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CHARACTERISTICS OF USING TOTAL QUALITY MANAGEMENT AND ITS INFLUENCES ON COMPANIES' BUSINESS PERFORMANCES

Total Quality Management (TQM) is still one of the most often used management techniques in practice. From here of very relevant question arises whether the use of TQM can significantly improve a company's business performances when its current competitive position in the international market is weak. To answer this, first of all the key characteristics of TQM's effective selection and use were reviewed and then empirical research on TQM's contribution to a company's business performances was conducted.

The empirical research reveals that those companies applying TQM did not achieve better business results than companies not using it. The reasons lie in the incomplete use of TQM whereby companies neglected the preparing and assessing phases involved. Regarding those companies that use TQM to a similar extent as their competitors from developed economies, their competitiveness is inferior because they primarily focus on quality at the expense of the techniques containing strategic positioning. Besides, later adapters also don't gain financial benefits from practice. Therefore, management's selection of techniques should not be based on a random imitation of successful techniques from other environments, but on a profound knowledge of the techniques which include also strategic positioning along with the company's internal and external environments.

Key words: business outcomes, company, financial indicators, management technique, total quality management

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1 Introduction

The overabundance of management techniques recommended by various management gurus, consultancy houses and sellers of information technology, with each aiming to maximise their own profit, as solutions to almost any corporate problem raises unrealistic expectations by management with regard to the results of their application. In order to achieve a company's targets management is particularly inclined to imitate the management tools that have shown results in successful companies. According to a study by the Harvard Business School on the use of management techniques by American companies, 75% of them were dissatisfied with the results of the techniques in use. The reason lies in the mechanical use of approaches that promised significant benefits, while neglecting the critical selection of techniques and creative adjustment of a technique to suit specific circumstances (Micklethwait, 2000). Applying inappropriate techniques can have very serious consequences on a company's performance. It is therefore extremely important for management to know the basic codes of a technique, the criteria for its effective use, the circumstances in which it is suitable to use a technique, as well as their critiques and limitations as introduced in this empirical research on TQM.

Due to the different macro- and micro-economic environments in which most techniques were created, they are not all directly transferable to the environment of companies in transition economies. Due to the luck of suchlike studies, empirical research on the influence of management techniques on a company's business are extremely useful for company management in transition economies.

2 Theoretical starting points

For at least the past decade managers have been preoccupied with improving operational effectiveness by using different management techniques such as (Porter, 1998): TQM, CRM, BSC, benchmarking and so on that seek to improve operational effectiveness or only certain aspects of companies' performances such as quality, speed, productivity and the like. But an important question arises of whether committing to management technique like TQM can boost a company's performance.

2.1 Researched Management Technique and the Branch

Different industry studies reveal that Slovenian wood-processing companies are losing their competitive position in international markets and that their value

added per employee is less than half of their Western competitors (Dimovski, 2000; Kropivšek, 2001). Many studies adduce proofs about various financial and nonfinancial benefits of TQM (Wayhan, 2007). Therefore a very relevant question arises of whether a commitment to TQM, a management technique broadly applied all over the world and in Slovenian companies, can significantly improve a company's business results, regardless their competitive position on international market is weak. To find this out we reviewed also important characteristics of TQM's selection and effective use. On basis of these theoretical and empirical findings, we conceived empirical research on the characteristics of TQM use and its impact on the business outcomes of Slovenian wood-processing companies. We chose TQM according to information stemming from unstructured interviews, namely that it is one of the most common management techniques used by wood-processing companies. We chose wood-processing because this branch is one of the biggest exporters of the Slovenian economy and it is the third most important industrial branch according to the number of its employees.

2.2 Key Characteristics of Total Quality Management

TQM is an integrated management system designed to focus on a company's resources in order to increase its products/services, to better satisfy customer needs and improve the firm's processes efficiency (Kenneth, 2004). TQM is an ongoing process of gradual improvement in the efficiency of the entire business system through existing company resources (Shandler, 1996). Day after day, TQM joins all the business functions of the company from product development, input raw material control and production to market communication, with all aiming at the greater satisfaction of buyers (Mihelčič, 1999). The goal of TQM is for all operations to be of quality the first time; quality is built into any operation, which reduces the need for control and, consequently, expenses (Sthal, 1997).

According to Costin (1999) and Dahlgaardu (1998), TQM encompasses the following key principles: TQM management's commitment-leadership, a focus on the customer, employee involvement, training and empowerment; the design of quality management processes, continuing improvements – KEIZEN, suppliers quality management, international sensitivity to continue benchmarking, team problem-solving, stakeholders' common vision and an ever changing culture.

