The Role of Supplier Performance in Building Customer Loyalty and Trust

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Abstract: *Profitability through selling products - both goods and services - is the main reason for the formation of business companies, and having a powerful and creative sales force in creating and maintaining long-term relationships with customers, as well as introducing and selling products in these companies, play a major role in profitability, growth and survival of the companies. The objective of the present study was to evaluate the role of supplier in building customer loyalty and trust in the technical engineering company operating in the area of road construction and mining machinery. The research population included all customers of technical and engineering companies operating in the area of road construction and mining machinery (business services provider) and parts supply (engineering services) in Tehran. The variables of the research are quantitative and the statistical population is unlimited. They were selected to be 385 using Cochran's formula. To collect data, a questionnaire was used. Its validity was confirmed by using the views and opinions of experts and its reliability was confirmed by using the Cronbach's alpha. Multiple regression and Pearson tests were used to analyze the data. Results showed that product quality, quality of after-sales service, technical support, and handling the complaints had positive and significant relationship with supplier trust and trust in supplier had an effect on customer loyalty and the company size played a mediating role in the relationship between trust in supplier and the customer loyalty.*

Keywords: *Trust, Loyalty, Suppliers, Engineering and Technical Companies.*

INTRODUCTION

The process of selecting an appropriate supplier who is able to meet the purchaser need in terms of providing high quality products at an appropriate price at an appropriate time and in an appropriate volume is one of the most essential activities for formation of an appropriate supply chain. Decision making on supplier selection plays key role in the production and management of companies, and many of experienced companies believe that selecting a supplier is the most important activity of an organization (Boer, Labro and Morlacchi, 2001). The forefront of competition of the companies is their sales force and sales force performance is a key indicator in performance of companies in a competitive market (Samadi, 2014). However, it should be noted that attracting, building trust and loyalty of the customer is not merely achieved through sales force and one of the key roles in attracting customer attention is the selection of appropriate suppliers. Organizations require working with various suppliers to continue their activities (Ruhbakhsh Meyari Dovom, Mashhadi Farahani and Kazemi, 2015). Owing to increasingly dependency of organizations directly or indirectly to suppliers, the effect of the decisions made in this regard will have decisive role. Due to the importance of the

supplier role, special attention should be paid to supplier selection process, involving the steps of need for supplier, the determination of the supplier evaluation criteria, pre-evaluation of suppliers and the selection of final suppliers (KuoR, Wang and Tien, 2010). If supplier is selected incorrectly, it will impose much cost on organization (Ruhbakhsh Meyari Dovom, Mashhadi Farahani and Kazemi, 2015).

 In this regard, the effective selection of suppliers is an important responsibility that should be always taken into consideration. Its vital role is due to its effects on the final products of the organization (Narasimhan, Ttalluri and Mendez, 2001). The supplier performance can be influenced by various factors, including product quality, after sales service quality, and technical support and handling of complaints, and its other characteristics can have a significant effect on different aspects of the organization, including sales volume, profit margin, customer attraction and customer satisfaction and trust (Manner, 2018). The customer trust reflects the belief in the trustworthiness of the promise or the word of one of the parties and that he will fulfill his obligations in a transaction relationship (Yousafzai, Pallister and Foxall, 2003). Trust is built when one of the parties believes in the credibility and accuracy of the other party (Bove and Johnson, 2006). The customer trust in organization and supplier paves the way for customer loyalty. Customer loyalty is a key factor in the success and profitability of organizations that deserves paying special attention. Customer loyalty is a set of customer thoughts that includes desirable beliefs about a company, an obligation to re-purchase of a product or service of a company and recommending the purchase of a product or service to others (Mohammad and Noorjahan, 2009).

It can be stated that performance reflects both action and the outcome of the action. In other words, performance is defined as today's action or practice that is the introduction of the production of a certain value of the output in future (Yango, 2017). In general, organizational performance is defined as criterion to measure the level of effectively achievement of an action to define goals, which can be estimated by the organization efficiency and effectiveness in achieving its goals (Shan, 2017).

