The contribution to excellence of ISO 9001: the case of certified organisations in Cyprus

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Abstract

Purpose – The purpose of this paper is to identify ISO 9001's contribution to the five enablers of the European Foundation for Quality Management (EFQM) excellence model.

Design/methodology/approach – Empirical research was conducted in Cypriot ISO 9001 certified organizations to evaluate the motives that lead them to certification, the difficulties they faced during the standards' implementation and their performance improvement in the five enablers of the EFQM excellence model. Companies were asked to evaluate their performance in 85 issues related to these Enablers both before and after certification.

Findings – The results of the survey indicate the "most" and the "least" important improvements from ISO 9001 certification in the five enablers of the EFQM excellence model. The results also prove that performance improvement is statistically significant in all enablers and it is also significantly related to the companies' motives for certification.

Research limitations/implications – Future research should focus on the least important improvement areas of certification and the appropriate methods and techniques to boost performance in these areas towards excellence, either during the implementation of the standard or after certification.

Practical implications – Shows the average improvement from ISO 9001 certification in key excellence areas. It also highlights the areas on which companies should focus after certification in order to improve their performance towards excellence.

Originality/value – Examines the performance improvement of certified organizations in relation to the five enablers of the EFQM excellence model.

Keywords ISO 9000 series, Total quality management, Quality improvement, Cyprus

Paper type Research paper

Introduction

An issue that has long occupied both the business world and researchers is whether the development and certification of a quality management system according to the ISO 9001 standard can finally guarantee real improvement to the certified organizations. Since, their development in 1987, the ISO 9000 series of standards has captured a lot of attention within the business world, causing a great number of discussions and serious controversy regarding their effectiveness (Bertram, 1990; Byrnes, 1992; Carlsson and

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Carlsson, 1996; Conti, 1993a, b; Corrigan, 1994; Tsiotras and Gotzamani, 1996; Kochan, 1993; Lamprecht, 1991; Marash, 1993a, b; Mayer, 1993; McQueen, 1993; Rayner and Porter, 1991; Sakofsky, 1994; Searstone, 1991; Stephens, 1994, 1997; Stout, 1993; Taylor, 1995; Tummala and Tang, 1996; Zuckerman, 1994; Williams, 1997). This can be attributed to two main reasons: the first reason is its widespread adoption by thousands companies world wide, partly because of the "domino effect" of companies' certifications on their suppliers and the pressure from competition. The second reason is related to the uncertainty regarding the standards' effectiveness and competence in introducing key quality control and improvement methods, which have been strongly emphasized in contemporary quality management literature. The standards were established in Europe around the same year as the Malcolm Baldrige National Quality Award in the USA and their widespread application coincided with the development of the European Quality Award a few years later. Thus, the much simpler and internally oriented requirements of the standards received serious doubts and criticism as to the extent to which they can guarantee quality through customer satisfaction.

A literature review on the standards' effectiveness reveals two schools of thought (Tsiotras and Gotzamani, 1996). One school of thought supports the view that the standard offers a good first step towards total quality management (TQM) and excellence, while the other school of thought is based on the view that organizations are mainly interested in quick and easy certification without real commitment to quality, leading to the development of "static" quality systems that cannot guarantee customer satisfaction. The optimistic view (Henkoff, 1993; Marash and Marquardt, 1994; McQueen, 1993; Rayner and Porter, 1991; Williams, 1997) is mainly based on the fact that the standards offer a well-structured tool to "start with quality," making much easier top management's commitment to it. Even more, the quality assurance system, when properly implemented by the companies, represents a sub-system of TQM (Conti, 1993b; Lamprecht, 1991), while its final certification increases responsibility and commitment to quality. On the other side, the pessimistic view (Corrigan, 1994; Henkoff, 1993; Johannsen, 1995; Stephens, 1994) is based on the fact that companies focus mainly on quick and easy certification, without real commitment to quality.

However, the main conclusion that can be drawn from the literature review on this matter is that the standards' long-term contribution to the performance of certified companies may be positive, neutral or negative, depending on the way that companies choose to implement them (Tsiotras and Gotzamani, 1996).

The revised ISO 9000:2000 version is much closer in approach to the excellence models. The new ISO 9001:2000 introduces some aspects more in line with a TQM system, such as management commitment, customer orientation, process focus and continuous improvement (Biazzo and Bernardi, 2003; Boulter and Bendell, 2002; Conti, 1999; Tsim *et al.*, 2002; Varva, 2003; Zuckerman, 2001) which had not been taken into account by the previous standards and there is a remarkable convergence with the quality management principles of the most popular excellence models. In fact, the Baldrige criteria have had a profound effect on the ISO 9001:2000 revision (Hampton, 2000) and as a result, the ISO 9000:2000 requirements are more customer, process and continuous improvement oriented. What is even more important for the certified companies is that the new elements that are introduced by the revised series of standards belong to the so-called "soft elements" of TQM, which have been found to be the fundamental ones in a TQM system, with a very strong effect on companies'

performance results (Costa and Martinez-Lorente, 2003). However, the results of previous surveys indicated that the ssuccess or failure of the standard does not depend on the adequacy of its requirements, but rather on the companies' ability and willingness to implement it correctly. The real benefits of the standard can be achieved only if the companies that implement it fully realize both its potential and its limitations (Henkoff, 1993). In fact, there are serious doubts and reservations again concerning the degree to which the new standard will really boost companies' performance more than the previous one (Bendell, 2000; Biazzo and Bernardi, 2003; Costa and Martinez-Lorente, 2003; Janas and Luczac, 2002; Larsen and Haversjo, 2000; Laszlo, 2000; Wealleans, 2002).