TQM as a management technique for improving a company's performance covers different quality systems. Of these, the most widely used is the ISO 9000 standard which is a useful first step on the journey to total quality (Porter, 1996), respectively it is also a component and complementary part of TQM (McAdam,

1999). ISO 9000 standards can be an excellent starting point and are very appropriate for the standardisation of company systems and processes due to the documented procedures regarding a customer's requirements (Dahlgaard, 1998).

Studies by the Slovenian Chamber of Commerce and Industry reveal that of the various quality standards used in Slovenia the most common are the ISO 9000 standards (Kunšek, 2006).

Benefits and contribution

The positive effects of TQM are mentioned in many studies. For example, Stahl (1997) ascertained that TQM enables shorter production times, an increase in a customer's delivered value and their satisfaction, and reduced costs of poor quality, which are also most significant TQM contribution among Indian manufacturing companies (Padma, 2008). The important benefits for a company applying TQM are (Kumar, 2009; Porter, 1996): top management's involvement in the process of improving quality, improving processes arrangements and clarity, lowering unquality costs, restoring a continuing improvement process, enabling more effective measuring of the company's progress, increasing awareness levels of TQM throughout the company, improving customer satisfaction, enhancing operational performance and improving financial performance.

In empirical research among 316 Norwegian companies the following factors calling for the use of TQM were identified (Hongyi, 1999): customer demands (70%), intensifying competition (53%), cost-reducing pressure (39%) and company survival (17%).

Among Spanish companies positive internal and external effects were felt by 65% of ISO 9000 certificate holders. Internal positive effects were seen in a better processes definition and standardisation of work procedures, improvement in the definition of workers' responsibilities and obligations. The most significant external benefits were a greater response to customer requirements, better access to new markets and an improvement in customer relations (Casadesus, 2000).

According to Slovenian experiences the implementation of the ISO 9000 standards has had the following positive effects:

- products and services quality improved by 44% (Topič, 1997);
- definition and standardisation of processes and procedures, higher customer satisfaction levels and lower operating costs (Rebernik, 2000); and
- enhanced customer loyalty and satisfaction, better quality products and services, greater effectiveness in performing processes (Pivka, 2004).

Among parameters for improving the quality of products, services or processes, Slovenian ISO 9000 standard holders most often use corrective and preventive measurements. Companies used measurements for quality assurance less often. Companies which implemented TQM rarely used measurements for self-assessment (Pivka, 2004). By implementing TQM we can bring about a reduction of 35%-40% in a company's costs, therefore the finding that interest in tools for analysing and limiting unquality in Slovenian company operations is still low is surprising (Mihelčič, 1999).

Implementation

The TQM implementation process varies according to different authors. According to Dahlgaard (1998), this process covers the following four stages:

a. planning, which includes identifying and collecting information about the company and its environment;
b. management's understanding and commitment;
c. a scheme for improvement including identifying quality issues and resolving them, training and communication, a design process for quality improvement; and
d. an implementation process for quality improvement, incorporating suppliers and customers in a quality chain, obtaining information about progress and consolidating success.

The TQM implementation process involves very complex activities since it requires a profound cultural change. For successful implementation it is particularly necessary for top management to play an active leadership role and to involve everybody in the organisation (Kelemen, 2000). Changes should embrace an improvement in technology, processes, products, services, evaluating information about the achieving of targets and corrective actions. Quality is a focus on all the company's activities in order to meet customer expectations for a contemporary reduction of unquality costs (Andrejčič, 1995).

Top management should set measurable targets, time limits, responsibilities and mandates. An officer in charge of quality should be appointed from management. Proper resources for implementing a policy should be allocated and quality results should be linked to the employee reward system. The accomplishment of quality targets is measured at the top management level. The quality policy is disseminated through quality teams down to the company's lower hierarchical levels.

Gilmore (1999) viewed quality assurance activities as a subsystem of operations composed of three main activities: prevention, appraisal and defect correc-

tion. In order to control quality and solve problems, other quality control tools have been developed, for example: stratification, Pareto diagram, check sheet, histogram, cause-and-effect diagram, control chart, scatter diagram.

The accomplishment of quality targets is periodically assessed through internal and external audits regarding the documented procedures (Pivka, 2002). On the basis of the audit report the manager responsible for the audited area should prepare a set of measures to correct any discrepancies.

