| | Subscription Type | Frequency | Percent |
|--------------|-------------------|-----------|---------|
| 1 | Residential | 67 | 81.7 |
| 2 | Commercial | 11 | 13.4 |
| 3 | Industrial | 4 | 4.9 |
| Total | | 82 | 100 |

Table 4 shows that the vast majority of respondents are from the residential sector which means private houses and apartments. Commercial shops and shopping centers comes second with 13.4% of the sample while industrial sector represents only a little less than 5% of respondents under study. This distribution in the sample that contains three cities in Assir region can be understood since industry in general in that region is very limited in nature. Abha or Khamis Mushait cities cannot be compared with Jeddah, Riyadh or Dammam when it comes to the heavy industries.

3.2 Satisfaction of SEC Technical Services

The technical services that have been investigated in this current study include four dimensions; electricity tariff prices, billing methods, failure fixing and power supply connection. Each dimension has three factors that constitute the delivery of each technical services of Saudi Electricity Company; Assir Region. Results are shown in Table 5.

Table 5 : Level of Satisfaction of SEC Technical Services

| Rank | Variables | Mean | Std. Dev. | Satisfaction |
|--|---|-------------|-------------|-----------------|
| Electricity Tariff Prices | | | | |
| 1 | Electricity tariff prices | 3.30 | 1.07 | Moderate |
| 2 | Tariff of consumption during summer season | 3.20 | 1.21 | Moderate |
| 3 | The price of the additional tariffs compared to the change in consuming units | 3.10 | 1.01 | Moderate |
| Average Mean of Electricity Tariff Prices | | 3.20 | 1.09 | Moderate |
| Billing Methods | | | | |
| 1 | The length of time for declaring the final invoice | 3.60 | 1.12 | High |
| 2 | The accuracy of the data found in the received bills | 3.43 | 1.10 | High |
| 3 | Procedures of handling and reviewing disputed bills | 2.93 | 1.26 | Moderate |
| Average Mean of Billing Methods | | 3.32 | 1.16 | Moderate |
| Failure Fixing | | | | |
| 1 | The repair of problems inside the houses | 3.12 | 1.16 | Moderate |
| 2 | The level of repair of the breakdowns in the public streets | 3.11 | 1.21 | Moderate |
| 3 | The duration of time taken to repair malfunctions | 2.72 | 1.16 | Moderate |
| Average Mean of Failure Fixing | | 2.98 | 1.17 | Moderate |
| Power Supply Connection | | | | |
| 1 | The quality of tools and equipment used in the connection. | 3.33 | 1.06 | Moderate |
| 2 | The accuracy and quality of the connection used by the company. | 3.15 | 1.11 | Moderate |
| 3 | The speed of the electrical power connection | 2.84 | 1.15 | Moderate |
| Average Mean of Power Supply Connection | | 3.10 | 1.10 | Moderate |

Table 5 presents the first dimension; electricity tariff prices where customers of SEC consider the price of the normal use of electricity is more reasonable than the other services. Other services whether during summer times or by using extra electricity that will take them from one cluster to another. However, their satisfaction about tariff prices in general is moderate; not high. In the second dimension; billing methods, respondents are highly satisfied with the billing period and the accuracy of bills. However, they are a bit critical of the handling of SEC of the disputed bills. The third dimension included in Table 5 presents the fixing of electric failure in houses and in public streets and amenities. This current study shows that SEC performs moderately on this regard, nevertheless, the time of the repairs is time consuming. The fourth dimension in table 5 is covering power supply connection where respondents are somewhat satisfied about the tools and equipment along with the accuracy of connection. However, they consider SEC not to speed the time of connection. We may conclude from Table 4 that the major problems in the technical services provided by SEC are; handling disputed bills and the long time needed for fixing electricity failure and for power supply connection. Finally, the overall satisfaction about SEC all technical services is moderate.

3.3 Satisfaction of the Quality of Customer Service

This section includes results of the study in quality of customer service matters provided by Saudi Electricity Company. The results are shown in Table 6.

Table 6: Level of Satisfaction of SEC Customer Service

| Rank | Customers Services Variables | Mean | Std. Dev. | Satisfaction |
|---|--|-------------|-------------|--------------|
| 1 | On methods of payment via multimedia (banks , Internet, ATM card) | 3.99 | 0.92 | High |
| 2 | With respect to the replies for the telephone calls | 3.62 | 1.10 | High |
| 3 | The provided service location is easy and clear for access | 3.40 | 1.15 | High |
| 4 | About the length of waiting time in the company's offices | 3.33 | 1.18 | Moderate |
| 5 | About information and guidance provided to customers by the company website | 3.30 | 1.21 | Moderate |
| 6 | With regard to the speed of receipt, follow-up and implementation of the required services | 3.23 | 1.11 | Moderate |
| Average Mean of Customer service | | 3.48 | 1.11 | High |

Table 6 shows that customers of SEC are highly satisfied with three customer services; electronic payment methods, the reply of employees to customer services calls and accessibility of customer services offices of SEC. (Means are higher than 3.4). However, respondents have a moderate

satisfaction with the remaining three services; time waiting at SEC offices, SEC web site information and guidance and the lengthy handling of required services. All those three customer services have means lower than 3.4. It can be concluded from Table 6 that customers are highly satisfied with the quality of customer services of SEC. We investigate the differences, if any, between the three types of subscription, residential, commercial or industrial in their satisfaction about the quality of customer service. For that purpose, we use two statistical tests; Analysis of Variance (ANOVA) Test and Scheffe Test. Results are displaced in the following table (Table 7, Part I and Part II).

