



**EVALUATING TOTAL QUALITY MANAGEMENT (TQM) IMPLEMENTATION IN
IKCO'S SALE ORGANIZATION-IRAN**

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ABSTRACT

The purpose of the present study was to explore total quality management (TQM) implementation in the sale organization of Iran Khodro (IKCO) Company of Iran. Doing so, the study aimed to improve services providing and customers' satisfaction by propounding quality principles in this sector. The statistical sample included 139 related experts. To gather the required data, a questionnaire containing 7-folded dimensions of TQM considering "project management" and "information technology context" was employed. The obtained data was analyzed using single sample t-test through SPSS Software. As found, the organization's readiness in 9-folded dimensions of TQM other than "focus on customer and customer-orientation" was higher than average level and statistically significant. Moreover, Friedman test was used to rank the dimensions showing "information technology context" at the first rank.

Keywords: Total Quality Management, IKCO's, Sale Organization

INTRODUCTION

From 1980, when the concept of total quality management (TQM) was defined by Deming (1986), Crosby (1979) and Juran (1986), researchers widely achieved positive effects of TQM methods in general efficiency and

performance of companies. TQM has a high potential to investigate quality problems in a wide spectrum of industry and organizational performance improvement (Jackson, 2000). TQM is an appropriate way to achieve

productivity and efficiency, leading to success in long term. The effect of TQM activities has been proved on innovation in organization's services (Bon & Mustafa, 2013) and organizational performance (Samson & Terziovski, 1999; Kayanak, 2003). During the tow last decades, TQM is a quality improvement approach for company to enhance performance in terms of quality and innovation. Those organizations using TQM enjoy many advantages such as higher-quality products, higher customers' satisfaction, cost reduction, financial improvement, innovation, and higher employees' satisfaction (Prajogo D. I. & Sohal, 2001). TQM development has been considered as a competitive advantage making organizations more efficient and innovative. The purpose of such continuous endeavor is to increase customer's satisfaction, increase quality, decrease cost, or limit some of costs (Souise, 2000).

In general, many studies have revealed that there is a positive relation between organizational results and TQM (Zehir, 2012). TQM is not a final improvement process but it serves for observing improvement and achieving it as a constant process (Farzinapour et al., 2014). However, the strong and clear relation between products' quality and customers' satisfaction

and productivity has been proved (Dikova, 2004). Therefore, the objective of organizations should be producing high-quality goods and services to achieve customers' satisfaction and remain in competitive space.

Scholtes (1993) stated that customers and their needs form organizations and their activities. The basic assumption of TQM is to achieve customer's satisfaction and constant improvement. Therefore, successful TQM implementation involves identifying key variables of customers' satisfaction (Soltani, 2004). In the 1990s, various studies were conducted on TQM factors (Zhang et al., 2002; Antony et al., 2000). However, the reported results show that there is no instrument to measure TQM (Santos-Vijande & Alvarez-Gonzalez, 2007). Gobadian and Gallear (1997) referred that TQM implementation involves specific requirements. As evident, TQM programs have been failed occasionally (Noci & Toletti, 2000). Researchers have agreed on the fact that the main item for long-term success of TQM in an organization is its implementation process (Ahire & Rana, 1995; Reger et al., 1994). While, due to the difference of TQM system with other information systems, this systems has its own specific risks. So, it will fail if organizations

do not get ready to face those risks before implementation (Boon et al., 2012). Therefore, it can be concluded that TQM is one of the most important and complex activities that requires new business management methods and new work culture in the entire of organizational process.

Although TQM is not a new technique, there are few Iranian studies on its implementation in various organizations. Accordingly, Iranian organizations have not yet experienced such techniques. TQM is a process that requires some necessary conditions and contexts to be implemented. Hence, it will be fruitful for managers to investigate the readiness level of an organization before implementing TQM.