Suitability

Changes in a company upon the implementation of TQM are small, incremental, evolutional and focused on inappropriate process phases (Currid, 1994). Companies can improve their processes with TQM until they achieve their theoretical potential (Cross, 1995). When there are radical changes in the external environment, a incremental change in TQM within companies does not lead to any more competitive position, therefore radical changes to a company's existing operations and management role are needed (Doumeingts, 1997; Lester, 1994). Further, Genus (1998) pointed out that those changes brought about by TQM are not lasting or sufficient in response to radical changes in the external environment.

Incremental changes that encompass TQM allow the individual enough time to learn new skills and develop the new values needed. Therefore, the individual is less threatened and generates less resistance to the planned changes. For this reason TQM has been broadly used in environments/societies which appreciate a social balance and have a positive relation to human resources, such as Japan, the Netherlands, Norway and some other European countries (Dervitsiotis, 1998).

Criteria of effective use

To successfully implement TQM, ten basic principles should be fulfilled (Ho, 1999): management-led, prevention not detection, total customer satisfaction, the cost of quality, right the first time, ownership and commitment, training and education, co-operation and teamwork, recognition and pride. Lisowski (2000) mentioned that key responsibility for success rests on the shoulders of top management who should ensure the intensive everyday involvement of middle management, and that collaboration with external consultants can frequently result in the company's higher resource consumption.

Before implementing TQM, it is very useful to become familiar with obstacles that have prevented the expected results with other users. In the implementation of TQM in the US the following barriers were exposed (Chaudron, 2002): exaggeration in team working, the changes made were partial and just on the surface, priority targets were not set upon implementation, TQM's implementation was not adapted to the specifics of the internal environment, mass staff education on stock without possibilities to implement the new knowledge, insufficient management support and poor familiarity with key TQM characteristics among management and employees. Deriving success from TQM is significantly associated with: the time since adaptation, the inclusion of quality objectives in the strategic planning process and the need for senior managers to take charge of TQM and to ensure that the majority of employees are involved in its implementation (Taylor, 2003).

The mere registration of acquiring the ISO 9000 standard does not result in a financial impact (McAdam, 1999). Use of the ISO 9000 standard has been shown to be beneficial and effective when companies integrate it with the organisational structure, resource management, productivity and innovation (Uršič, 2006). Effects of the ISO 9000 standard on a company's performances are reduced in the period four to six years after installing it, unless it is not to be upgraded to TQM (Ismail, 1999; Prabhu, 2000). For successful implementation everything that TQM enables should be fully introduced across the company by providing a systematic and comprehensive evaluation with an emphasis on self-assessment (Hongyi, 1999). Managers on all levers should reward employees who make considerable efforts and achieve better quality (Piskar, 2006).

Critiques and limitation

With globalisation the world is becoming smaller and saturated with products of similar quality. According to Porter (1998) TQM only improves operative effectiveness and yet neglects strategic positioning which is needed to achieve a sustainability competitive position. To acquire a competitive position a company should develop and implement an interlacing of innovative products, services and processes faster than its competitors (Nordström, 2001; Peters, 1997).

Garvin (1996) in his research among North American companies found that companies which implemented TQM invested in improving processes for satisfying a market which was disappearing, bettering processes were unsuitably connected and whose changes were focused on the operational level even though the

management process remained unchanged. The results of implementing TQM are often below expectations because of the mechanical relations with the processes performers who have not been involved in new process modelling (Poyssick, 1996; Secretan, 1997). Further, the implementing of new hierarchical relations for the purpose to ensure quality reduced workers' motivation and simultaneously neglected their influence on the parameters of their own working environment (Mintzberg, 1996).

According to Pivka's (2004) research into the influences of the ISO 9000 standards on the competitiveness of small- and medium-sized Slovenian enterprises, a company's competitive position after certification has slightly improved. Certification has not had a significant influence on innovation, productivity and operational costs. The reason for these poor results lie in: shifting responsibility for implementation to the operational level; neglecting workers' potential, internal audit, the connection among financial indicators and the ISO 9000's effectiveness; treating the ISO 9000 as a project separated from the company's current policies and insufficiently educated management. These findings are in accordance with other Slovenian research results which established that companies do not understand the complete TQM concept and mostly focus on product quality and merely acquiring the ISO 9000 certificate (Makovec, 2001). A formal ISO 9000 certification only proves that a company is able to set and perform processes according to the definition, but this does not assure higher competitiveness and positive financial results (McAdam, 1999). ISO 9000 standards are too complex and static, require too much paper work and additional duties and represent higher costs for the company (Mernik, 2001).