Table 7: ANOVA and Scheffe Tests

| Part I: Anova Test of the Differences between Groups in Customer Service Satisfaction | | | | | |
|--|-----------------------|-----------|-------------------------------|----------|-------------|
| Source of variation | Sum of Squares | Df | Mean Square | F | Sig. |
| Between Groups | 177.158 | 2 | 88.579 | .170 | .844 |
| Within Groups | 41244.122 | 79 | 522.077 | | |
| Total | 41421.280 | 81 | | | |
| Part II: Scheffe Test | | | | | |
| Rank | Types | N | Subset for alpha =0.05 | | |
| 1 | Industrial | 4 | 109.0000 | | |
| 2 | Residential | 67 | 105.9701 | | |
| 3 | Commercial | 11 | 102.2727 | | |

Table 7, Part I shows that there are no significant differences (Sig. = .844 greater than .05) between the three types of subscription in their satisfaction of the quality of customer service. However, we use Scheffe Test (Table 7, Part II) in order to determine the ranking of the level of satisfaction among the three groups of subscription. Scheffe test shows that the industrial sector has the highest level of satisfaction followed by the residential then the commercial in the level of satisfaction about the quality of customer services of SEC in Saudi Arabia.

3.4 General Overall Satisfaction of SEC Services

Respondents of the questionnaire are asked a final question about their overall satisfaction with the services of Saudi Electricity Company in general. The results are shown in Table 8.

Table 8 General Overall Satisfaction of SEC Services

| General Overall Satisfaction of SEC | Mean | Std. Dev. | Satisfaction |
|---|-------------|------------------|---------------------|
| General Impression of the surveyed sample about all services given by Saudi Electricity Company | 3.32 | 1.06 | Moderate |

Table 8 reveals that customers of Saudi Electricity Company have a moderate satisfaction with the services of the company in their overall evaluation. The Mean is 3.32 out of 5 which represents a moderate satisfaction since the value of the mean is below 3.4. We attempt to determine the differences between the three groups of subscription; residential, commercial and industrial, in their general overall satisfaction about SEC. For that purpose we use two statistical tests; Analysis of Variance (ANOVA) Test and Scheffe Test. Results are shown in Table 9 (Part I and Part II).

Table 9: ANOVA and Scheffe Tests

| Part I: ANOVA of the Differences between groups in Overall Satisfaction Satisfaction | | | | | |
|---|-----------------------|-----------|-------------------------------|----------|-------------|
| Source of variation | Sum of Squares | Df | Mean Square | F | Sig. |
| Between Groups | 4.458 | 2 | 2.229 | 2.017 | .140 |
| Within Groups | 87.299 | 79 | 1.105 | | |
| Total | 91.756 | 81 | | | |
| Part II: Scheffe Test | | | | | |
| Rank | Types | N | Subset for alpha =0.05 | | |
| 1 | Residential | 67 | 3.42 | | |
| 2 | Commercial | 11 | 3.00 | | |
| 3 | Industrial | 4 | 2.50 | | |

Table 9, Part I shows that there are no significant differences between the three groups of subscription; residential, commercial and industrial in their overall satisfaction about SEC services. The value of significant is .140 which is greater than .05. Therefore, we use Scheffe Test, Table 9, Part II to determine the order of the groups in their satisfaction. Scheffe test shows residential customers are the most satisfied followed by the commercial then the industrial in their overall satisfaction about the services in general of SEC.

4. Discussion and Conclusion

Saudi Electricity Company has experienced some difficulties since the major merging of the different companies in 2000 into one major company covering an area three times the size of Europe. The desire of the government for this great merging is to create efficiency, standardize services and benefits from the economy of scale. However, the company cannot achieve much of what is hoping from it by the public or the government due to the great restrictions by the government on its freedom to impose the appropriate tariff prices. Results of this current study about customer satisfaction of SEC services in three cities of Assir Province cannot tell the whole story about the company. Respondents are moderate in their satisfaction with the technical services while they are highly satisfied with the quality of customer services. This discrepancy can be the results of lacking the high technical capabilities in Assir Province in general. We may find better capabilities in terms of technology and efficiency in Jeddah, Riyadh, Jubail or Dammam. All those cities have advance technology and harbor several industrial cities in the

country. This study reveals that one major problem in SEC in Assir Province is the lengthy time required to accomplish their duties to customers. One suggested solution of this problem would be an intensive training programs and the reengineering of process. Both training and reengineering may be conducted in Jeddah or Riyadh or even abroad where the opportunity is better for successful execution of those programs. In addition, it is clear that the increase in electricity use will results in higher tariff prices since the customer will enter a new cluster by greater use of electricity, therefore, customers are dissatisfied about this matter. However, we cannot agree with them since the expansion in the use of the electric energy is a major problem to the development of the country and great threat to the environment. The high satisfaction about the quality of customer service in electronic payment support the fact that Saudi Arabia in general is working towards the full electronic government. The country experienced high advancement in its electronic governing standing ranking 36th in 2014 among all world countries. Furthermore, residential customers are more satisfied than commercial customers in their general overall evaluation of the company can be understood since SEC has higher tariff prices for industrial and commercial companies. Hence, we cannot demand for SEC to change its policy on that regard.

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