

Ilieş, Liviu; Sălăgean, Horațiu Cătălin; Beleiu, Ioana

Article

The impact of quality culture and leadership on customer relationship in organizations from the Romanian metal construction industry

Amfiteatru Economic Journal

Provided in Cooperation with:

The Bucharest University of Economic Studies

Suggested Citation: Ilieş, Liviu; Sălăgean, Horațiu Cătălin; Beleiu, Ioana (2017) : The impact of quality culture and leadership on customer relationship in organizations from the Romanian metal construction industry, Amfiteatru Economic Journal, ISSN 2247-9104, The Bucharest University of Economic Studies, Bucharest, Vol. 19, Iss. Special Issue No. 11, pp. 1050-1063

This Version is available at:

<https://hdl.handle.net/10419/196409>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/4.0/>

THE IMPACT OF QUALITY CULTURE AND LEADERSHIP ON CUSTOMER RELATIONSHIP IN ORGANIZATIONS FROM THE ROMANIAN METAL CONSTRUCTION INDUSTRY

Liviu Ilieș¹, Horațiu Cătălin Sălăgean² and Ioana Beleiu^{3*}
¹⁾²⁾³⁾ Babeș-Bolyai University, Cluj-Napoca, Romania

Please cite this article as:

Ilieș, L., Sălăgean, H.C. and Beleiu, I., 2017. The Impact of Quality Culture and Leadership on Customer Relationship in Organizations from the Romanian Metal Construction Industry. *Amfiteatru Economic*, 19 (Special No. 11), pp. 1050-1063.

Article History

Received: 2 June 2017
Revised: 15 August 2017
Accepted: 28 September 2017

Abstract

The current paper is part of a wider research that has as general objective to develop an evaluation and analysis model for the total quality management (TQM) system to identify best practices that determine its' performance, in order to improve it. The research is focused on organizations from the metal construction industry. The sample consists of organizations from Romania operating in the before mentioned area, which have a consolidated position in the market and conducted efforts in implementing TQM systems. The data analysis was conducted through quantitative research methods, based on statistical processing. Regarding the research tools used for data collection, a survey based on a questionnaire was employed. The designed and pre-tested questionnaire contains items based on factors considered important in analysing and evaluating the TQM system, based on the evaluation criteria of the EFQM European Excellence Award (European Foundation for Quality Management), which provides credibility to the research. The objective of the present research is analysing the components of the TQM system, leadership and quality culture, in companies from the Romanian metal construction industry and their influence on customer relationship. The empirical research was conducted between September 2014 and August 2015, and the study is based on questioning 263 managers from 23 companies. The main research results show a very strong positive relation between the variables leadership, quality culture and customer relationship. It was also noticed that the management team of the analysed organizations is concerned with the continuous quality improvement process and that efforts are made for satisfying and exceeding customers' expectations, thus existing the premises for creating customers' dedicated organizations and achieving long term excellence. A surprising result concerning the leadership style favourable to quality culture's development was obtained. The managers from the analysed organizations which have an authoritarian leadership style favour the development of a quality culture more than managers who adopt a democratic style.

Keywords: total quality management system, quality management, quality culture, leadership, customer relationship.

JEL Classification: M14; L21; L25.

* Corresponding author, **Ioana Beleiu** – ioana.beleiu@econ.ubbcluj.ro

Introduction

In the current economic context, characterized by change and dynamism (Jiménez-Jiménez et al., 2015), quality has become a source of competitive advantage. Organizations that aim to achieve excellence should perceive quality as something natural, without which they cannot function, just as with human and financial resources. Nowadays, clients are more and more informed, they have standards and expectations increasingly diverse and sophisticated (van Schoten et al., 2016), the reason why quality and the total quality management system became critical success factors for any organization within the business environment. Organizations need to focus on customer satisfaction, knowing that satisfied customers are vital in ensuring competitive advantage. On the other hand, it is accepted in the literature that TQM initiatives determine improved organizational performance and increased competitiveness (Bou-Llusar et al., 2009), having an essential role in the process of meeting customers' needs and generating profit (Chaudary, Zafar and Salman, 2015). Based on these facts, we believe that awareness of quality's importance in the activity of an organization is the fundamental prerequisite for surviving in the market and achieving business excellence. According to Ferdowsian (2016), an organization should pay attention to all factors that determine excellence achievement and consider the impact of each excellence criteria.