3 Aim of the empirical research

The aim of this research was to study the influence of using TQM on the business performance of wood-processing companies, with the goal to provide management with information enabling them to make better choices when selecting and implementing techniques. A better insight into the key characteristics of TQM may help management use it more efficiently and, consequently, achieve better business results.

In order to satisfy the aim of the research, we set these targets:

a. to determine the intesity of TQM use compared to foreign findings;

b. to investigate the impact of TQM on companies' business outcomes; and

c. to find out the critical factors of TQM use in practice.

4 Methodology and sample

4.1 Sample Framework

The research focused on companies with more than 50 employees since, according to information from the unstructured interviews, the management of smaller companies generally does not systematically apply management techniques to change companies. According to the criterion of the number of employees, the wood-processing industry included 98 companies with more than 50 employees (Rataj, 2006). Of these companies, 8 were in 'bankruptcy' and hence eliminated from the research. This means that the research involved 90 companies, which is also the size of the researched population.

4.2 Realised Sample

48 valid answers were received in response to the questionnaires sent by mail, with the response rate thus amounting to 53.3%. According to criteria set under Article 55 of the Companies Act (Official Gazette of the RS 65/2009), the structure of the sample was as follows: questionnaires were received from 5 small companies (50.0% response rate), 18 medium-sized companies (47.3% response rate), and 25 large companies (59.5% response rate).

4.3 Representativeness of the Sample

In order to check the sample's representativeness, seven selected financial indicators were calculated for each company of the population on the basis of data acquired from i BON (2006) for the investigated period, namely: total income per employee; value added per employee; return on sales; return on equity; return on assets; ratio of operating revenues to expenses; and overall efficiency. The investigated population was then classified in two groups, namely companies participating in the research and those not participating. By applying a t-test to test for differences between the arithmetic means, both groups were compared with regard to their financial indicators. This showed there were no statistically significant differences between the two groups and, therefore, the research sample is representative.

4.4 Methodology Used

In conceiving and carrying out the empirical research, the following scientific methods were employed:

- for acquiring information from primary sources we used an extensive, unstructured interview and a written survey addressed on managing director. Companies financial indicators were calculated on the basis of data acquired from independent national data base i Bon (2006);
- t-tests between participating and non-participating companies were undertaken to check the sample's representativeness;
- a comparative method for comparing the research findings with domestic and foreign research;
- discriminant analysis for determining any statistically significant differences between non-users and strategic management users and financial indicators, in which principal component analysis, variance analysis and LSD tests were also conducted; and
- descriptive statistics to establish the key characteristics of the use of TQM among the companies.

5 Survey results

In the unstructured interview of wood-processing companies an earlier written study had found that the majority of the population also uses strategic management. Therefore, the empirical research needed to establish the correlation between the use of TQM and strategic management as described in points 5.1 and 5.2.

5.1 Intensity of Using Total Quality Management

Data on the frequency of the use of the management technique were obtained from the descriptive statistics of companies responding to the questionnaire. 77% of them used strategic management. TQM was used by 25 companies, which is 52% of all companies participating in the survey, 72% of which were large companies, 39% of which were medium-sized companies and 0% small ones.

Table 1:

FREQUENCY OF USING MANAGEMENT TECHNIQUES

Management technique ↓	Number of companies			Total of companies using the techniques	Share of usage, all	Share of usage, large	Share of usage, medium	Share of usage, small
	Large	Medium	Small					
Strategic management	24	12	1	37	77 %	96 %	67 %	20 %
TQM	18	7	0	25	52 %	72 %	39 %	0 %
Total companies	25	18	1	48				

Source: empirical research among Slovenian wood-processing companies

The frequency of using TQM among Slovenian wood-processing companies (52% of all the companies) was similar to that shown by surveyed world companies, among which the share of users amounted to 57% (Rigby, 2007).

5.2 The Impact of Total Quality Management on Business Outcomes

The research was conducted by means of discriminant analysis, which was applied to determine whether statistically significant differences appeared among the three groups of companies participating in the research (a. non-users, b. users of strategic management, c. users of strategic management and TQM) with regard to their business results. Concerning what was mentioned in point 5.1, no company solely used TQM, which was hence always used in combination with strategic management.

Business results were studied on the basis of the seven financial indicators mentioned above. In order to check the co-dependence of the financial indicators, a correlation analysis was made. The correlation matrix indicates there was a greater or lesser connection between individual indicators, causing multicollinearity. Consequently, the conclusions on the significance of individual indicators obtained on the basis of the statistical methods used become questionable, i.e. less reliable.