Research hypotheses

The quality of the product has a positive and significant relationship with trust in supplier.

The quality of sales and supply services have a positive and significant relationship with trust in supplier.

Technical support has a positive and significant relationship with the trust in supplier

Handling complaint has a positive and significant relationship with trust in supplier.

Trust in supplier increases customer loyalty.

The size of the company has a negative mediating effect on the relationship between trust in supplier and customer loyalty.

Methodology

The objective of this study is to evaluate the supplier performance in building customer loyalty and trust. Therefore, the present research is an applied research in terms of objective and descriptive-analytical in terms of method. It is considered an applied research since its results can be applied in the engineering and technical company. Library studies as well as field surveys, such as a questionnaire, are used to collect data. In this research, quantitative research method is used. In this research, field methods were used to collect data by visiting customers and library to collect information on theoretical foundations, literature and background of the research. For this purpose, the researcher relied on books, theses, domestic and foreign articles and databases. Given the research objectives, it can be stated that the product quality, sales and supply services quality, technical support, handling complaint as independent variables are considered as independent variables and customer loyalty is considered as final dependent variable. In addition, the size of the company is considered as mediating variable and trust in supplier is considered as initial dependent variable. The relationships between the variables are presented in Figure 1.
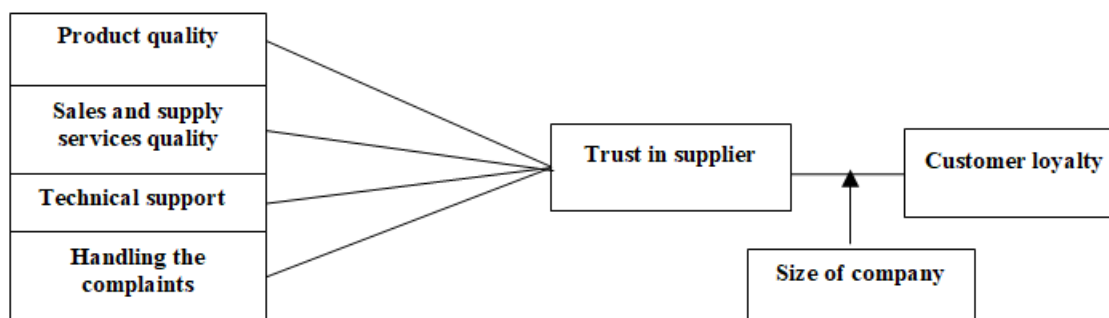
Figure 1: research conceptual model

Research population

The research population of this research consisted of customers of technical and engineering companies operating in the road construction and mining machinery (providing business services (parts supply) and technical and engineering services) in Tehran. The objective of this study is to evaluate their loyalty and trust in the suppliers of the companies.

Sampling and sample size

In the present study, simple randomized sampling method was used. In this sampling method, each member of the population has equal and independent odds of being selected as sample. As it is not easily possible to accurately determine the total number of customers of Tehran engineering and engineering companies and given the uncertainty of the standard deviation of the studied populations, the following sampling formula is used in order to determine the sample size required in this study (Khaki, 2004). The confidence level of 95% and accuracy of 5% are considered in this study.

$$n = \frac{z^2 \ p \ (1-p)}{d^2}$$

$$n = \frac{1/96^2 \ 0/5 \ (1-0/5)}{0/05^2} \cong 384.16$$

Thus, a sample size is considered to be 385 people

Data collection tools

One of the commonly used methods for collecting field information is questionnaire that makes it possible to collect information at a wider level (Hafez Nia, 2004). In this research, a questionnaire was used to collect the required data in order to measure the studied variables.