The TQM system represents a set of interdependent elements forming a coherent whole and is used to formulate clear and precise policies and quality objectives required for the proper administration of continuous quality improvement programs to ensure customer satisfaction. The quality management system represents a part of the management system with regard to quality, according to ISO9000:2015 (ISO, 2015). The TQM system components represent essential aspects, found in the approaches to excellence models, such as EFQM.

The article is structured in three sections. The first section includes a literature review on the TQM system components, followed by a section that presents the methodology used in carrying out the empirical research and a practical part where the results obtained in the study regarding the impact of leadership and quality culture on customer relationship, are discussed. The paper ends with a set of conclusions and recommendations. The objective of the present research is analysing the components of the TQM system, leadership and quality culture, in companies from the Romanian metal construction industry and their influence on customer relationship.

1. Literature review on the TQM system's components

There are different opinions in the literature regarding the components or elements of the TQM system. For example, Dahlgard, Kristensen and Kanji (2007, p.17) consider the next four pillars of the TQM foundation: the top management involvement, focus on customers and employees, continuous improvement, involving all members of the organization. Another approach (Ilieş, 2003; Ilieş and Crişan, 2011) identifies the following components of the TQM system: leadership, quality culture, and communication. In the present research, we focus on the first two components of the TQM system.

Although some TQM principles and practices differ between companies and industries, there is an accepted opinion on the importance of leadership in top management concerning the implementation of the concept. Leadership, as a component of TQM system, refers to the top management of the organization, namely to the top management involvement, to

how it understands and relates to the continuous improvement processes within the organization. Leadership is the ability, the art and the process of influencing others, to get them to work better, more efficiently to achieve the common goals of the organization (Ilieș and Crișan, 2011). Also, leadership refers to the way top management understands the importance of quality and gets involved in delivering the quality message to the entire organization. Leadership has the responsibility for setting the strategic direction and the systems that facilitate a high organizational performance (Sabella, Kashou and Omran, 2014). According to Juran (1964), leadership cannot be delegated.

Companies' success concerning the well-functioning of total quality systems is mainly caused by a strong leadership. TQM requires a profound and transformational organizational change, which involves the modification of the whole way of thinking and acting within the organization. The way top management acts when managing this change is the key to successfully implementing TQM. Regarding the TQM principles, according to Ilieș and Crișan (2011), good leadership:

- is focused on quality, on knowing the details and the performance level of the company, is involved in educating, training the employees, recognizes their merits;
- proves determination in making changes possible, using all opportunities to promote quality;
- sets courageous objectives, seeking new opportunities for profitable growth by directing all employees to develop new methods and processes, not only to improve old ones;
- clearly defines how to meet consumers' requirements and quality improvement goals;
- shares values - implementing changes concerning quality in the organizational culture;
- supports horizontal structures that allow more authority to lower levels;
- maintains regular contact with employees, customers and suppliers.

According to Wu (2015), culture can manifest itself in the form of declared values and practices, but its essence is a coherent set of beliefs that influence the way of action. Quality culture, as a component of the TQM system, includes and integrates all activities, processes and organizational systems, creating a way of organizing that requires the involvement of all employees in the continuous quality improvement process to create an organization dedicated to the customer and achieve long-term excellence. Therefore, we can state that TQM is an organizational culture model that aims customer orientation of all activities and organizational processes, in other words, is a holistic approach to quality (Ilieș, 2003). Quality culture refers to orienting the organizational culture towards the TQM requests. Regarding the components of organizational culture, quality culture involves creating or changing, shaping the beliefs and values of the organization's members on the awareness that everyone must do things right the first time and every time, and that all the organizational activity must be improved continuously by involving each member of the organization in achieving and improving quality. The process of continuous improvement is reflected in the performance and the market competitiveness. These beliefs and values determine quality-oriented attitudes and behaviours, such as customer focus, accountability, and involvement in quality achievement.