Iran Khodro Company is one of Iranian leading vehicle manufactures. Due to not using new management approaches such as TQM and not considering quality of services in sale organization, it causes loss of resources, customers' dissatisfaction, profit reduction, and loss of competitive advantage. Therefore, it is highly important to investigate the level of the sale organization's readiness to implement TQM regarding each of basic concepts of TQM. It is due to the fact that constantly following TQM principles, companies can maintain their competitive advantage in long term

through adjustment with customers' needs. On the other hand, given to the valid documents and evidences available in customer relation management (CRM), weak sale service of Iran Khodro's sale organization causes customers' dissatisfaction. Also, since meeting current needs of customers and absorb new customers cause to foster competitive leverage to acquire benefit and protect organization's life seems necessary, and with respect to the effect of TQM system on customers' satisfaction, the present paper tends to evaluate the level of the considered company's readiness to implement TQM to improve its sale organization's activities and services. Given to the importance of TQM and its establishment in the sale organization of ICKO, the research question can be formulated as following:

To what extent sale organization of ICKO is ready to implement TQM in terms of its dimensions?

RELATED LITRATURE

Various definitions have been proposed for TQM. TQM is a wide endeavor to increase customers' satisfaction, employees' satisfaction, and cost efficiency with constant performance improvement (Burati *et al.*, 1993). For the first time, Deming (1988) stated that the objective of TQM is to achieve

customers' satisfaction without increasing cost with the guarantee of perfect work. He also stated that TQM aims to prevent defect (instead of detecting them) and constantly improve the process.

TQM is a quality-focused management approach of an organization which is based on the participation of all members of the organization to achieve long term success through customers' satisfaction (International Standard Organization, 2005). TQM is a philosophy committed to customers' satisfaction and constant improvement (Srinivasan, 2008). TQM leads to the increase of employees' participation, improvement of relations, increase of production, improvement of quality, increase of customers' satisfaction, decrease of costs due to weakness, and improvement of competitive advantage (Antony et al., 2002). TQM is regarded as a management approach to improve organizational performance improvement (Rahman, 2004). TQM is a philosophy aiming at achieving customers' satisfaction through constant improvement and team work (Chan & Quazi, 2002; Saremi et al., 2009). TQM is also a management approach to improve organizational performance including behavioral and technical issues (Rahman & Bullock, 2005). TQM is a management philosophy following

to integrate organizational functions and focus on meeting customers' needs and organizational objectives (Ehigie & McAndrew, 2005). TQM focuses on employees' participation to control quality in organization (Levy, 2003). The main objective of TQM is to create and maintain competitive advantage. Previously reported studies have shown that TQM causes to achieve competitive advantage through creating better financial performance, improve customers' satisfaction, rapid response to competitors, and improve the quality of products (Shenawy et al., 2007). Briefly, the mission of TQM is to protect organization in evolution stage of organization's life cycle, rooted in constant improvement.

Kanji (2000) considered the causes and necessity of TQM establishment as the modern global competition, customer's satisfaction, employees' sprite improvement, constant improvement, absorbing more customers, encouraging team works, costs minimization, overcoming weaknesses and solving current problems, competing to absorb capital, and promoting a positive culture. TQM is an organizational transformation system. Transformational strategy of this system causes to develop management and statistical methods and

finally, solve problems to allow organization to progress (Hsun & Pin, 2005). Generally, those companies moving towards implementing TQM should make sure of constant quality improvement endeavors in all constituents of organization. Moving towards constant improvement process often begins with accepting one of quality management philosophies such as the principles of Deming, Juran and Crosby (Moister, 2004).

Today, many organizations have implemented TQM to produce competitive advantage (Chan & Quazi, 2002), improve business process of organization (Lau & Idris, 2001), improve products and services (Wadsworth et al., 2002), improve organizational efficacy (Fok et al., 2001), productivity (Radovilski et al., 1996), and achieve reputation (Huang & Lin, 2002). However, there some items which disturb TQM (Seetharaman et al., 2006):

1. Lack of management commitment and perception about quality
2. Inadequate knowledge and improper perception about TQM' efficiency measuring techniques
3. Lack of clarity in instruction and implementation
4. Lack of perception about positive results of constant improvement

5. Ignoring the importance of customers

Researchers have studied various effects of TQM activities on financial and non-financial performance of organizations (Zehir, 2012). These activities include management leadership, the role of quality sector, education, employees' relations, quality information and report, quality management resources, products and service' design, management process, strategic planning, focus on customer, information technology and analysis, and employees' management (Saraph et al., 1989; Prajogo & Sohal, 2003). Based on the data gathered from 8 countries, researchers consider 12 elements vital for TQM implementation. These elements include quality information and report, customer's satisfaction, human resources exploitation, process control, education, management commitment, constant improvement, strategic quality planning, performance measurement, customer-orientation, and communication with suppliers and professional colleagues (Lewis et al., 2006). The necessity of success in TQM is the participation of all the members of organization to introduce new programs, techniques and systems (Picard, 2006). Human resource is the central core of quality philosophy and employees' commitment and participation is necessary for successful

activities and quality programs (Vousas, 2007).