The measurement scale will be a 5-point Likert scale. The questionnaire includes two sections. The first section includes demographic questions on the respondents' demographic characteristics. The second section includes questions on the research hypotheses. They are scored on the 5-point Likert scale.

Data analysis tools:

In this research, descriptive statistics and inferential statistics were used to analyze the data obtained from the samples.

Descriptive statistics: The descriptive statistics indices of central indices (mean, mode, median) and dispersion indices (standard deviation and variance) were used in this study to examine the characteristics of respondents.

Inferential statistics: In the inferential statistics section to analyze the data obtained from the research, Kolmogorov-Smirnov statistical test (KS) was used to examine the normal or non-normal distribution of data, and then, multiple regression and Pearson tests were used for analyzing the data collected. SPSS software was also used to perform these tests.

Results

Descriptive statistics
Gender of respondents
We first examine the gender of the respondents. Its results are presented in Table 1.

Table 1: gender of the respondents

gender	n	Percentage of frequency
female	89	0.24
male	295	0.76
total	384	0.100

Education level of respondents
In this section, the education level of respondents is examined. Its results are presented in Table 2:

Table 2: education level of respondents

Education level	n	Percentage of frequency
Under diploma	53	14.0
diploma	109	28.0
Associate	79	20.0
Bachelor	97	25.0
Master and higher	46	13.0
Total	384	100.0

Age of respondents
In this section, the age of respondents is examined. Its results are presented in Table 3:

Table 3: age of respondents

age of respondents	n	Percentage of frequency
30-20	87	22.0
40-30	151	40.0
50-40	63	17.0
50 and over	83	21.0
total	384	%100

Marital status of respondents
In this section, the marital status of respondents is examined. Its results are presented in Table 4:

Table 4: Marital status of respondents

Marital status of respondent	n	Percentage of frequency
single	91	37.0
Married	293	63.0
total	384	%100

Descriptive findings of the variables
The descriptive findings of the research variables are presented in Table 5.

Table 5: Descriptive findings of the research variables

row	Variables	n	min	max	mean	SD
1	Product quality	384	2	5	3.5	1.53
2	Quality of sales services	384	3	5	4	1.73
3	technical support	384	2	5	3.5	1.53
4	Handling of complaints	384	3	4	3.5	1.53
5	Trust in supplier	384	3	5	4	1.73
6	Loyalty	384	2	5	3.5	1.53
7	size of the company	384	3	5	4	1.73

Examining the normality of the data using Smirnov-Kolmogorov and Wilk Shapiro
The results of normality of the data derived from the questionnaire are described in Table 6.

Table 6: Smirnov-Kolmogorov test

	Kolmogorov-Smirnov			
	Statistic	df	Sig.	Sig.
Observations	360.0	383	200.(*)0	286.0

$\begin{cases} P\_Value\ (Sig) > \alpha = 0.05 \Rightarrow \qquad Distribution\ of\ observations\ follows\ the\ normal\ distribution \\ P\_Value\ (Sig) \le \alpha = 0.05 \Rightarrow Distribution\ of\ observations\ does\ not\ follow\ the\ normal\ distribution \end{cases}$

As shown, the judgment criterion for this test is the probability value obtained. If the probability value is greater than 0.05, the normality of the data is confirmed, otherwise, it is rejected. The test level is 0.05 and smaller than the significant level of 0.200, so the data follow the normal distribution.

Examining the research hypotheses
In this section, Pearson and multiple regression tests were used to investigate the research hypotheses as data follow the normal distribution.

Hypothesis 1
The quality of the product has a positive and significant relationship with the trust in supplier.

Table 7: Pearson correlation coefficient of the first hypothesis

Variable	Value of correlation with trust in supplier	Sig
Product quality	533.0	000.0

As the correlation obtained in Table 7 was positive (0.533) and the significance level in this test is less than 0.05 (0.000), it can be stated that our hypothesis is confirmed and product quality has a positive and significant relationship with trust in supplier.
Testing regression coefficients of the first hypothesis
Table 8 shows the significance of the regression coefficients of the first hypothesis.