In this context, it is necessary to clarify key issues related to the concept of customer relationship. The fundamental principle of TQM is customer orientation, necessary for knowing the needs and expectations of the clients and for being able to satisfy them within required conditions. Dale (2003) states that organizations must understand that they depend

on customers and therefore, should make every effort to know and understand their current and future needs. Ngambi and Nkemkiafu (2015) believe that customer orientation maintains the management team aware of changes occurring in the environment and provides the information necessary to adapt products. Other authors perceive aspects concerning customers in a more complex manner. There are approaches according to which it is not enough for the client that the organization provides an expected level of quality, knowing that this does not create satisfaction, but only eliminates dissatisfaction. According to this approach, customers' satisfaction requires more, a quality with added value (Dahlgaard, Kristensen and Kanji, 2007, p.23). Regardless of the approach, customer relationship has a major influence on customer satisfaction, one of the main dimensions that characterize business excellence.

The various definitions and approaches existing in the literature concerning TQM, TQM principles and TQM system's components suggest that it is not only about specific tools and techniques, but quality itself represents a management philosophy that underlines models associated with quality awards such as the EFQM Excellence Model (Jiménez-Jiménez et al., 2015; Hemsworth, 2016). The EFQM model was created in 1991 as an evaluation framework and provides a basis for excellence awards for large and medium companies such as European Award for Excellence. The EFQM model has a dynamic character (Gómez-Gómez, Martínez-Costa and Martínez-Lorente, 2016), which indicates that activities referring to innovation, learning and creativity drive and reinforce the impact that enablers (leadership, policy and strategy, people, partnerships and resources, processes) have on the results (people results, customers results, society results, key performance results) (EFQM, 2013), highlighting a cause-effect relationship (Ionciă et al., 2009). The EFQM model is a practical tool that shows organizations' position in delivering business excellence and facilitates the identification of weaknesses and finding appropriate solutions for improvement, thus contributing to increasing organizational performance (van Schoten et al., 2016). As criteria for quality assessment, through a holistic approach to quality, the EFQM model is based on leadership, customer satisfaction, employee satisfaction and business results within the organization (Favaretti et al., 2015). For all these reasons, the EFQM model provides a complete and operational framework, useful as a reference for the effective implementation of TQM philosophy in any type of organization (Calvo-Mora et al., 2015). The same can be said for other excellence awards in the field of quality improvement, among which the most well-known and appreciated are Deming Prize (DP Model) in Japan and Malcolm Baldrige National Quality Award (MBNQA) in the USA.

2. Research methodology

The research presented in this paper is part of a more complex one, whose objective was to develop an evaluation and analysis model for the total quality management system, in the metal construction industry companies from Romania. The specific objectives of the research presented in the current article are:

- analysing the relationship between leadership, enabler criteria in the EFQM Model, and quality culture;
- analysing the customer relationship, variable that can be assigned to the EFQM Excellence Model as a result criterion;
- analysing the influence of leadership and quality culture on customer relationship, expressed and measured as a business excellence dimension.

The sample consists of organizations from Romania operating in the before mentioned area, which have a consolidated position in the market and conducted efforts in implementing TQM systems. The empirical research was conducted between September 2014 and August 2015. The research method selected for the study presented in this article is quantitative, based on statistical data processing conducted in two phases. The instrument used for data collection was a questionnaire comprising 40 items that describe the main factors determining the development and successful implementation of TQM systems. They have been selected from the 129 items describing specific factors that determine the TQM systems' performance. The factors analysed in the questionnaire are then grouped in aggregated variables, as presented below. For assessing these factors, groups of questions requesting answers on a Likert scale from 1 to 5 were employed (where: 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree).

The data analysis was conducted in two phases:

Phase 1: Analysis of the variables leadership, quality culture and customer relationship, factor that can influence customer satisfaction.

