

## The relationship between ISO 9001 and Total Quality Management: Analysis of SME-s in the Polog Region – Macedonia

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### **Abstract**

*In recent years ISO 9001 standards and TQM techniques appear as the main tool in the market. This paper analyzes the relationship between ISO 9001 standards and TQM techniques in Macedonian SME-s. The research conducted in this paper shows the benefits that enterprises receive from the implementation of ISO 9001 standards and the relationship between them based on theoretical and empirical research. We, as authors emphasize the need for enterprises to focus on issues related to the application of this standard and TQM techniques to enterprises of Republic of Macedonia (specifically Polog Region). To analyze this effect, it was necessary to use the method of surveying with enterprises in the Republic of Macedonia. The research is based on a survey of 120 enterprises on Polog Region, where is analyzed the relationship between ISO 9001 standards and TQM techniques and which one of these quality techniques enterprises apply mostly. With the data processing, we can conclude that even though there are large difference s between ISO 9001 standards and Total Quality management again there is a good relationship between them.*

**Keywords:** ISO 9001 standard; Total Quality Management (TQM); SME-s

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### **1. Introduction**

Total quality management is regarded as an important part of all research which is undertaken in the recent period of time in economic sciences. When we talk about TQM the first element which comes to mind is the term quality, a term that the large number of enterprises has as the main goal at the moment they appear on the market. Taylor gave his efforts related to TQM since the 1920s, making efforts to measure the improvement of the final products quality (Smith, 1999). The term quality is defined as: Total - everyone related with the company must be involved in the constant improvement, including the suppliers of the company. Quality - desires, needs and customer requirements are met in full. Management- the ones who complete the obligations are fully committed (Ho, 1997). Total Quality Management as a word was first used in the 80s, for the first time in the US and later in many other parts of the world (Park, 1999). What stands out for us is Japan, a country mostly destroyed after World War II and today represents itself with the most successful companies in the world. It is not excluded that in addition to successful companies, there are also smaller cases where TQM was not received appropriately (Gibson et al. ,2004). Many enterprises fail to distinguish the Total Quality Management from quality standards. The last period of time as a result of the globalization process, the intense competition, emerges the

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need of cooperation between companies from around the world. However, for such cooperation to be effective, the principle of products and services quality must be respected.

Total quality management manages to define quality by consumers. If the enterprise manages to meet the desires, needs and customer requirements that are available then TQM concludes that the company has quality products and services. This technique shows the enterprises the way how to consistently provide quality products and services, how to eliminate problems and how to preserve this quality permanently. The relationship TQM vs. ISO standard is an important relationship. ISO standards manage to certify enterprises with certificates at the moment they meet the conditions to offer qualitative products and services. ISO standards were founded in 1987 by organizations for standards, this number totals 17 standards. ISO 9001 standard is a standard that includes in itself all the necessary elements. In general, standards have a great importance to all enterprises, so it can be said that companies that are certified with these standards provide qualitative products and services in the market. The standards' term expires for enterprises which are certified, almost every three or four years, but it is important to be certified for the first time and then only the rules of the standards should be followed.

## 2. Literature review

Total quality is a much broader concept that includes not just the result aspects but also the quality of people and the quality of processes. (Oakland and Mortiboys, 1991) debate regarding ISO 9000's place in the quality improvement process and its position with regard to TQM, when they proposed that a quality assurance system was one of the three major components of TQM. (Samuel, 1994) has pointed out 8 characteristics, which are needed in order to implement TQM and ISO 9000 successfully. One of them is TQM is needed in the ISO 9000 system in order to produce quality products and services. This is because even with the ISO 9000 certification in hand, it would not guarantee that the products are of high quality. Despite the great number of papers analyzing TQM and ISO 9000, there are very few works that longitudinally analyze the evolution of companies that apply them (Megan and Taylor, 1997). (Terziovski et al., 1997) analyze the effect of ISO 9000 on company results in two groups of firms: firms with low level of TQM implementation and firms with a high level.

They concluded that ISO 9000 did not have a positive effect on company results, independent of the level of TQM implementation. (Lau and Anderson, 1998) suggested that too many US companies failed at TQM implementation because these companies implemented "partial" rather than total quality management. (Anderson and Sohal 1999) found that the most important TQM dimensions were leadership and customer focus (Dow *et al.*, 1999) found that only 3 TQM dimensions - employee commitment, shared vision and customer focus - had a positive relationship with product quality. (Sun's, 1999) international survey of 600 companies from 20 countries found that implementing ISO 9000 alone did not contribute much to quality improvement, while a combination of ISO 9000 and TQM contributed the most. Successful implementation of TQM brings wide benefits and contributions to a company. It is also proposed by (Fenghueih, Ching, and Cleve 1999) that for the maximum benefits of ISO 9000 certification, the efforts undertaken in implementing the standards should be part of a TQM process.