TQM is an approach to constantly improve the quality of products and services through individuals' participation at all organizational levels (Pfau, 1989).

Moreover, the relation between TQM activities and the quality of performance is clear and the advocates of TQM show that its well implementation causes to the increase of high-quality products (Zehir, 2012).

For the first time, Sobkowiak and LeBlue (1996) and Pearson and Hagmann (1996) described the key role of IT in TQM (Dewhurst et al., 2003) while Miller (1996) and Counsell (1997) have introduced certain applications of IT in various aspects of TQM. IT is used as an enabling mechanism for daily work. Through the following cases, IT supports TQM (Dewhurst et al., 2003):

1. Improving customer and relation with supplier
2. Increasing control process
3. Facilitating team work
4. Improving design process and skills

5. Using preventive maintenance and repair
6. Introducing ISO 9001
7. Measuring quality costs
8. Improving decision making process in quality sector

The first step of implementing TQM to prevent the loss of resources is to explain project (Leavitt & Nunn, 1994). Researchers have revealed that combining project management and TQM leads to success (Hides et al., 2000). To implement TQM in which all processes and endeavors related to project require project management; such that, manger should make sure that optimal planning for time, cost and resources as well as project objectives are clearly and properly monitored during the project life cycle (Stanciu et al., 2012).

Now, considering the related literature and identifying the effect of IT and project management on TQM implementation, the dimensions of TQM studied by various researchers are presented in Table 1.

Table 1: TQM dimensions

Superior manger leadership and support	Ahire et al. (1996); Crosby (1979); Deming (1986); Saraph et al (1989); Flynn et al. (1995); MBNQA (2007); Powell (1995); Samson & Terziovski (1999); Kaynak (2003); Dewhurst et al (2003)	A degree based on which superior mangers and leaders determine TQM objectives and provide required resources to improve the quality of activities and evaluate TQM implementation
Relations between employees and education	Deming (1982); Saraph et al (1989); MBNQA (2007); Powell (1995); Samson & Terziovski (1999); Kaynak	Including education and organizational objectives' description, operations and activities of TQM,

	(2003); Dewhurst et al (2003)	TQM instruments, methods and details
Relations and focus on customer	Crosby (1979); Deming (1982); Saraph et al (1989); Flynn et al. (1995); MBNQA (2007); Powell (1995); Samson & Terziovski (1999); Kaynak (2003); Dewhurst et al (2003); (Shenawy et al, 2007)	To achieve a higher level of customers' satisfaction, organization should perceive and study their needs and demands
Strategic planning	MBNQA (2007); Samson & Terziovski (1999); Li et al (2008); Harrington (1997); Garvin (1991); Siam et al (2012); Chen & Chen (2010); Huai (2012); Hung et al (2011); Fotopoulos and Psomas (2009)	The extent of organization's attention to determine long term objectives to improve quality across organization
Information technology context	MBNQA (2007); Samson & Terziovski (1999); Kaynak (2003); Sila and Ebrahimpour (2002); Prajogo and Sohal (2003); Dewhurst et al (2003); Zahedi (1998), Siam et al (2012); Salegna and Fazel (2000); Amar and Zain (2002)	A degree to which information and data are analyzed to improve TQM performance and implementation
Performance management	MBNQA (2007), Wakefield (2009); Saraph et al (1989); Flynn et al (1995); Kaynak (2003); Bon & Mustafa (2013); Zehir et (2012); Kaynak (2003)	Facilitating establishing communication between employees and supervisors and creating more desirable environment and more commitment relative to the quality of services and a common perception about performance improvement and its actualization method
Project management in TQM	Stanciu et al (2012); Hides et al (2000)	Including planning, organizing, scheduling project, monitoring and receiving feedback, and risk management to prevent crisis and high deviation from planned budget and time
Employees' participation	Taylor and Wright (2003); Vousas (2007); Easton and Jarrel (1998); Mehra et al (2001); Yusuf et al (2007); Zehir et (2012); Prajogo and Cooper (2010)	The effort of participants for mutual benefit
Constant improvement	Shenawy et al (2007); Tari et al (2007); Reed et al (1996); Powell (1995); Wang (2006); Shieh and Wu (2002); Jabnoun and Sedrani (2005); Zehir et (2012)	An effort to constantly improve processes, productions, services, and all organizational services to supply customers' needs, foster competitive leverage, and achieve an optimal level of fulfilling work regarding variable environmental conditions