Because of this, principal component analysis was first performed, representing a method of forming new variables as a linear combination of the original variables. Principal component analysis thus enables the formation of new

variables that are not interdependent. New variables or components are formed so that the first principal component (PC_1) explains the greatest possible part of the variance in the main figures, while the second principal component (PC_2) explains the greatest possible part of the variance not explained by the first principal component, and does not depend on the first principal variable etc. The principal components obtained thus represent a certain composed index of the researched financial indicators.

By means of the principal component analysis, the seven variables thus produced two independent principal components PC_1 and PC_2 (Table II), explaining 76.25% of the variance in the seven financial indicators (total income per employee, value added per employee, return on sales, return on equity, return on assets, ratio of operating revenues to expenses and overall efficiency).

Table 2:

EXTRACTION OF THE SIGNIFICANT PRINCIPAL COMPONENTS AND EXPLAINED VARIANCE OF THE MAIN FIGURES

Total Variance Explained									
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.096	58.509	58.509	4.09	58.509	58.509	3.56	50.863	50.863
2	1.242	17.747	76.256	1.24	17.747	76.256	1.77	25.392	76.256
3	0.784	11.196	87.452						
4	0.566	8.087	95.538						
5	0.258	3.679	99.217						
6	3.663E-02	0.523	99.740						
7	1.819E-02	0.260	100.000						
Extraction Method: Principal Component Analysis.									

Source: financial indicators acquired from i BON (i BON, 2006)

Both components extracted were used to conduct discriminant analysis with which we determined the discriminant function (**Z**) to explain the differences between the two researched groups of companies. In this way, 76.2% of the researched companies were correctly classified. The discriminant analysis showed

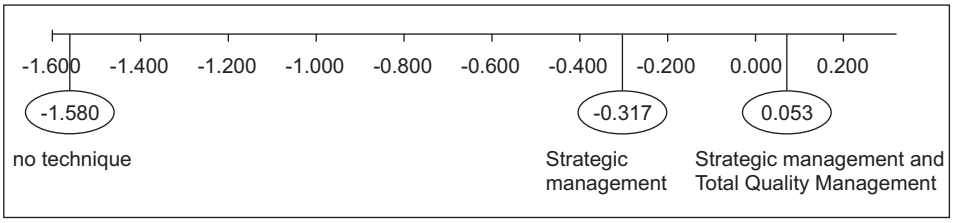
that it was easiest to separate the two researched groups of companies on the basis of the following discriminant function:

$$Z = 3.31031E\text{-}17 + 1.157710278 \times PC_1 + 0.712776675 \times PC_2$$

The presentation of the value of the discriminant function in a one-dimensional discriminant space allows the value of the discriminant function to be calculated for each company by entering the above equation in the values of their principal components. As the two principal components are positively dependent on the independent variables, this means the value of a principal component will increase if the financial indicators increase. Thus, the higher the values of the principal components, the higher the value of the discriminant function of a company, meaning that a company moves in the one-dimensional discriminant space with dependence on its business results. In this way, the discriminant function shows how the business results of companies change (increase) with regard to the use or non-use management techniques (Figure 1).

Figure 1:

GRAPHIC PRESENTATION OF THE DISCRIMINANT FUNCTION



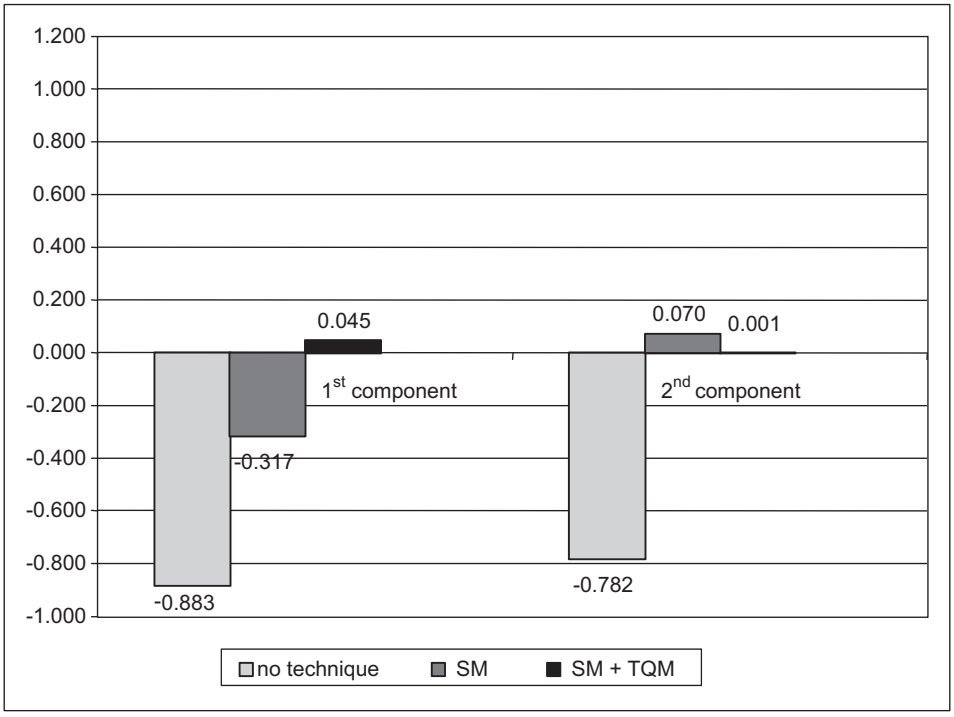
Source: empirical research among Slovenian wood-processing companies

