The Relationship between Total Quality Management (TQM) and Strategic Management

Marina Kantardjieva

***Abstract*—The increasing globalization of companies forces them to create a planned and integrated approach to sustain successful in global markets, by involving employees and implementing improvement programmes that will maximize productivity and company's performance. The need for improvement is emphasized together with the need to achieve competitive advantage, to focus on company requirements, measure performance and learn from results. Many researchers considered total quality management (TQM) as the leading management philosophy that improves company's position and their performance. Accordingly, it cannot be generalize about the extent to which the implementation of TQM along with related business strategies actually impact organizational performance. The research study presents a discussion of issues related to the complementary approach of TQM and strategic process. In that manner, research study was mainly based on quantitative data conducted to obtain empirical results in order to investigate the relationship between total quality management and strategic management. Understanding of obstacles that hinder the implementation of quality programs can help the organization to focus on future management activities, to maximize productivity and company performance.**

***Index Terms*—Total quality management (TQM), strategic process; strategic management, organizational performance.**

I. Introduction

The strategic decisions are basically the essential core of the strategic management. Reference [1] shows that "strategic management represents the concept of how to utilize the resources of the organization in the most efficient way possible, with the variable environment as a reference point". In the process of strategic decision-making many factors have their impact including the complexity of the environment, the system of values as well as motivation. The strategic decisions lead to the improvement of the strategic position and the resolute action taking in the present. In long term strategic decision making there's the probability of not being able to foresee all the business possibilities in short term. In terms of discontinuity, the business subjects must possess flexibility for quick response to changes, which may occur, as well as focus on the possibilities, which can bring about long-term positive results. Long-term strategic decision-making can bring positive results if there's confidence in the strategic programmes and plans. With changes occurring in the organization environment, the managers should orient towards making profit and long term towards growth and the development of business, which is a complex task.

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II. TQM and the Strategic Process of Decision Making

In the process of strategic decision making the choice of the most viable alternatives is crucial. Reference [2] states that "today's strategic decision making requires significant or modest investment in terms of dimensions and the degree of change, i.e. the nature of the outcome, which can be favourable or unfavourable" (See Fig. 1).

Dimensions and Degree of Changes

Favorable Outcome	Unfavorable Outcome
Significant investment	
1. Attractive with significant (great) risk	2. Unattractive with significant (great) risk
3. Attractive with modest risk	4. Unattractive with modest risk
Modest investment	

Fig. 1. Typology of strategic selection.

The most favourable alternative, which guarantees a favourable outcome, is the one that requires modest investment. The business enterprises should consider the favourable outcome alternatives, which require significant investment seriously. There would not be a positive inclination in the selection of alternatives if there's a unfavourable outcome, even in the situation which requires modest investment. If the business enterprises aim to realize a strategic plan of sorts, one of the alternatives as well as the TQM programs, it is necessary to go over the common characteristics of the strategic planning and TQM. Reference [3] shows that "the total quality management (TQM) practice has been adopted and implemented in varying degrees by a vast number of companies throughout the world during the last two decades". The similarities and the differences between the strategic planning and TQM include as follows [4]:

1) Both imply a clearly set mission and objectives;
2) SP is a plan while TQM is a way of working with set principles and techniques;
3) Both refer to action not theory;
4) Both require absolute commitment from the head management;
5) Both require participation from the entire staff, in TQM integrated involvement, and in strategic planning it is left to preference;
6) Both require change in culture, in TQM explicitly and in SP as something to look forward to;
7) Bothe focus on the users/consumers, in TQM it is

essential, and in SP it is expected to become apparent at the beginningof the process;
8) Both require analysis of the procedures, explicitly in TQM, implicitly in SP as a means to an end;
9) Both imply improvement- – TQM in detail and SP generally;
10) Both include supervision and evaluation, in TQM it is more explicit;
11) SP includes only key staff, in TQM everyone, on every level is involved;
12) SP functions from the upper echelons downwards, and TQM in reverse;

Both require development of skills, in SP as a requirement, in TQM as a prerequisite integrated in the process; another difference would be the interruption of the work process necessary for the realization. TQM, if implemented thoroughly, takes a lot of time and effort and theoretically lasts forever, and while the first couple of years are the hardest because of the learning process, there must be constant analyses in order to fulfill the variable requirements and circumstances. The TQM programs often fail because the time and effort necessary for their implementation are seriously underestimated. In addition, turbulence is to be expected with TQM. The strict hierarchy institution is shaken when the personnel of all levels are motivated and the whole management process is threatened. In that case the head managers adapt in difficulty, and those in lower management realize they've become redundant. The refusal to accept the changes is one of the reasons the TQM programs and those of strategic planning fail. Reference [1] suggest that "TQM is a quality-based management strategy that promotes enterprise-wide quality through a strong focus on customer orientation and environment and dynamics. Additionally, this strategic orientation relies heavily on synchronized processes among all trading partners to create knowledge through innovation in order to achieve global competitiveness".

