

APPLICATION OF TOTAL QUALITY MANAGEMENT PRINCIPLES IN SMALL AND MEDIUM FIRMS

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Abstract :

Small and medium enterprises play an essential and important role in economic development and social development in any country. Small and medium enterprises are found in every economy, both advanced industrialized and developing countries. In every economy there are only a few large enterprises, supported by a large number of small and medium enterprises, which explains why 90 % of enterprises are small or medium in size. The problem with these enterprises, especially in developing countries, is that they are a real part of the economy, and the experts call them the informal sector. Because they are managed by their own owners and they are often family businesses, their success therefore depends on the capability of the owners. And, generally, the owners are weak in terms of education, motivation to explore opportunities, and access to technology. This study focuses on the ability of these enterprises in competition, especially with globalization. The researcher has used the idea of total quality management (TQM) to measure how deeply the owners of these enterprises are applying TQM and its principles. The study was conducted in Riyadh city. TQM has been recognized as a successful management philosophy in the manufacturing and service industries. The researcher has selected six main principles in the study. They are: focus on customer, continuous improvement, making decisions based on facts, participation of all stakeholders, team approach, and error preventions. The researcher designed a questionnaire containing three major points: the first point is the personal data like the age, education and the experience; the second point is relates to TQM principles; the third point is a general question about TQM. The researcher randomly selects 210 owners or managers of enterprises and gave them the questionnaire with a brief idea about the study to help them to fill in the questionnaire correctly. 150 questionnaires were analyzed by SPSS software in this study. Descriptive Statistics were performed in terms of Measures of Central Tendency and

Measures of Dispersion. Inferential Statistics were performed in terms of Measures of Pearson Correlation, Tests of Hypotheses, Analysis of Variance, Step-wise Regression One Sample T-test, F-test, Chi-Square, and Significance Levels. Descriptive Statistics results showed, in general, the application of TQM principles varies between medium to high rate and the Inferential Statistics results showed a two principles have significant statistically relationship which are focus on customer and continuous improvement.

Keywords: SME, management, developing countries

Introduction

Total quality management (TQM) is an approach to improving the competitiveness, effectiveness, and flexibility of a whole organization. It is essentially a way of planning, organizing and understanding each activity, and depends on each individual at each level [Oakland 1995]. TQM is mainly concerned with continuous performance improvement. To achieve this, people need to know what to do, how to do it, have the right tools to do it, and be able to measure performance and receive feedback on current levels of achievement [Arthur and Irving 1992]

Total quality management is a pattern of convenient facilities small and medium enterprises that seek to raise the quality, but its application requires a new way of thinking which may not agree with what used to it, it is important when applying any new administrative method, like total quality management in particular, to help workers to accept the new method through the concept of quality education. The pioneer of TQM like Edward Deming, Joseph Juran, Philp Crosby, and others emphasize TQM as a strategic management, and to improve productivity and quality, require a substantial change in organizational culture [AL-Dradkah 2006].

As businesses small and medium enterprises in Riyadh working to win customer satisfaction through the application of TQM, the researcher felt that the problem of the study (the extent of the application total quality management in small and medium enterprises in Riyadh).

Research derives its importance from challenges facing the established small and medium enterprises in Saudi Arabia currently. Saudi Arabia joined recently the World WTO which demands that the small and medium enterprises enhancing the competitiveness of industry in the national market. Therefore small and medium enterprises need to change traditional management concepts and adapting concepts of modern management if they are to

achieve their objectives efficiently. The importance of the study also stem from the fact that it deals with the subject of great importance as a getting acquainted missed relatively recent in a field management [AL-Qhtani 1993].

The fundamental objective of this study to identify the extent of the application of the principles of TQM in small and medium enterprises in Riyadh, which falls under this objective:

- To clarify the concept of total quality management.
- The application of the principles of total quality management.
- The effectiveness of the application of the principles of TQM.
- Fact relationship between personal characteristics and application management the overall quality and effectiveness of application.
- Provide some of the findings and recommendations.