Table 8: Significance of regression coefficients of the first hypothesis

model	Non-standardized coefficients		Standardized coefficients	T	Sig
	B	Error. Std	Beta		
Fixed value	45.4	255.0	......	25.6	0.001
Product	198.0	094.0	144.0	34.4	0.000

The regression equation can be calculated using the non-standardized coefficients as follows:
Trust in supplier = 4.45 + (0.198) product quality

It can be stated that by one unit of increase in each independent variable (product quality), the coefficient of the dependent variable (trust in supplier) will increase by the written value.

Hypothesis 2

The quality of sales and supply services has positive and significant relationship with trust in supplier.

Table 9: Pearson correlation coefficient of the second hypothesis

Variable	The value of correlation with trust in supplier	Sig
quality of sales and supply services	701.0	002.0

As the correlation obtained in Table 9 was positive (0.701) and the significance level in this test is less than 0.05 (0.000), it can be stated that our hypothesis is confirmed and quality of sales and supply services has a positive and significant relationship with trust in supplier.

Testing regression coefficients of the second hypothesis

Table 10: the significance of regression coefficients of the second hypothesis

model	Non-standardized coefficient		Standardized coefficient	T	Sig
	B	Error. Std	Beta		
Fixed value	78.7	201.0	....	272.12	000.0
quality of sales and supply services	210.0	052.0	498.0	734.6	000.0

The regression equation can be calculated using the non-standardized coefficients as follows:

Trust in supplier = 7.78 + (0.210) quality of sales and supply services

It can be stated that by one unit of increase in each independent variable (quality of sales and supply services), the coefficient of the dependent variable (trust in supplier) will increase by the written value.

Hypothesis 3

The technical support has a positive and significant relationship with trust in supplier.

The Pearson correlation coefficient for the third hypothesis is presented in Table 11

Table 11: Pearson correlation coefficient of the third hypothesis

variable	The value correlation with trust in supplier	Sig
Technical support	542.0	001.0

As the correlation obtained in the above test was positive (0.542) and the significance level in this test is less than 0.05 (0.000), it can be stated that our hypothesis is confirmed and technical support has a positive and significant relationship with trust in supplier.

Testing regression coefficients of the third hypothesis

Table 12 presents the results of examining the effect of independent variable on the dependent variable.

Table 12: the significance of regression coefficients of the third hypothesis

model	Non-standardized coefficients		standardized coefficients	T	Sig
	B	Error. Std	Beta		
Fixed value	66.5	217.0	....	56.8	000.0
Technical support	201.0	099.0	155.0	65.5	000.0

The regression equation can be calculated using the non-standardized coefficients as follows:

Trust in supplier = 5.66 + (0.210) technical support
It can be stated that by one unit of increase in each independent variable (technical support), the coefficient of the dependent variable (trust in supplier) will increase by the written value.

Hypothesis 4
Handling the complaints has positive and significant relationship with trust in supplier.
The Pearson correlation coefficient for the fourth hypothesis is presented in Table 13

Table 13: Pearson correlation coefficient of the fourth hypothesis

Variable	The value of correlation with trust in supplier	Sig
Handling of complaints	677.0	003.0

As the correlation obtained in the above test was positive (0.677) and the significance level in this test is less than 0.05 (0.000), it can be stated that our hypothesis is confirmed and handing of complaints has a positive and significant relationship with trust in supplier.
Testing regression coefficients of the fourth hypothesis
Table 14 presents the results of examining the effect of independent variable on the dependent variable.

Table 14: the significance of regression coefficients of the fourth hypothesis

Model	Non-standardized coefficients		standardized coefficients	T	Sig
	B	Error. Std	Beta		
Fixed value	56.6	266.0	…………	43.10	000.0
Handling of complaints	377.0	051.0	177.0	56.5	002.0

The regression equation can be calculated using the non-standardized coefficients as follows:
Trust in supplier = 6.56 + (0.377) handling of complaints
It can be stated that by one unit of increase in each independent variable (handling of complaints), the coefficient of the dependent variable (trust in supplier) will increase by the written value.