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The ultimate contributions include cultivating attitude of right first time, achieving zero defects, acquiring effective and efficient business solutions, attaining business excellence, delighting customers and suppliers and many more (Antony, Kevin, Knowles, and Gosh, 2000). (Gotzamani and Tsiotras, 2001) had pointed out ISO 9000 as the first step to TQM for which there are no clear requirements and directions. On the other hand, companies focus mainly on quick and simple certification with no real commitment to quality. Over the years, some companies have made the transition from ISO9000, some did not make any attempt and many others tried and failed. According to (Sohail and Teo, 2003), some researchers like (Bradley, 1994) have pointed out the opinion that the ISO 9000 certification is the first step towards the implementation of TQM while some researchers still prefer to maintain focusing on TQM only. They indicated that even though some authors praise the ISO 9000 concept, others view it as a ritualized form of quality management that should not be used in isolation from TQM principles. Companies applying TQM together with the ISO 9000 standards did not share positive results (Martinez- Lorento and Martinez-Costa, 2004).

(Briscoe, Fawcett, and Todd, 2005) indicated that internalizing the core ISO practices is important in improving performance and ISO 9000 practices must become part of the routine in the organization. The recommendation is that ISO 9000 should be incorporated with the philosophy and methods of TQM (Sun, 2000). ISO 9000 certification can deliver significant business benefits if it is implemented as part of a continuous improvement strategy (Terziovski and Power, 2007). (Bikshapathi, 2002) confirms that the impact of ISO certifications on TQM practices in terms of the seven TQM Constructs; Leadership, Quality Culture, Quality System Improvement, Team-building, Employees Participation, and Supplier Customer Relations are showing that there is strong relation between the ISO certification and TQM implementation. This study also observes that the total quality management is implemented in organizations with ISO certification were better than those of without ISO certification.

### 3. Research methodology

This study aims to show the relationship between ISO 9001 standards and TQM techniques and to prove that there is a close link between these two variables. We as author decided this paper to be processed through Chi- Square test, based on the literature review carried out a Chi – Square test who provides if there is a close link between them. Chi – Square test is a type of testing that is used as an important part of testing hypotheses between the two variables in our study. According to (Ceku and Kola, 2011), this test is intended to prove the existence of compatibility between the two variables. This test is used, even when the level of measurement is nominal variables. The formula for calculating the chi- square test is:

$$X^2 = \sum [(O_{r,c} - E_{r,c})^2 / E_{r,c}]$$

where:

$O_{r,c}$  - is the observed frequency count at level  $r$  of Variable A and level  $c$  of Variable B and,

$E_{r,c}$  - is the expected frequency count at level  $r$  of Variable A and level  $c$  of Variable B.

According to (Fox, 2007), if the frequencies observed in a table bivariate based on data sample, are similar to the frequencies expected in the case when there is no connection between the two variables in the population, then we can reject the hypothesis of lack of connectivity. On the other

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hand, the author of the above, states that if the frequencies observed from the tables are very different from those expected when the variables are unrelated, then we reject the assumption that the variables are unrelated and conclude that it is possible to be a link between these variables (at the risk of making a mistake of the first kind).

#### 4. Data collection

In this paper, we used a questionnaire regarding the connection of ISO 9001 standards and TQM techniques. The sample consists of 120 questionnaires distributed to 120 small and medium enterprises in Polog region. The questionnaire included questions about how strong is the link between these two variables, the inclusion of these variables does it help in expanding the market, whether these two variables help to increase consumer satisfaction, product quality, reduce costs or to increase flexibility. The measurement scale of the questions is Liker 5 scale (1 = strongly disagree and 5 = strongly agree). Enterprises were asked to choose one of the scales beside questions related to the attributes received in this paper.

#### 5. Analysis and results

According to the results obtained from the binomial test development accompanied by Chi-square test has reached the conclusion that there is a positive correlation between the implementation of quality management standards ISO 9001 and TQM's techniques. Chi-square value test is 29.441 and is statistically significant. Asymptotic significance 0.000 ( $< 0,0$ ).