The calculated values of the discriminant function for companies show the lowest value for those companies that do not use any management technique (Figure 1), which is the result of the lower values of the financial indicators expressed with PC_1 and PC_2. Figure 1 also shows there are differences in the business results between the non-users and users of strategic management. The difference in financial indicators between users of strategic management and users of both strategic management and TQM are very small.

Below are some graphic presentations of the differences between the three groups of companies with regard to the value of two principal components (Figure 2). The lowest value of the PC_1, which explains 58% of the variance of the seven financial indicators, is expressed by those companies that do not use management technique. Those companies that applied strategic management showed a higher value of the PC_1. There is a similar situation with the PC_2, where the differences between non-users and users are even bigger than with PC_1. The differences between users of strategic management and users of both strategic management and TQM, expressed by PC_1 and PC_2, are small.

Figure 2:

DIFFERENCES BETWEEN THE RESEARCHED GROUPS OF COMPANIES WITH REGARD TO THE VALUE OF THE PRINCIPAL COMPONENTS PC_1 AND PC_2



Source: empirical research among Slovenian wood-processing companies

The findings of the different business results between the three groups of companies were also checked by variance analysis. Table III presents the differences between the three researched groups of companies with respect to the value of their discriminant functions. The statistically significant differences at the risk level of 0.05 are marked by *. The statistical significance of the differences was checked by means of the LSD test.

Table 3:

LSD TEST BETWEEN THE TWO GROUPS OF COMPANIES WITH REGARD TO THE VALUE OF THE DISCRIMINANT FUNCTION

(I) No. of techniques used	(J) No. of techniques used	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Limit	Upper Limit
No technique	**SM**	-1.2628947*	0.4755949	0.011	-2.2248761	-0.3009133
	SM and TQM	-1.6328758*	0.4629100	0.001	-2.5691997	-0.6965518
Strategic management (SM)	**no technique**	1.2628947*	0.4755949	0.011	0.3009133	2.2248761
	SM and TQM	-0.3699811	0.3933979	0.353	-1.1657034	0.4257413
SM and TQM	**no technique**	1.6328758*	0.4629100	0.001	0.6965518	2.5691997
	SM	0.3699811	0.3933979	0.353	-0.4257413	1.1657034
* The mean difference is significant at the .05 level.						

Source: financial indicators acquired from i BON (2006)

The results obtained from the variance analysis allow the conclusion (Table III) that the financial indicators of those companies using strategic management differ statistically significantly from those of companies not using it. These findings bring us to the conclusion that, according to the researched financial indicators, companies using strategic management were more successful than those not using it. There are no significant differences in business results between companies using strategic management and companies using both strategic management and TQM. This indicates that the application of TQM did not significantly improve a company's business results.

The research finding concerning the insignificant contribution of TQM's application to improved business results of Slovenian wood-processing companies is similar to the results of research conducted among:

- Irish companies, where formal acquisition of the ISO 9000 certificate did not guarantee any higher company efficiency and effectiveness (McAdam, 1999);
- SMEs Australian companies where no significant difference between companies with and without ISO 9000 certification with respect to their performances was established (Shams-ur, 2001);
- Slovenian companies where, according to the measured financial and non-financial indicators, the situation improved minimally compared to the situation before acquisition of the ISO 9000 certificate (Pivka, 2004); and
- Turkish manufacturing companies, where perceived non-financial results were more expressed than financial (Uyar, 2009).

5.3 Critical factors of Total Quality Management Use

To find out the key characteristics of the use of TQM among wood-processing companies, a model was formed on basis of Pučko's (1999) strategic management process (encompassing the phases of analysing, planning, implementing and controlling) and four basic management functions: planning, organising, leading and controlling (Birchall, 2001; Možina, 2002).