The study was conducted during the year of 2011. The study was limited to small and medium enterprises across some cities in Saudi Arabia. This study explores the views of manager's small and medium enterprises in Riyadh. The research results determined in the light of responses to the random sample to the questions in the questionnaire.

Methodology

The researcher has used in this study descriptive statistics and inferential statistics for the population of the study which is the small and medium enterprises in Riyadh city. The researcher used stratified random sampling proportional allocation to ensure a good representation. Due to difficulty of determining the study size, a statistical formula has been used which recommends using sample of 384 [AL-Qhtani, 2000]. 150 samples have been used due to some circumstances as shown in the following table.

Table (1) distribution of sample size.

Study size	Not determined
Sample size (pilot study)	30
Sample size (proposed)	384
Distributed questionnaire	210
Selected questionnaire	150
Ration of final sample size	71%

The questionnaire contains three parts: the first part is the personal data; the second part is relates to TQM principles; the third part is a general question about TQM. The personal data has three characteristics: age, education, and experience. The TQM principles are: focus on customer, continuous improvement, making decisions based on facts, participation of all stakeholders, team approach, and error preventions. The participants are

given five choices namely no application, low application, medium application, high application, and very high application. The general questions was (to which extent agree or does not agree that the idea of TQM has implemented in your enterprise effectively). The participants are given five choices: very strongly agree, strongly agree, agree with medium rate, agree with low rate, and disagree.

Two tests were performed on the questionnaire which is validity and reliability. Validity means “The ability to measure what should be measured and examined the adequacy of measuring different various dimensions” [AL-Qhtani, 2000]. Three persons were given the questionnaire to ensure the validity and measuring the correlation between the items of the questionnaire for each principle. The significant values (P-values) show good correlation, the p-values for all statement was (0,01) which reflects high correlation coefficient.

Since the researcher has used likert scale which is 5, the range will be 4, therefore the average value for each question in the questionnaire will be according to the following table [Oakland 1992].

Table (2) the mean value range for the questionnaire

Likert scale for part two of the questionnaire	Likert scale for part three of the questionnaire	The mean value range
1.no application	1.disagree	1.0 - 1.8
2.low application	2.agree with low rate	1.8 - 2.6
3.medium application	3.agree with medium rate	2.6 – 3.4
4.high application	4.strongly agree	3.4 – 4.2
5.very high application	5.very strongly agree	4.2 – 5.0

Reliability means “ a technique used to measure the ability of the questionnaire used to give close reading at each time it was used” [AL-Qhtani, 2000]. The alpha Cronbach test was conducted to check the reliability for each principle in the pilot study size and in the final sample size. The alpha Cronbach values vary from 93 to 82 and from 93 to 73 respectively. Table (3) shows results for pilot study size (30) and table (4) shows results for final sample size (150).

Table (3) The alpha Cronbach values for pilot study size (30)

TQM Principle	Reliability coefficient
Focus on customer	82
Continuous improvement	92
Making decisions based on facts	88
Participation of all stakeholders	91
Team approach	88
Error preventions	93

Table (4) The alpha Cronbach values for final study size (150)

TQM Principle	Reliability coefficient
Focus on customer	72
Continuous improvement	89
Making decisions based on facts	88
Participation of all stakeholders	87
Team approach	85
Error preventions	93

Data Analysis

Two main analyses performed, the first is descriptive statistics and the second is inferential statistics.

Descriptive tests

The attitudes of the owners or the managers of the enterprises about application of the TQM principles are presented in table (5). Generally, applications of TQM principles vary between high and medium rate. The average values fall between 3.88 and 3.12 with good standard deviations fall between 1 and 0.79. Table (6) shows the attitudes of the owners or the managers about the effectiveness of the TQM principles. The average value was 2.32 which means more than 50 % believe in effectiveness of the TQM principles.