Theoretical Framework and Conceptual Model

The efficiency of TQM implementation includes definition and employment of several key elements (Bayazity & Karpak,

2007). Figure 1 shows the research conceptual model based on 7-folded indices of TQM. Additionally, the index of IT context and TQM project management are considered as independent variable. In the

study, the level of readiness of ICKO's sale organization to implement TQM is

investigated based on the presented conceptual model.

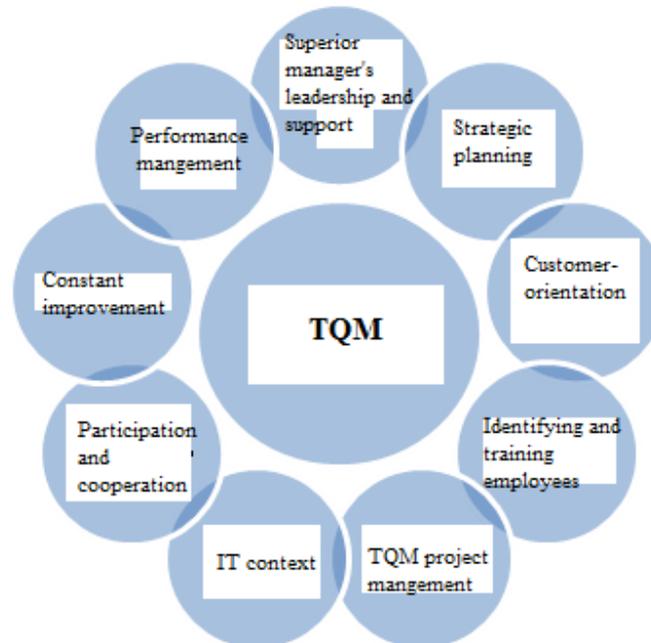


Figure 1: The research conceptual model

The research hypotheses are as following:

1. The level of the organization's readiness to implement TQM is desirable in terms of superior manager's leadership and support.
2. The level of the organization's readiness to implement TQM is desirable in terms of strategic planning.
3. The level of the organization's readiness to implement TQM is desirable in terms of focus on customer and customer-orientation.
4. The level of the organization's readiness to implement TQM is

desirable in terms of identifying and training employees.

5. The level of the organization's readiness to implement TQM is desirable in terms of project management.
6. The level of the organization's readiness to implement TQM is desirable in terms of participation and cooperation.
7. The level of the organization's readiness to implement TQM is desirable in terms of constant improvement.

8. The level of the organization's readiness to implement TQM is desirable in terms of performance management.
9. The level of the organization's readiness to implement TQM is desirable in terms of IT context.

METHODOLOGY

The present research was an applied study using descriptive data gathering method. The statistical population included sale organization of Iran Khodro Company including sale management, regions management, delivery management, infrastructure management, and accounting management. Using Morgan's Table and convenience sampling method, 220 people were selected as the statistical sample. Out of this number, 161 people completed distributed questionnaires and the final sample size was determined 161. To gather the required data, a standard questionnaire of U.S. Federal Quality Institutes regarding TQM criteria was employed. This questionnaire consisted of 7 main TQM criteria in addition to two criteria of TQM project management and IT context (totally 29 items). The validity of the questionnaire was evaluated through polling the opinions of

5 management's experts. Using Cronbach's alpha, the reliability of the questionnaire was also evaluated (0.936).

FINDINGS

In this section, the obtained data are analyzed using inferential statistics including Pearson Correlation Coefficient, Friedman test, and single sample t-test through SPSS Software.