The composed model for surveying TQM use has following four phases:

I. preparing: analysing past business, internal and external environments;
II. planning: forming the vision, objectives, strategies and other elements needed for successfully using TQM;
III. implementing: organising and leading to put changes into practice; and
IV. assessing the results and any corrective measures.

To study the critical factors of the use of TQM among the companies, on the basis of a subjective estimation, fifteen elements was formed and placed into the four phases of model (Table IV). The elements of TQM are based on the elements of the model for the European Quality Award (EQA) (Porter, 1996), the American Baldrige Award and the implementing phases of TQM, along with the following empirical researches and articles:

a. model for measuring TQM practice and business performance (Sila, 2007);
b. quality management in large vs. small US firms in the motor vehicle parts industry (Ahire, 1996); and
c. BPR and TQM: divergence or convergence (Kelemen, 2000).

The review of the calculated mean of the use of individual TQM elements shows (Table IV, row 2) that wood-processing companies most often implement top management's commitment, the TQM policy with measurable targets is in a written form, TQM principles are implemented in product planning phases and TQM policies are communicated to all the employees. Companies rarely use mechanisms for measuring TQM financial results, comparing results with set targets and prepare corrective actions for any deviations, adapt motivation and rewards systems to the TQM policy, compare products and services with leading competitors and analyse customer satisfaction levels.

Table 4:

TOTAL QUALITY MANAGEMENT ELEMENTS – INTENSITY OF USE

TQM elements (n=25)	Mean of intensity of elements use	Model phase
7. Top management has to bear primary responsibility for TQM implementation and has been the leading carrier of values for quality development	4.2	III
4. TQM policy with measurable targets were set in a written form	4.0	II
6. TQM principles were implemented at the stage of product, services and processes planning	4.0	II
8. TQM policy was communicated to all employees and understood by them	3.9	III
3. Areas where quality could be improved were located and ranked	3.8	I
5. Employees were extensively involved in the planning of quality improvements	3.8	II
9. Employees' training and education for quality improvement has been implemented	3.8	III
11. For continuing quality improvements in products and services, new processes, procedures, standards and mechanisms were implemented	3.7	III
13. Processes tracking and dealing with customer claims and measuring their satisfaction levels with the company's products and services were implemented	3.7	IV
12. The benchmarking of suppliers' quality is permanent	3.6	IV
1. An analysis of customer needs was done before TQM implementation	3.3	I
2. A comparative study of the company's products, services and processes with leading performers has been done	2.9	I
10. A new motivation and reward system supports the TQM policy	2.8	III
15. TQM results are permanently aligned with targets and compared with competitors. Corrective measurements for attaining the TQM targets were carried out	2.8	IV
14. Mechanisms for measuring TQM's financial effect were introduced	1.8	IV
Mean of all total quality management elements	**3,4**	

Source: empirical research among Slovenian wood-processing companies

A review of the stages of the use of TQM among wood-processing companies (Table IV, column 2) yields the following characteristics:

I. preparing; containing elements 1 – 3. The phase mean is 3.3;

II. planning; containing elements 4 – 6. The phase mean is 4.0;

III. implementing; containing elements 7 – 11. The phase mean is 3.7; and

IV. assessing results and corrective measurements; containing elements 12 – 15. The phase mean is 3.0.

An examination of the arithmetic mean of the TQM phases reveals that wood-processing companies pay most attention to the planning phase (II) and implementing phase (III). The first phase is poorly expressed, which represents the basic condition for the successful planning and implementing of TQM. Companies pay least attention to assessing the results and corrective measurements (phase IV), which reduces companies' abilities to adapt their performances to environmental changes and to achieve the better effect of TQM use. This also proves that companies do not sufficiently adapt TQM to their specific internal environments and incorporate TQM measurements into corporate culture.

The assessed weakness of TQM use is consistent with branch characteristics shown in the Kropivšek (2001) study where he found that the most important company objective, in order to cope with global competition, is permanent quality in goods delivery according to TQM principles. A detailed analysis of TQM use showed that companies use it partially and some phases are ignored. Most often quality product is in place but delivery dates are exceeded, while response times to customers' claims and market demands are questionable. The factors underlying these findings stem from rigid hierarchical structures, unsuitable information technology, the neglect of set procedures and a discrepant corporate culture.

Regardless of this, while the rate of using TQM in the Slovenian wood-processing industry (52%) is close to that of its Western competitors (57%), it is not reflected in similar business results and branch competitiveness. On the basis of our empirical research we can affirm that companies have opportunities to more fully and exhaustively use TQM in the phases of assessing results and corrective measurements, and in the preparation phase.