The components of the TQM system and the factor considered to be a business excellence dimension were coded in the following statistical variables:

- *leadership* is an aggregated variable, composed of 11 items and refers to the management of the organization, its' involvement in defining the vision of the organization, leading, training, supporting, providing employees with the necessary tools and resources for properly conducting activities. It also refers to the employees' awareness of quality's importance and their involvement in quality improvement, investigates how the management structure understands and relates to the processes of continuous improvement, the involvement in spreading the message of continuous quality improvement at organizational level;

- *quality culture* is an aggregated variable, composed of 15 items and refers to investigating the existence of preconditions for an internal environment conducive to the development, implementation and successful functioning of TQM system. This variable is focused on management's concerns regarding the process of continuous quality improvement and investigates the requests for creating customer-oriented organizations, to achieve long-term excellence;

- *customer relationship* is an aggregated variable, composed of 14 items which describe how organizations interact with customers, the extent to which are struggling to identify, understand and satisfy or exceed customers' expectations, the extent to which the analysed organizations are customer-oriented;

- *management style* is a dichotomous variable, nominal, which describes the management style adopted by the investigated managers, namely, a democratic or authoritarian style.

Reliability analyses were performed on the variables using values of the internal consistency coefficient alpha Cronbach to provide a high degree of accuracy, reliability, consistency and stability to the measured scales.

Phase 2: Analysis of the relationship between the variables leadership, quality culture, customer relationship, management style.

The hypotheses tested for the analysed organizations, are:

- H1: There is a strong positive association between the variable leadership and the quality culture.
- H2: A democratic leadership style is favourable to the development of the quality culture.
- H3: The variation of the customer relationship is mainly explained by the variation of the analysed components of the TQM system, leadership and quality culture.

The research is based on a directed sample. Out of 53 companies that were contacted, 23 companies operating in the Romanian metal construction industry, which have implemented or are in the process of implementing TQM systems, showed interest in participating in the study. The sample does not allow establishing generally accepted statistical and mathematical facts, but analyzing the situation of the studied companies. The analyzed organizations can be categorized based on the number of employees as follows:

- between 50 and 249 employees - 16 companies (70%);
- between 250 and 499 employees - 4 companies (17%);
- more than 500 employees - 3 companies (13%).

Data analysis is based on a number of 263 valid questionnaires, applied in the investigated companies. Respondents are managers at the bottom of the hierarchical pyramid in a percentage of 81%, followed by middle managers with a share of 16% and top managers (3%). We mention that we have tried to include in the research a high and diverse number of employees in management positions, aiming to capture how the members of the analyzed organizations relate to the TQM values and principles, which require the involvement of all members of an organization in understanding the importance of quality and continuous improvement. Regarding the distribution of the sample according to respondents' age, it can be observed that the largest share in the sample is recorded by managers aged between 30 and 39 years old (57.6%), followed by managers aged between 40 and 49 (33.4%). Managers aged between 21 and 29 years old have a share in the structure of the sample of 6.2% and managers aged between 50 and 59 have a share of 2.8%. The high frequency of managers aged between 30 and 49 involved in the study can be explained on one hand by a general factor since the employees are part of the employed population, and on another hand by a particular factor referring to the high-tech industry's competitiveness that requires managers with high competence in engineering and information systems field, always willing to adapt to technological changes.

3. Data analysis and interpretation

Phase 1: Analysis of the variables leadership, quality culture and customer relationship, factor that can influence customer satisfaction.

First, information that characterizes the studied variables is analysed. The variable leadership registers an average value of 4.1 which suggests that within the studied organizations, leadership is characterized by a high level of involvement in terms of training, support and employees' awareness regarding the importance of quality's

improvement. Managers are not involved only formally in developing and spreading the message of continuous quality improvement at the organizational level. Thus, we can state that the analysed organizations reach the TQM requests regarding leadership (as a TQM principle and a component of the TQM system), but there are also improvement possibilities for this dimension.

The variable quality culture registers within the analysed organizations a high average value of 4.11; that suggests the existence of an internal environment favourable for the development of a quality culture. We can state that the management team is concerned with continuous quality improvement, creating the premises for client oriented organizations that aim to achieve long-term excellence. Also, the possibility of improving this dimension can be considered.

The variable customer relationship registers a high average of 4.04, which means that the analysed organizations make efforts to identify, understand and satisfy customers' needs or exceed their expectations. So, organizations are characterized as customer-oriented.

Regarding the declared management style, a majority of 64.6% managers consider that they have a democratic style, and 35.4% declared as having a more authoritarian style (table no. 1).