Table 1. ISO 9001 and TQM relationship(Q1)

	<i>Observed N</i>	<i>Expected N</i>	<i>Residual</i>
Against	6	29.8	-23.8
Neutral	35	29.8	5.3
Agreed	47	29.8	17.3
Totally agree	31	29.8	1.3
Total	119		

Table 2. Test Statistics

	<i>ISO 9001 and TQM relationship (Q1)</i>
Chi-Square	29.941 <sup>a</sup>
df	3
Asymp. Sig.	.000

#### 6. Conclusions and recommendations

Total Quality management and standards ISO 900 research is one of the most frequently published areas in economic studies. However, given its popularity, empirical studies are rare (Cheng

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and Chan, 1999). The results from this paper lead us to these conclusions that there are a good relationship between ISO 9001 standards and Total Quality Management. It was found that both ISO 9001 and TQM can be an excellent start for an enterprises, if it is interpreted in a way that encourages the enterprise to start on the process of continual improvement by team work of all people working in the enterprise. What we can conclude is that today almost all enterprises voluntarily are certified to these standards, it happens for a reason the thing that enterprises care is customer satisfaction and that satisfaction will be achieved when enterprises will offer quality products and services. ISO 9000 is an important part of TQM, and the implementation of them will lead to organizational success and competitive advantage. All certified enterprises with ISO9001 and TQM at the same time might expect to have advantages in product quality, sales, delivery, profitable and customer satisfaction. Enterprises that acquired the standard years ago more easily provide high quality products.

It was found that there is a good relationship between ISO 9001 standards and TQM techniques, but what should be noted is that ISO standards and TQM techniques are different practices for quality management. ISO 9001 standards certifies companies that meet the quality requirements while TQM techniques based on feedback of consumers.

## References

- Antony, J., Leung, K., Knowles, G., & Gosh, S. (2002). Critical success factors of TQM implementation in Hong Kong industries. *International Journal of Quality & Reliability Management*, 19(5), 551-566.
- Clifford, V. Smith "Total quality management", *Global journal of engage, Education, Vol3, 1999*, p.61-65
- Gibson, J. W., Tesone, D. V., & Blackwell, C. W. (2003). Management fads: here yesterday, gone today?. *SAM Advanced Management Journal*, 68(4), 12.
- Gotzamani, K. D., & Tsiotras, G. D. (2001). An empirical study of the ISO 9000 standards' contribution towards total quality management. *International Journal of Operations & Production Management*, 21(10), 1326-1342.
- Ho, S. K. (1997). Are ISO 9000 and TQM routes for business excellence?. In *Proceedings of the 2nd International Conference on ISO 9000 and Total Quality Management* (pp. 1-18).
- Ho, K. M. S. (1994). „ISO 9000: the route to total quality management“, *Quality World*, March. Jones, R., Arndt, G. and Kustin, 650-60..
- Lau, R. S., & Anderson, C. A. (1998). A three-dimensional perspective of total quality management. *International Journal of Quality & Reliability Management*, 15(1), 85-98.
- Martínez - Lorente, A. R., & Martínez-Costa, M. (2004). ISO 9000 and TQM: substitutes or complementaries? An empirical study in industrial companies. *International Journal of Quality & Reliability Management*, 21(3), 260-276.
- Hasan, M., Ali, M. M., & Lam, T. H. K. (1995). ISO9000 and TQM for Business Excellence. *bm. nsysu. edu. tw*, 2-3.
- Mortiboys, R., Oakland, J., & Department of Trade and Industry, London (United Kingdom);. (1991). *Total quality management and effective leadership: a strategic overview* (p. 8). DTI.
- Sadiq Sohail, M., & Boon Hoong, T. (2003). TQM practices and organizational performances of SMEs in Malaysia: Some empirical observations. *Benchmarking: An International Journal*, 10(1), 37-53.
- Sun, H. (1999). The patterns of implementing TQM versus ISO 9000 at the beginning of the 1990s. *International Journal of Quality & Reliability Management*, 16(3), 201-215.
- Terziovski, M., Samson, D., & Dow, D. (1997). The business value of quality management systems certification. Evidence from Australia and New Zealand. *Journal of operations management*, 15(1), 1-18.
- Terziovski, M., & Power, D. (2007). Increasing ISO 9000 certification benefits: a continuous improvement approach. *International Journal of Quality & Reliability Management*, 24(2), 141-163.