From the unstructured interview came out that surveyed companies adapted TQM and ISO 9001 standard lately as consequences of external initiative (buyers, distributors, supervisory board). According to Benners' (2008) survey findings, financial benefits of ISO 9001 implementation disappear as the majority of competitors in an industry adapt similar practice.

In order to catch up with their Western competition, survived companies also should pay much greater attention to management techniques based on strategic positioning, since these companies should deliver much more innovation value to their customers.

5.4 Study limitation

Impact of TQM on companies' business outcomes was calculated on hard data achieved from independent data base. In addition, the data on critical factor of TQM use were based on respondents' perceptions which present first limitation of this empirical research. Second limitation comes from its concentration on wood processing industry. For a broader application of this empirical survey, survey should also be proceeded every year and encompass companies from other branches, geographical, economic and cultural environments.

6 Conclusion

This article presents the impact of TQM use on the business outcomes of Slovenian wood-processing companies and the critical factors of how it was applied. The key findings of this research are that TQM was used in combination with strategic management. However, those companies did not achieve any better business results than those only using strategic management. A similar level of TQM use compared to companies from developed economies does not result in the similar competitiveness of surveyed Slovenian companies. The reasons for this may be found in: the non-integral application of TQM, companies that are merely improving the quality of outdated processes and products, the fact that TQM is used by most of the competition and therefore no longer constitutes any prominent competitive advantage. Namely later adapters no longer gain financial benefits from practice.

The presented empirical research findings show that companies put great effort into quality product and achieving quality certification. Opportunities for a better TQM effect involve the full implementation of TQM in companies' systems, processes and corporate culture, which is a basic management function.

Given the set targets, the empirical research leads us to the conclusion that regardless of its extensive application TQM does indeed exert a positive influence on the business results of companies. In order to catch up with the competition from developed economies, companies should also apply TQM more systematically and they must use it in combination with other management techniques which encompass strategic positioning and radical changes in organisational structure, processes, systems and organizational culture. For that purpose, management's selection of techniques should be based on extensive knowledge of techniques and on the concrete situation of a company's internal and external environments, as presented in this article.

Most important study contribution is that solely imitation of management technique namely TQM, as late adapters doesn't lead to financial benefits especially if the technique is also inadequate implemented. The uncritical, random imitation of management techniques which brought good results in other economies might result in the excessive consumption of a company's resources and not improve a company's business performance, as empirically shown with the use of TQM by Slovenian companies.

In order to help boost the competitiveness of companies from developing economies, further research on the influence of a wider range of techniques on business operations, as well as a study of other branches, are clearly both sensible and required.

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ZNAČAJKE CJELOVITOG UPRAVLJANJA KVALITETOM I NJEGOV UTICAJ NA POSLOVNE PERFORMANSE PODUZEĆA

Sažetak

Cjelovito upravljanje kvalitetom (CUK) je u praksi još uvijek jedna od najčešće rabljenih menadžerskih tehnika. Iz toga proizlazi vrlo relevantno pitanje da li upotreba CUK može doprinijeti značajno boljim poslovnim performansama poduzeća, ako je njihova sadašnja konkurentska pozicija na međunarodnom tržištu slaba. Kao odgovor na to pitanje bile su pregledane prije svega osnovne karakteristike učinkovitog izbora i upotrebe CUK, a nakon toga je bilo provedeno empirijsko istraživanje doprinosa CUK poslovnim performansama poduzeća.

Empirijsko istraživanje pokazuje da poduzeća sa primjenom CUK nisu ostvarila bolje poslovne rezultate u usporedbi s onima koja CUK ne koriste. Što se tiče poduzeća koja koriste CUK uz slične mjere kao i njihovi konkurenti iz razvijenih gospodarstava, njihova konkurentnost je lošija jer se prvenstveno usredotoče na kvalitetu nauštrb tehnike koje sadrže strateško pozicioniranje. Pored toga kasnije adaptacije također ne daju financijsku korist u praksi. Stoga izbor tehnika menadžmenta ne bi trebao uslijediti na osnovu slučajne imitacije uspješnih tehnika iz drugih sredina, već na dubokom poznavanju tehnika koje uključuju i strateško pozicioniranje kroz unutarnji i vanjski okoliš poduzeća.

Ključne riječi: poslovni rezultati, poduzeće, financijski pokazatelji, menadžerske tehnike, cjelovito upravljanje kvalitetom