Table (5) the verge and the standard deviation for TQM principles

TQM principles	The average	SD
Focus on customer	3.38	0.79
Continuous improvement	3.33	0.98
Making decisions based on facts	3.24	0.99
Participation of all stakeholders	3.12	0.93
Team approach	3.20	0.91
Error preventions	3.23	1.0

Table (6) the verge and the standard deviation for TQM principles

The general question	The average	SD
to which extent agree or not agree that the idea of TQM has implemented effectively in your enterprises	2.32	1.14

Inferential tests

The researcher has used the inferential statistical tests to study what are the factors that affect the application of TQM principles, what is the relation between the personal data and the application process, is there any relation between the personal data and the application effectiveness, and is there any variation in answering about the application of TQM principles and application effectiveness.

The factors that affect the application of TQM principles.

One of the important goals for the study was to determine the most important principle affect on the effectiveness of TQM. To achieve this goal, stepwise regression test was performed. Before that, the person correlation test was conducted to ensure the linearity relationship between the TQM principles in order to apply stepwise regression. Focus on customer records P-value (0.000) and beta value (0.511) and continuous improvement records P-value (0.017) and beta value (0.273). Other principles showed P-values more than (0.05) and that indicted there is no statistical relationship. Therefore, focus on customer and continuous improvement have a statistical relationship which has an effect on the effectiveness of TQM. Table (7) indicates the results.

Table (7) stepwise regression test results

TQM principles	Beta	T-test	P-value
Focus on customer	0.511	4.516	0.000
Continuous improvement	0.273	2.419	0.017
Making decisions based on facts		1.142	.254
Participation of all stakeholders		1.042	0.299
Team approach		0.527	0.599
Error preventions		0.305	0.761

The relation between the personal data and the application factors that affect the application of TQM principles.

There are many ways to do study this relation. One way ANOVA was performed to find out values of F-test, then the hypotheses (Ho) and (Hi) were stated to study the relation. The findings of these tests will be presented in conclusions and recommendation

The relation between the personal data and the effectiveness the application of TQM principles.

Due to small number of samples, chi-square test was done to find out the chi-square value (calculated) and chi-square value (tabulated) in order to make the right decision based on setting hypotheses (Ho) and (Hi). The findings of these tests will be presented in conclusions and recommendation

The ANOVA test between each TQM principles and the effectiveness of TQM

The ANOVA test was conducted to measure the homogeneity between each TQM principles and the effectiveness of TQM by finding F-test values and P-values. The findings of these tests will be presented in conclusions and recommendation

The ANOVA test between TQM principles and the effectiveness of TQM

The ANOVA test was conducted to measure the homogeneity between each TQM principles and the effectiveness of TQM by finding T-test values and P-values. The findings of these tests will be presented in conclusions and recommendation

Conclusion And Recommendations

Conclusions

Through the analysis, herein a summary contains the important findings:

- Application of TQM principles vary between high and medium rate. The average values fall between 3.88 and 3.12 with good standard deviations fall between 1 and 0.79.
- More than 50 % sample believes in effectiveness of the TQM principles in their enterprises.
- Focus on customer principle and continuous improvement principle are very important in TQM and they are applied extensively in small and medium enterprises in Riyadh city.
- Owners of the enterprises who their ages between 40 and 50, believe in focus on customer, continuous improvement, team approach, and error preventions more than other two groups.
- Education level has no effect on focus on customer principle, continuous improvement, making decisions based on facts, and team approach and there is no statistical relationship between education level and the mentioned principles.
- No effect by number of experience years on TQM principles in Riyadh City.
- There is no statistical relationship between age and the effectiveness of TQM principles.
- Effectiveness of applying TQM principles was appreciated more by those who have less than twenty years experience.
- There is a good homogeneity on answering between TQM principles and the effectiveness.
- There is a good homogeneity on answering between each principles and the effectiveness.

Recommendations:

- The necessity of adopting a strategy for TQM and to be supported by the senior management.
- The importance of spreading the culture of TQM and training employees.
- More attention to customer service by knowing their needs and get feedback.
- More attention to continuous improvement by simplifying the working procedures, the development and looking for the technology.
- Encouraging more studies and comprehensive studies on TQM in small and medium enterprises in Saudi Arabia.
- Learn from the experiences of others.

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