It is evident that the strategic planning and TQM need to be synchronized and to provide mutual assistance. Both are preferred options, while it needs to be point out that TQM may fail not only because of the above mentioned reasons, but also because of lack of training and understanding. Reference [5] shows that "A fuller understanding of the dynamics of TQM in organisations, using suitable models, will enable organisations to evaluate and predict the current and potential business benefits from TQM applications". If the business enterprises aim to realize both a strategic plan and TQM, the question arises – how to approach best the time frameworks? Usually, before starting TQM, the organization should have a strategic plan in place. Those organizations that are not in such a position may start with TQM and then develop strategic plans and decisions, but that would lead to other difficulties in terms of relocation of time for the personnel and work synchronization. Reference [6] shows that "TQM is both a driving force to competitive strategy selection and an important dynamic resource that competitive strategies support, allocate, and enhance in order to achieve a sustainable competitive advantage". The strategic plan gives credibility to the improvement of quality. The clearly established missions provide the personnel with long- term projections and philosophical directions. The objectives express precise intentions. The strategies, on the other hand, give direction to the employed for the realization of those objectives.

It is undoubtedly highly beneficial if TQM is implemented with a strategic plan already in place, regardless of the set objectives, when it comes to domains where TQM is implemented. It is supposed, however that the organizations will continue working even if it's a radical plan. If TQM is implemented first, in some of the phases it will lead to parallel activities with the strategic planning. In such a case it is possible to leave TQM aside until the strategic plan is fully developed, but it's not recommended.

Sometimes the business enterprises have no choice in what starts first- in many enterprises a strategic plan is required, and some are required to start a TQM program as well. If TQM is not small scale, it is better to have both processes start simultaneously. TQM is often presented as a program of "all or nothing". There must be a distinction between the principles of TQM which need to be fully implemented and the techniques which can be used selectively, in the choice of techniques as well as the choice of activities where they will be implemented. In addition, Reference [7] conclude that "the use of TQM in its widest sense to assist corporate strategy implementation is encouraging and should help to create an upstream influence on corporate strategy formulation" .

III. Methodology

In the research and development of this paper a combination of qualitative and quantitative methodology has been implemented. At the beginning, the paper has a qualitative character and then quantitative, bearing in mind the fact that the standardized data is shown numerically and the meaning is derived from the numbers themselves. Furthermore, the implementation of particular tables and graphs represents explication of the statistical accent of the research.

The data gathering has been completed through administering structured surveys to the managers in the selected companies, via email. The research has been carried out on a specimen of 60 subjects, employed in small, medium and large organizations. The survey was sent to the managers on higher and medium levels in the selected companies. The research was carried out in the period of three months.

In the design of the data base Microsoft Excel was used, and the processing was done through the statistical pack SPSS. The following statistical procedures were used: methods of descriptive statistics, regressive analysis, (multinomial logistic regressive analysis) as well as the method of non-parameter X^2 statistics which sets the null hypothesis for the uniformity of distribution. The statistical data is represented as values of attributive modalities, which, in turn were represented numerically on a scale from 1 to 7 where 1= "I disagree" and 7= "I agree." For the purposes of the research which required positive neutral or negative opinion, all variables were recoded with the following Lickert Scale: 1, 2, 3= "I disagree", 4 "Neutral" and 5, 6, 7, = "I agree".

Furthermore, the results of the quantitative part of the

research has been elaborated and presented. The target population is the companies in the small, medium and large enterprises. The study population comprised a contingent of 60 subjects (managers) i.e. 60 companies in manufacturing. In terms of gender structure of the subject, according to the research, 85% were male, and 15% or 9 subjects were women.