Hypothesis 5
Trust in the supplier increases customer loyalty.

Table 15: Pearson correlation coefficient of the fifth hypothesis

Variable	Value of correlation with customer loyalty	Sig
Trust in supplier	753.0	002.0

As the correlation obtained in the above test was positive (0.753) and the significance level in this test is less than 0.05 (0.000), it can be stated that the hypothesis is confirmed and trust in supplier increases the customer loyalty.
Testing regression coefficients of the fifth hypothesis
Table 16 presents the significance of the regression coefficients of the fifth hypothesis

Table 16: the significance of regression coefficients of the fifth hypothesis

Model	Non-standardized coefficient		standardized coefficient	T	Sig
	B	Error. Std	Beta		
Fixed value	38.7	254.0	…………	43.7	000.0
Trust in supplier	277.0	062.0	145.0	66.3	002.0

The regression equation can be calculated using the non-standardized coefficients as follows:

Customer loyalty = 7.38 + (0.277) trust in supplier

It can be stated that by one unit of increase in each independent variable (trust in supplier), the coefficient of the dependent variable (customer loyalty) will increase by the written value.

Hypothesis 6

The size of company has a negative mediating effect on the relationship between trust in supplier and customer loyalty.

Table 17 shows the regression results of the sixth hypothesis.

Table 17: Regression results of the sixth hypothesis

Variables	Coefficients	P-Value
Fixed value	0.3654219	0.002
Trust in supplier	0.38291110	0.001
Loyalty	0.4962505	0.003
Company size	0.3848455	0.002
Size of company * trust in supplier	0.1507364	0.002

Based on Table 18, it can be stated that all the coefficients obtained for the variables are positive, so they have a positive effect on each other. With regard to the sixth hypothesis, it can be said that the trust in supplier has a positive coefficient of 0.38291110 and the loyalty variable has a coefficient of 0.4962505 and the company size variable has a coefficient of 0.3848455, indicating a positive interaction between the independent, dependent and mediating variables. Therefore, according to the obtained coefficient (0.1507364) and the significant levels (0.002), it can be stated that the size of company does not have a negative effect on the relationship between trust in supplier and customer loyalty, so the above hypothesis is rejected.

Table 18: Results of all research hypotheses

hypothesis	Result of hypothesis
The quality of the product has a positive and significant relationship with trust in supplier.	Confirmed
The quality of the sales services and supply has a positive and significant relationship with trust in supplier.	Confirmed
The technical support has a positive and significant relationship with trust in supplier.	Confirmed
The handling of complaints has a positive and significant relationship with trust in supplier.	Confirmed
Trust in supplier increases the customer loyalty	Confirmed
The size of the company has a negative mediating effect on the relationship between trust in supplier and customer loyalty.	Rejected

Discussion and Conclusion

Hypothesis 1

The quality of the product has a positive and significant relationship with the trust in supplier.

Given the correlation coefficient of 0.533 and the significant level of 0.000, the product quality has a positive and significant relationship with trust in supplier and one unit of increase in product quality will increase the product quality by 0.198. The results of this hypothesis are consistent with the results of the research conducted by Paparadumis et al Paparadumis et al (2017) and Mollaei (2017), which showed that the quality of the products can well explain the trust in supplier. In explaining the results of this hypothesis, it can be stated that quality is something that increases the value of the product for the customer. Some aspects of quality such as product performance, trustworthiness, or its useful life can be easily identified. Therefore, it is predictable that by increasing the quality of the products, it is possible to build trust in its customers.

Hypothesis 2

The quality of the sales services and supply has a positive and significant relationship with the trust in supplier.