Table no. 1: Frequency table for the variable management style

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	authoritarian style	93	35,4	35,4	35,4
	democratic style	170	64,6	64,6	100,0
	Total	263	100,0	100,0	

Source: Own research

Phase 2: Analysis of the relationship between the variables leadership, quality culture, customer relationship, management style.

Further on we want to check whether there is a correlation, a linear relationship between the studied variables. In this context, we analyse the relationship between the variables referring to the TQM system's components, leadership and quality culture. We have analysed the presence of a correlation between the studied variables using the Pearson correlation coefficient (table no. 2). The Pearson correlation coefficient describes the power of association between two variables and takes values between [-1; 1], which means that a positive value of the coefficient shows the existence of a positive correlation between the two variables, suggesting that as one variable increases, the values of the other variable increase as well. In reverse, if the coefficient takes negative values it is noticed that as one variable increases the other one decreases.

Before calculating the Pearson coefficient, it is necessary to verify whether the variables are quantitative, are normally distributed, and the relationship between them is linear. The first condition is fulfilled, and the condition of normal distribution is verified by applying the test Kolmogorov-Zmirnov, where for the variable leadership K-S $z = 0.251$, $p > 0.05$, and for the variable quality culture K-S $z = 0.424$, $p > 0.05$. The third condition is checked through a visual inspection of the point cloud, which can be observed in the figure no. 1, where it can be observed that the relationship between the two variables is linear and positive. From table no. 2 we can note that there is a very strong positive correlation between the variables leadership and quality culture, $r_{\text{Pearson}}(263) = 0.925$, $p < 0.01$, which means that, as the leadership improves within the studied organizations, quality

culture also improves. The r Pearson coefficient is a measure of the effect, in this regard, the relationship between the variables leadership and quality culture is very strong. We can state that hypothesis H1, according to which within the organizations there is a very strong and positive relationship between leadership and quality culture, is confirmed.

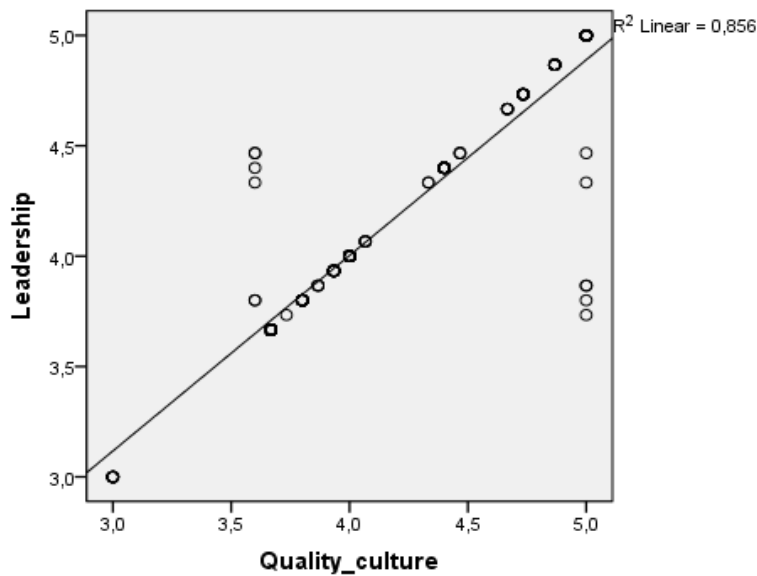


Figure no. 1: Relationship between the variables leadership and quality culture
 Source: Own research

Table no. 2: Correlation table between the variables „quality culture” and „leadership”

		Leadership	Quality culture
Leadership	Pearson Correlation	1	,925**
	Sig. (1-tailed)		,000
	N	263	263
Quality culture	Pearson Correlation	,925**	1
	Sig. (1-tailed)	,000	
	N	263	263

** . Correlation is significant at the 0.01 level (1-tailed).

Source: Own research

Further on, we want to see whether within the analysed organizations, a more democratic leadership style is favourable to the development of the quality culture. According to the literature, this hypothesis should be confirmed, because the transformation, change and migration of organizational culture towards a culture of quality requires the involvement of organizational management, particularly top management to convince every member of the organization about the importance of doing things right the first time and every time. This change is favoured more by a democratic management style rather than by an authoritarian one.