The distribution of the education degree makes it evident that almost 98.3% of the subjects are with higher education and postgraduate titles, and only 1.7% are with secondary education. In terms of age, the majority of subjects (36.7% or 22 of the subjects) are aged between 36-45 and aged between 26-45 (as stated by 33.3% or 20 of the total number of subjects). The other two intervals are equally represented with 15% of the total number of subjects. According to the number of employees in the organization, it's evident that most of the companies, 50 of them (or 83.4% of the surveyed companies) have over 50 employees, and only 10 companies (i.e. 16.6%) have less or up to 50 employees.

IV. The Strategic Role of TQM

The variable *P*1 i.e. "Strategic role of TQM" is evaluated with four variables (*P*2, *P*3, *P*4 and *P*5), measured with ordinal scales (Lickert Scale 1-7) through the replies of the following questions:

1) Do the managers in our companies have an active leadership role in the support and promotion of the questions related to quality (e.g. frequent accentuating of quality as one of the key values of the company)?
2) Is internal motivation and employees satisfaction (e.g. job satisfaction, sense of success, self-actualization) one of the key factors of reaching the goals of the company in relation to quality?
3) External motivation and satisfaction of the employees (i.e. good working conditions, secure work place, raise of salary and promotion prospects), are all these crucial factors for achievement of the company goals in relation to the quality?
4) Does our company implement programs for continuous improvement and development of processes based on objective analyses of operative performances (e.g. improvement of time cycles and productivity as well as reduction of defects)?

Besides the descriptive analysis, as well as the tables of variable frequencies of *P*2, *P*3, *P*4 and *P*5, the following hypotheses will be considered:

1) *X*1: Managers in the companies have active leadership roles in the enticement and promotion of issues related to quality.
2) *X*2: Internal motivation and satisfaction of the employees are one of the crucial factor for the achievement of the goals of the company related to quality.
3) *X*3: External motivation and satisfaction of the employees is one of the critical factor for the achievement of the company goals related to quality.
4) *X*4: The companies implement programs for continuous improvement and development of processes, based on objective analyses of the operative performances.

With the implementation of the X^2 test, the hypotheses will either be rejected or accepted.

A. Distribution of the variables P2, P3, P4 and P5

Table I, of frequencies shows that 48 (80%) of the subjects agree that the managers in their company have active leadership roles in the enticement and the promotion of issues related to quality. As for the internal motivation and the satisfaction of the employees being some of the crucial factors for the achievement of the company goals related to quality 50 (83, 3%) agree as opposed to 6 (10%) subjects who disagree. As many as 49 (81, 7%) of the subjects, agree that the external motivation and the satisfaction of the employees, are some of the crucial factors for the achievement of the company goals related to quality. Also, the majority of subjects, i.e. 71.7% agree that their companies implement programs for continuous improvement and development of processes.

TABLE I: Distribution of the variables *P*2, *P*3, *P*4 and *P*5

Description of variable/value	Disagree	Neutral	Agree
*P*2. Managers in companies have active leadership roles in the enticement and promotion of issues related to quality.	4 (6.7%)	8 (13.3%)	48 (80%)
*P*3. Internal motivation and satisfaction of the employees are one of the crucial factor for the achievement of the goals of the company related to quality.	6 (10%)	4 (6.7%)	50 (83.3%)
*P*4. External motivation and satisfaction of the employees is one of the critical factor for the achievement of the company goals related to quality.	5 (8.3%)	6 (10%)	49 (81.7%)
*P*5. The companies implement programs for continuous improvement and development of processes, based on objective analyses of the operative performances.	8 (13.3%)	9 (15%)	43 (71.7%)

B. Statistics of the Variables P2, P3, P4 and P5

Descriptive statistics shows that the medium value of all variables is bigger than 4 which shows a tendency towards positive opinion on all questions. The greatest variability in the replies is in the variable *P*5 i.e. the replies vary mostly about whether the companies implement the programs for continuous improvement and development of processes.

C. X^2 Test

For every variable the *X*2 test was carried out and the following results were obtained:

The theoretical value of X^2 is $X^2_{(0,\ 05,\ 2)}$=5,99. The results of the test show that each of the calculated X^2 quotients of the variables *P*2 – *P*5 (i. e. X^2_{P2}=59.2; X^2_{P3}=67.6;

X^2_{P4}=63.1 X^2_{P5}=39.7) are higher than the theoretical value,

but also that the r-values are smaller than p=0, 05. Thus, the difference of subjects stating they agree in relation to those who disagree is statistically significant for all variables. Accordingly, *the hypotheses X*1, *X*2 *and X*4 *are accepted*, see Table II and see Table III.