Given the correlation coefficient of 0.701 and the significant level of 0.002, the quality of the sales services and supply has a positive and significant relationship with trust in supplier and one unit of increase in quality of the sales services and supply will increase the product quality by 0.210.

The results of this hypothesis are consistent with the results of the research conducted by Paparadumis et al (2017) and Chew (2017), which showed that the quality of the services can lead into trust in supplier. In explaining the results of this hypothesis, it can be stated that quality of services is described as a kind of long-term attitude. In fact, it can be stated that quality of services and the concept of attitude are very similar.

According to some studies, customer judgments about quality of services are due to differences in perceptions and expectations of services (Parasuran et al., 2014). Thus, the sales service quality can lead to increased trust between customers and organization in suppliers by increasing trust in suppliers.

Hypothesis 3

Technical support has a positive and significant relationship with trust in supplier.

Given the correlation coefficient of 0.542 and the significant level of 0.001, the quality of the technical support has a positive and significant relationship with trust in supplier and one unit of increase in technical support will increase the product quality by 0.377.

The results of this hypothesis are consistent with the results of the research conducted by Paparadumis et al (2017) and Mobarik (2017), which showed that appropriate support has a significant role in trust in suppliers. In explaining the results of this hypothesis, it can be stated that technical support is described as a set of services provided by companies providing service and product to their customers and it is one of the customers' expectations of an organization and can play an effective role in building trust between customers and organizations.

Hypothesis 4

Handling of complaints has a positive and significant relationship with trust in supplier.

Given the correlation coefficient of 0.677 and the significant level of 0.003, the quality of the handling of complaints has a positive and significant relationship with trust in supplier and one unit of increase in handling of complaints will increase the product quality by 0.201. The results of this hypothesis are consistent with the results of the research conducted by Paparadumis et al (2017) and Mozahid (2016), which showed that handling complaints increases the trust in suppliers. In explaining the results of this hypothesis, it can be stated that the handling of customer complaints refers to the process of handling critics and complaints proposed by customers of the company, which must be handled as soon as possible and the right feedback must be provided for the customers. It will lead to re-purchase by the customers and building trust between customers and suppliers through responding to demands of the customers.

Hypothesis 5

Trust in supplier increases customer loyalty.

Correlation value was 0.753 and significance level was 0.002 for this hypothesis. Therefore, trust in the supplier increases the level of customer loyalty and one unit of increase in trust in supplier will increase customer loyalty by 0.277. The results of this hypothesis are consistent with the results of the studies conducted by Paparadumis et al (2017) and Ahmadi (1396), which showed trust can play an effective role in customer loyalty. In explaining the results of the above hypothesis, it can be stated that the company's suppliers as business partners should behave in such a way that create mutual trust between them and the company. It leads to increased customer loyalty due to increased trust and customers will re-purchase from the target organization.

Hypothesis 6

The size of the company has a negative mediating effect on the relationship between trust in supplier and customer loyalty.

It can be stated that trust in the supplier has a positive coefficient (0.38291110) and the loyalty variable has a coefficient (0.4962505) and the company size variable has a coefficient (0.3848455) indicating a positive interaction between the independent, dependent and mediating variables. Therefore, according to the coefficient (0.1507364) and significance level (0.021), it can be stated that the size of the company does not have a negative mediating effect on the relationship between trust in supplier and customer loyalty and the above hypothesis is rejected. The results of this hypothesis are consistent with the results of the research conducted by Paparadumis et al (2017) and Ahmadi (2017) in terms of the effect of loyalty on trust. However, no research was found in order to compare the effect of the size of the company. In explaining the results of the above hypothesis, it can be stated that there is a positive relationship between loyalty and trust. On the other hand, customers try to trade with large and credible organizations. It has been shown that the size of the company will have a positive impact on the trust and loyalty of customers and as the organization is larger, its credibility and loyalty will be greater.

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