In the table no. 3 one can observe that the managers that answered the questionnaire and declared to be more authoritarian register a higher mean value to the variable quality culture, compared to those that declared to have a democratic management style. It is a surprising result. We continue by verifying in the table no. 4 if there are statistically significant differences between means, if there are significant differences depending on the management style in terms of favouring the development of the quality culture in organizations. In this regard, we observe the result of the Levene homogeneity of variances test: $F(261) = 5.357$, $p = 0.021 < 0.05$, meaning that test F is statistically significant. So, variances are not equal which means that we can interpret the test t results in the case of not assuming the equality of variances. It can be observed that $t(162.643) = 3.353$, $p = 0.0005$ (one tailed, unidirectional hypothesis), meaning that there are significant differences between means. Managers from the analysed organizations, which have an authoritarian style, registered on average significantly higher scores in terms of favourability for developing a culture of quality, compared to managers with a democratic style.

Table no. 3: Test t for independent samples: Group Statistics

Management style		N	Mean	Std. Deviation	Std. Error Mean
Quality culture	authoritarian style	93	4,25	,534	,055
	democratic style	170	4,03	,446	,034

Source: Own research

Table no. 4: Test t for independent samples

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Quality culture	Equal variances assumed	5,357	,021	3,534	261	,000	,218	,062	,097	,340
	Equal variances not assumed			3,353	162,643	,001	,218	,065	,090	,347

Source: Own research

The results obtained above are surprising because we would expect that managers with a democratic style to record higher scores in terms of favourability for developing a culture of quality and not vice versa, but we consider that one of the principal cause that led to these results is the cultural influence (national culture influencing organizational culture). So, based on these results we state that hypothesis H2 according to which, within the analysed organizations, a more democratic leadership style is favourable to the development of the quality culture is rejected.

Next, we analyse whether in the organizations there is a strong positive relation between the variables customer relationship, leadership and quality culture. For this purpose, first we first analyse the point cloud, where it can be observed that the relationship between

variables is linear and positive. So, we can calculate the Pearson correlation coefficient. That there is a strong positive relation between the variables customer relationship and leadership, $r_{\text{Pearson}}(263) = 0.724$, $p < 0.01$, meaning that, as the leadership improves within the organizations, the customer relationship also improves. Also, there is a strong positive relation between the variables customer relationship and quality culture, $r_{\text{Pearson}}(263) = 0.785$, $p < 0.01$, meaning that, as the quality culture improves within the organizations, the customer relationship also improves. The r_{Pearson} coefficient is a measure of the effect, and the relation between the variables customer relationship, leadership and quality culture is positive, linear and strong.

According to the results below, the factor variable customer relationship improves when the variables leadership and quality culture are improving, but we do not know the extent to which the variation of the two variables, leadership and quality culture, influences the variation of the factor, customer relationship. We check the predictability level of improving the variable customer relationship, based on variations in improving the variables leadership and quality culture. For this, we applied the simple linear regression separately for the two independent variables, leadership and quality culture. In the table no. 5 one can observe the first information about the efficiency of the applied regression model, more exactly the value of the coefficient $R^2_{\text{adjusted}} = 0.522$, which shows that the variable leadership influences in a percentage of 52.2% the variable customer relationship. We can state that 52.2% of the customer relationship's variance can be explained by the variance of the leadership.

Table no. 5: Variables leadership and customer relationship: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,724 ^a	,524	,522	,438

- a. Predictors: (Constant), Leadership
- b. Dependent Variable: Customer relationship

Source: Own research

In the table no. 6 we are interested in the values obtained for test F which verifies if the regression line is significantly different from zero, so $F(1, 261) = 287.103$, $p < 0.001$, resulting that test F is significant. The high level of this test shows that the variable leadership is relevant in explaining the variance of the variable customer relationship.

Table no. 6: Variables leadership and customer relationship: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	55,131	1	55,131	287,103	,000 ^b
	Residual	50,119	261	,192		
	Total	105,250	262			

- a. Dependent Variable: Customer relationship
- b. Predictors: (Constant), Leadership

Source: Own research

Based on the information in the table no. 7 we can predict the customer relationship's variance depending on leadership. So, if we make the prediction based on the standardized coefficient Beta, we state that when leadership improves with a standard deviation, the customer relationship improves with 0.724 standard deviations.