The opinions of the sample were analyzed. Since the employed questionnaire was Likert scale-based and 3 was considered as the interval, all the obtained means were compared with 3. Based on the central limit assumption ($N \geq 30$), the data distribution was normal. To answer the research questions and test the research hypotheses, single sample t-test was run. In this test, it is investigated whether the mean of view or a group of certain numbers (which are usually equal the maximum scores mean=3) is higher or not. The null hypothesis indicates that the obtained mean scores are less than the assumed test mean. It is assumed since the obtained mean scores are greater than the assumed test mean. Given that in this research, we formulated 9 hypotheses, Table 2 presents the results of single sample t-test to measure 9-folded TQM criteria.

Table 2: The results of single sample t-test

Variable	t-value	Mean	Sig.	Confidence interval		Result
				Low limit	High limit	
IT context	11/31	3/67	0/000	+0/555	+0/79	Confirmed
Constant improvement	7/284	3/51	0/000	+0/369	+0/644	Confirmed
Superior manager's leadership and support	5/51	3/47	0/000	+0/304	+0/645	Confirmed
Project management	8/586	3/43	0/000	+0/337	+0/54	Confirmed
Performance management	3/951	3/29	0/000	+0/147	+0/442	Confirmed
Employees' participation	3/795	3/29	0/000	+0/141	+0/448	Confirmed
Strategic planning	3/618	3/27	0/000	+0/122	+0/417	Confirmed
Identifying and training employees	3/652	3/23	0/009	+0/059	+0/408	Confirmed
Focus on customers and customer-orientation	1/809	3/15	0/073	-0/0141	+0/316	No opinion

As shown in Table 2, the numerical mean value of all the criteria are greater than 3 (the mean of Likert spectrum). However, it is not statistically true to only rely on mean value. It is needed to investigate the significance of the observed mean. To investigate the significance, single sample t-test was run at the confidence level of 95%. The p-value (significance value) of all the criteria other than “focus on customer and customer-orientation” (0.000) is less than 0.05. Further, low and high limits of confidence interval of all the criteria other than “focus on customer and customer-orientation” are greater than zero (positive). Also, t-value is greater than 1.96. Therefore, the research hypothesis is confirmed at the confidence level of 95%. So, it can be stated that implementing TQM

by the sale organization of ICKO Company in terms of IT context, constant improvement, superior manager's leadership and support, performance management, strategic planning, employees' participation and cooperation, and identifying and training employees is higher than average level. However, t-value of the criterion of “focus on customer and customer-orientation” (1.81) is less than 1.96 and its confidence interval is one positive and one negative limit. Accordingly, there is the assumption of no opinion possibility and there is a more need of investigation.

Also, Table 3 shows Pearson correlation coefficient of the criteria describing the relation between two variables changing at the range of -1 to +1.

Table 3: Pearson correlation coefficient of TQM criteria

Pearson coefficient	Superior manager's leadership and support	Strategic planning	Focus on customer and customer-orientation	Identifying and training employees	TQM project management	Participation and cooperation	Constant improvement	Performance management	IT context
Superior manager's leadership and support	1	0/611	0/649	0/445	0/213	0/520	0/468	0/528	0/271
Strategic planning	0/611	1	0/639	0/412	0/171	0/611	0/502	0/655	0/397
Focus on customer and customer-orientation	0/649	0/639	1	0/549	0/168	0/560	0/505	0/584	0/382
Identifying and training employees	0/445	0/412	0/549	1	0/297	0/682	0/760	0/368	0/469
TQM project management	0/213	0/171	0/168	0/297	1	0/341	0/279	0/123	0/085
Participation and cooperation	0/520	0/611	0/560	0/682	0/341	1	0/698	0/561	0/289
Constant improvement	0/468	0/502	0/505	0/760	0/279	0/698	1	0/468	0/423
Performance management	0/528	0/655	0/584	0/368	0/123	0/561	0/468	1	0/334
IT context	0/271	0/397	0/382	0/469	0/085	0/289	0/423	0/334	1

Given to Table 3, correlation ranking between the criteria, from the highest to lowest, is identifying and training employees with constant improvement (0.76) and TQM project management and IT context (0.085), respectively. Moreover, the highest correlation pertains to IT context and identifying and training employees (0.469) and the correlation of TQM project

management and identifying and training employees (0.279). the magnitude of these coefficients indicate that in TQM implementation, IT context and TQM project management should be considered, as did in this study. The obtained correlation coefficients between these criteria indicate that there is a statistically significant positive and direct correlation between them. All the

criteria, also, are positively related and correlated with each other, indicating that changing a dimension leads to the change of other dimensions. In spite of the relation between the dimensions, the effect size of them will be different. The correlation between the dimensions indicates that these dimensions have been practical in the organization.