TABLE II: DESCRIPTIVE STATISTICS OF THE VARIABLES *P*2, *P*3, *P*4 AND *P*5

Description of variable/statistics	Mean	Median	Standard deviation	Variance
*P*2	6.20	7	1.735	3.010
*P*3	6.20	7	1.903	3.620
*P*4	6.20	7	1.821	3.315
*P*5	5.75	7	2.160	4.665

TABLE III: *X*2 TEST FOR THE VARIABLES *P*2, *P*3, *P*4 И *P*5

Variable/ *X*2 test	*X*2 quotient	Degrees of freedom	*p* - value
*P*2	59,200a	2	,000
*P*3	67,600a	2	,000
*P*4	63,100a	2	,000
*P*5	39,700a	2	,000

Notice: a. 0% of the cells had less frequency than 5, while the minimum expected frequency is 20.

D. Variable: The Strategic Role of TQM

The strategic role of TQM i. e. of the variable *P*1 or the third critical component in the process of implementation of the strategy represents a variable and is derived in the following manner:

$$P1= (P2+P3+P4 +P5)/4$$

In the analysis, first of all, the distribution via the table of frequencies is considered, and then the descriptive statistics for each of the variables is used, and finally a reply for the acceptance or the rejection of each hypothesis is given:

*X*4: The role of TQM is strategic

1) Distribution

In total, the distribution of data, 86.7% of the subjects agree, and 8.3% of the subjects disagree that the role of TQM is strategic (Fig. 1)

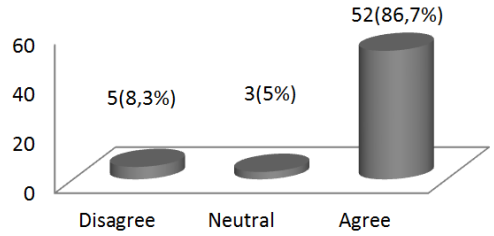

Fig. 1. Strategic role of TQM

2) Statistics

TABLE IV: DESCRIPTIVE STATISTICS OF THE VARIABLE *P*1

Variable/ *X*2 test	*X*2 quotient	Degrees of freedom	*R* – value
*P*1: strategic role of TQM	76,900a	2	,000

The descriptive statistics shows that the high medium value of this variable is 6.35, which implies a tendency to positive response on the question of the role of TQM, which naturally corresponds to the high percentage of subjects agreeing on the questions which define the variable *P*1: "Strategic role of TQM". Logically, this variable shows a low variability in the replies which were on the scale of 1 to 7, see Table IV.

3) X2 test

The X^2 test (X^2=76, 9 > $X^2_{(0,\ 05,\ 2)}$=5,99; p= 0.0000 < 0.05) shows that there is a statistically significant difference of the number of subjects agreeing to the fact that the role of TQM is strategic and those who disagreed. Accordingly, the hypothesis *X*5 *is accepted*, see Table V.

TABLE V: *X*2 TEST OF THE VARIABLE *P*103

Variable/Statistics	Mean	Median	Standard deviation	Variance
*P*1: Strategic role of TQM	6, 3500	7, 00	1, 75465	3, 079

E. Conclusion

This paper explains the relationship between the total management of quality and the strategic management. The business enterprises need to develop a strategy, which will focus on those business activities that the organization does better than the competition and which create its competitive advantage. In the strategic decision making, the typology of selection is considered, that is the selection of alternatives considered most acceptable. In this process, bearing in mind the fact that the quality is a key factor for success, the business subjects are focused on the implementation of various quality programs. The strategic planning is based on the process of decision-making and it determines the direction of the organization and its future outlook, as well as the way to achieving that future. The strategic planning and TQM are complementary; still it is hard to synchronize them. With the implementation of the strategic management and the quality management, the employees get a deeper understanding of the management of strategy and quality as well as the organizational changes, which are derived of and are a result of this process.

The research comprises of the elements, which represent crucial components in the process of implementation of the strategy. The results of the research show that the hypotheses stated above *are accepted*. The hypotheses are accepted as a result of the significantly higher percentage of affirmative replies of the subjects as well as in accordance to the *X*2 test, where each of the *X*2 quotients is higher in value than the theoretical value ($X^2_{(0,\ 05,\ 2)}$=5,99), but also according to all the r-values smaller than p=0,05. Thus we reach the conclusion that the difference of the subjects with affirmative responses compared to those with negative responses is statistically significant on all analyzed questions.

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