Table no. 7: Variables leadership and customer relationship: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,028	,238		,118	,906
	Leadership	,979	,058	,724	16,944	,000

a. Dependent Variable: Customer relationship

Source: Own research

We analyse the next regression for verifying the prediction level of improving the customer relationship based on the variance of an improved quality culture. From the table no. 8 one can observe that the value of the $R^2_{adjusted}$ coefficient is 0.615, which shows that, in general, the quality culture influences the customer relationship in a percentage of 61.5%. We can state that 61.5% of the customer relationship's variance can be explained by the variance of the quality culture.

Table no. 8: Variables quality culture and customer relationship: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,785 ^a	,616	,615	,393

a. Predictors: (Constant), quality culture

b. Dependent Variable: customer relationship

Source: Own research

The variable quality culture is relevant in explaining the variance of the variable customer relationship, according to the table no. 9 (the value of test $F(1, 261) = 419.535$, $p < 0.001$, resulting that test F is significant and has a very high value).

Table no. 9: Variables quality culture and customer relationship: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	64,884	1	64,884	419,535	,000 ^b
	Residual	40,366	261	,155		
	Total	105,250	262			

a. Dependent Variable: customer relationship

b. Predictors: (Constant), quality culture

Source: Own research

The table no. 10 provides the necessary information for making predictions regarding customer relationship's variance based on the variable quality culture. So, based on the standardized coefficient Beta, we state that, when quality culture improves with a standard deviation, the customer relationship improves with 0.785 standard deviations.

Table no. 10: Variables quality culture and customer relationship: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,135	,205		-,660	,510
	quality culture	1,017	,050	,785	20,483	,000

a. Dependent Variable: customer relationship

Source: Own research

The hypothesis H3 according to which, within the analysed organizations the variance of the customer relationship variable is explained mostly by the variance of the TQM system's components (leadership and quality culture) is confirmed.

Conclusions

In this paper results on the relationship between the TQM system's components, leadership and quality culture have been presented. Their impact on customer relationship that is expressed and measured, in our research, as a dimension of business excellence in the metal construction industry organizations in Romania has been also presented. The studied variables, leadership, quality culture and customer relationship record high means, which indicate that within the analysed organizations, leadership is characterized by a high level of involvement, the management team is interested in the process of continuous quality improvement, existing premises for creating customer-oriented organizations that aim to achieve long-term excellence. Also, the analysed organizations make efforts to identify, understand, meet the needs and exceed customers' expectations, being focused on clients. We obtained surprising results regarding the management style that facilitates the development of a quality culture. The questioned managers which declare to have an authoritarian style obtained on average significantly higher scores relating to the favourability for developing a culture of quality, compared to managers with a democratic style. One of the principal causes that led to these results is the cultural influences, the national culture influencing organizational cultures.

Another result indicates a strong positive correlation between the variables representing TQM system's components (leadership and quality culture), and between them and the variable customer relationship. Thus, as leadership and/or quality culture improve within organizations, the customer relationship improves. The obtained results allow us to state that leadership is in a very close dependency with the customer relationship variable. In this regard, we recommend the management team, and not only, to pay particular attention to the way processes take place within the organization, especially the process of continuous quality improvement, because the customer relationship depends on it. A superficial involvement in dealing with customers or the lack of interest from the management structure causes significantly negative effects on customer satisfaction.

Quality culture is also in a very close dependency relationship with customer relationship, confirming the assumptions in the literature. We recommend the management team to pay particular attention to the creation and development of a quality culture in organizations because it explains and determines the improvement of customer relationship, influencing the achievement of business excellence. An organizational culture that is not focused on quality can cause negative effects on customer relationship and can reduce the degree of customer satisfaction.

One of the research limits is reduce number of investigated companies. On the other hand, the distribution of the questionnaire was based on obtaining prior approval from the analysed companies, which were asked for support in conducting the research. The directed sample does not allow generalization of results, the article presenting opinions of managers regarding the situation of the analysed companies. However, given the high rate of responses received from managers, we consider the results relevant for the research objective and useful both to companies from the analysed industrial field and other fields as

well. The research can be continued through complex statistical and mathematical modelling to analyse the factorial multi-collinearity. Another future research direction is continuing to analyse the components of the TQM system, aiming to approach the TQM system integration with other systems such as the environmental management.