Finally, each of TQM dimensions are ranked using Friedman test (Table 4).

Table 4 indicates the criteria from the highest to the lowest rank. According to the table and with respect to the p-value ($P\text{-value}=0.000<0.05$), it can be stated that the test is significant at the confidence level of 99%.

Table 4: Ranking TQM dimension

Rank	Criterion	Mean
1	IT context	6/22
2	Constant improvement	5/52
3	Superior manager's leadership and support	5/37
4	TQM project management	4/93
5	Performance management	4/92
6	Strategic planning	4/75
7	Focus on customer and customer-orientation	4/53
8	Employees' participation	4/53
9	Identifying and training employees	4/23

CONCLUSION

AND

RECOMMENDATIONS

Obviously, one of the basic prerequisites of employing effective and efficient TQM is to conduct feasibility studies. The purpose of the present study was to explore total quality management (TQM) implementation in sale organization of Iran Khodro (IKCO) Company of Iran. Doing so, the study aimed to improve services providing and customers' satisfaction by propounding quality principles in this sector. To this end, 9 criteria were considered to evaluate TQM. The obtained results revealed that the score of each criterion was higher than the

considered mean (3) and statistically significant. Therefore, there is the possibility of implementing TQM in the sale organization of ICKO Company. Of course, regarding "the focus on customer and customer-orientation", there is a need of more planning and effort. With respect to the research finding, it can be claimed that the sale organization of ICKO Company has desirable conditions to implement TQM.

To explain this finding, we can state that regarding "IT contexts", the sale organization of ICKO Company is at the most desirable status due to educational and software infrastructures. However, designing an

appropriate system to receive quality-related information from all customers, using precise data to evaluate TQM results, providing information and data transmission network to meet operational needs can improve this criterion. Regarding “constant improvement”, the organization is placed at the second rank. It indicates that the tasks of manager, training and directing employees to evaluate and improve work processes are at a desirable level. But, necessary contexts should be provided in order that all employees consider constant improvement of services as a common goal to control and direct constant improvement processes in the organization. Regarding “superior manager’s leadership and support”, the organization is at the third level. However, the research results indicated a relative support of superior managers from TQM programs implementation. However, it is required to provide necessary opportunity to modify and improve TQM managers’ attitude as well as changing managers’ attitude towards TQM efforts more seriously. The level of the readiness of ICKO’s sales organization in terms of “project management” is at the desirable and fourth level. But, controlling the structure of TQM implementation team in the organization should be investigated based on the organization’s actual resources to

easily predict project management for TQM implementation.

“Project management” is placed at the fifth rank. So, it can be concluded that the organizational activities dealing with occupational and behavioral responsibilities of employees and management affairs is at a desirable level. Performance system and necessary efforts should be designed to remove defects and control performance based on functional indices. “Strategic planning” is at the sixth rank. Therefore, there are enough attention to strategic goals of TQM, using strong and precise data in TQM planning, employees and customers’ participation in TQM planning, injecting TQM in the organization’s budget processes. “Focus on customer and customer-orientation” is placed at the seventh rank. According to the hypothesis testing, the organization is not ready in terms of this criterion; that is, the organization has a critical status in terms of customer-orientation. To solve this problem, the organization can design an appropriate system to receive customers’ feedback and evaluate their needs and demands. Furthermore, intra-organizational communications should be directed in line with customers’ expectations to manage communications with customers in a

systematic manner. According to the related experts, the organization's readiness in terms of "employees' participation" is placed at the eighth rank. To improve this criterion, the organization can increase employees' cooperation to fulfill TQM activities and provide necessary opportunities for team works as well as provide the context of flourishing their abilities, creativities, and experiences. Finally, "identifying and training employees" is placed at the last rank. To foster this criterion, it is necessary to train TQM in the organization through allocating necessary capital.

In general, in ICKO's sale organization, managers should pay more attention and effort to remove weaknesses of the organization with the help of customers and provide special facilities for them to increase their satisfaction.

As the research findings revealed, superior managers of ICKO's sale organization can take more serious actions to enhance the quality of service providing to customers and gain higher profit. However, some factors may prohibit TQM implementation in the organization which are recommended to be investigated by further studies.

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