References

- Bou-Llusar, J.C., Escrig-Tena, A.B., Roca-Puig, V. and Beltran-Martin, I., 2009. An empirical assessment of the EFQM Excellence Model: Evaluation as a TQM framework relative to the MBNQA Model. *Journal of Operations Management*, 27, pp. 1-22.
- Calvo-Mora, A., Picón-Berjoyo, A., Ruiz-Moreno, C. and Cauzo-Bottala, L., 2015. Contextual and mediation analysis between TQM critical factors and organisational results in the EFQM Excellence Model framework. *International Journal of Production Research*, 53(7), pp.2186-2201.
- Chaudary, S., Zafar, S. and Salman, M., 2015. Does total quality management still shine? Re-examining the total quality management effect on financial performance. *Total Quality Management & Business Excellence*, 26(7-8), pp.811-824.
- Dahlgaard, J.J., Kristensen, K. and Kanji, G.K., 2007. *Fundamentals of Total Quality Management*. London: Taylor & Francis.
- Dale, B.G., 2003. *Managing quality*. 4th ed. Oxford: Blackwell Publishers Ltd.
- EFQM, 2013. *EFQM User Guide - Benchmarking Guidelines*. Brussels: EFQM.
- Favaretti, C., De Pieri, P., Torri, E., Guarrera, G., Fontana, F., Debiasi, F. and Flor, L., 2015. An EFQM excellence model for integrated healthcare governance. *International Journal of Health Care Quality Assurance*, 28(2), pp.156-172.
- Ferdowsian, M.C., 2016. Total business excellence – a new management model for operationalizing excellence. *International Journal of Quality & Reliability Management*, 33(7), pp. 942–984.
- Gómez-Gómez, J., Martínez-Costa, M. and Martínez-Lorente, A.R., 2016. Weighting the dimensions in models of excellence – a critical review from a business perspective. *Measuring Business Excellence*, 20(3), pp.79 – 90.
- Hemsworth, D., 2016. An Empirical Assessment Of The EFQM Excellence Model In Purchasing. *International Business & Economics Research Journal*, 15(4), pp.127-146.
- Ilieș, L., 2003. *Management calității totale*. Cluj-Napoca: Dacia.
- Ilieș, L. and Crișan, E., 2011. *Managementul calității totale*. Cluj-Napoca: Risoprint.
- Ionciă, M., Negoită, I.M., Petrescu, E.C. and Ionciă, D., 2009. Using the European Model of Total Quality Management to Assess the Performance of Organisations. Case Study on Educational Services. *Amfiteatru Economic*, 11(26), pp.402-411.
- ISO, 2015. *Quality management systems — Fundamentals and vocabulary*. [online] Available at: <<https://www.iso.org/obp/ui/#iso:std:iso:9000:ed-4:v1:en/>> [Accessed 15 September 2016].
- Jiménez-Jiménez, D., Martínez-Costa, M., Martínez-Lorente, A. and Rabeh H. A. D., 2015. Total quality management performance in multinational companies - A learning perspective. *The TQM Journal*, 27(3), pp.328-340.

- Juran, J.M., 1964. *The two worlds of quality control*. Selected Papers n° 8. Southington: TPOK/Juran Institute.
- Ngambi, M.T. and Nkemkiafu, A.G., 2015. The Impact of Total Quality Management on Firm's Organizational Performance. *American Journal of Management*, 15(4), pp.69-85.
- Sabella, A., Kashou, R. and Omran, O., 2014. Quality management practices and their relationship to organizational performance. *International Journal of Operations & Production Management*, 34(12), pp.1487-1505.
- van Schoten, S., de Blok, C., Spreeuwenberg, P., Groenewegen, P. and Wagner, C., 2016. The EFQM Model as a framework for total quality management in healthcare - Results of a longitudinal quantitative study. *International Journal of Operations & Production Management*, 36(8), pp.901-922.
- Wu, S.J., 2015. The impact of quality culture on quality management practices and performance in Chinese manufacturing firms. *International Journal of Quality & Reliability Management*, 32(8), pp.799-814.