This paper presents the results of empirical research conducted among ISO 9001certified Cypriot organizations in order to investigate the contribution of ISO 9001:2000 certification towards excellence. ISO 9001 certification began in Cyprus in the mid-1990s. In 2002, the number of certified organizations reached 352, while the implementation of excellence models such as the european foundation for quality management (EFQM) excellence model in Cyprus, are still in their infancy stage. Thus, the main objectives of the research were to:

(1) investigate the contribution of ISO 9001:2000 towards excellence;

(2) investigate the motives behind ISO 9001:2000 certification, the certification process itself and the any problems encountered during the certification process as well as the results of certification;

(3) investigate the effect of motives and certification process on the benefits gained from certification; and

(4) investigate the effect of motives and certification process on the performance improvement in excellence practices.

Research methodology

To examine the research questions, a questionnaire was designed comprising six parts:

Part A of the questionnaire examined the motives that lead the organizations to certification utilising a list consisting of 12 different possible motives for implementation. The surveyed organizations were asked to indicate the degree to which each one of these motives influenced their decision to pursue ISO 9001 certification.

Part B of the questionnaire examined some basic elements with regard to the certification process, namely the degree to which consultants were used, the amount of management and personnel training required for the implementation of the standard.

Part C of the questionnaire examined the basic problems and difficulties that organizations might face during the certification process, with the use of a list of nine possible problems and difficulties.

Part D, the main part of the questionnaire, examined the contribution of the ISO 9001 system towards excellence. The description of excellence practices was based on the five enabler-criteria of the European Foundation for Quality Management (EFQM) excellence model and included the criteria of:

- leadership;
- policy and strategy;

- partnerships and resources;
- human resources (people); and
- management of processes.

For the description of the above five dimensions, 85 questions were used, covering excellent practices in all of these dimensions. These practices were derived from the EFQM excellence model, from existing literature, from information received from various Cypriot organizations, as well as from other similar international research and mainly from a similar study that was carried out in Greek industry (Gotzamani and Tsiotras, 2001). The organizations that took part in the research were asked to evaluate the degree to which they applied each one of these practices before and after certification. In this way, it was sought to find the contribution of the standard towards the organizations' performance in these practices and to check whether this contribution was significant or not. Although some may argue that answers may be rather subjective and respondents may not remember exactly what they did before certification so as to judge their improvements from it, this was deemed the most robust way to "isolate" ISO 9001's contribution from other managerial and/or environmental attributes and parameters.

Part E of the questionnaire examined the certification benefits, with the use of a list of 22 possible types of benefits and three negative results that were derived from literature review. Finally, Part F examined the degree of knowledge/awareness and interest in the implementation of other quality tools and techniques.

In all parts of the questionnaire, a measurement scale of six points was used (0 = Not at all, 1 = Very low, 2 = Low, 3 = Moderate, 4 = High, 5 = Very high), in order to avoid the central tendency error. The questionnaire took its final form after a pilot test on a number of organizations and it was sent by post to almost all the ISO 9001 certified Cypriot organizations (346). The collection of the questionnaires took place in the period October-November 2003. A total of 95 answered questionnaires were received, giving a relatively high rate of response (27 percent), taking into consideration the method of completion (by post) and the large size of the questionnaire. The respondents to the questionnaire were general managers (38 percent), quality managers (28 percent) and operations managers (34 percent) and statistical analysis showed that there were no statistically significant differences in their answers. However, no tests have been done for possible non-response bias.

The rest of the paper discusses the results concerning only the main part of the questionnaire, Part D, which describe the contribution of the ISO 9000 systems towards excellence – the main focus of this paper.

Results on performance improvement towards excellence

Before using the excellence enabler's measurement instrument (Part D of the questionnaire) to test the basic hypothesis of the research, the instrument was first tested for its reliability.

The internal consistency method was used to test reliability in each enabler, since this is said to be the most popular method for testing an instrument's reliability. This method is also suggested as particularly important in measurement instruments with super-variables or multiple-elements dimensions (Bryman and Cramer, 1994), as is the case with the excellence model enablers. The internal consistency was measured using

the Cronbach's α reliability coefficient. The closer this is to one, the higher the internal consistency of a dimension, while generally values higher than 0.8 are regarded as satisfactory. The results proved the internal consistency of each enabler's elements in the instrument, since the reliability coefficients for all categories were very high (>0.80). The exact reliability coefficients for each enabler are presented in Table I.

The companies' performance improvements (performance after certification versus performance prior to certification) were tested for each one of the 85 excellence measurement elements of the instrument. With the help of the parametric t-test for paired samples, it was found that performance improvement (performance after certification versus performance before certification) was statistically significant for each one of the 85 elements describing the five enablers of excellence (Table II). The null hypothesis that this performance difference is equal to zero was rejected at 0.01 level of significance for all five enablers of excellence and for each one of the 85 elements of measurement. This finding provides an answer to the ISO 9001 standards' effectiveness question for Cypriot organizations, indicating that the development and the certification of a quality system in accordance to ISO 9001 contributes towards the implementation of excellence practices in certified organizations.

More specifically, the performance before and after certification, as well as the performance improvement achieved from certification in each one of the five excellence enablers is shown in Figure 1. The score in each dimension was taken as the mean score of the extent of implementation of the elements describing the dimension (where 0 = not at all, 1 = very low, 2 = low, 3 = moderate, 4 = high, 5 = very high).

Business excellence enabler	Cronbach's α
Leadership	0.92
Policy and strategy	0.92
Partnership and resources	0.97
Human resources	0.95
Process management	0.97

Table I.
Cronbach's α reliability coefficients

	Paired differences							
				95 percent of confidence interval of the difference				
Performance improvement in business enablers	Mean ($\Delta\bar{x}$)	SD (s)	SD Error mean	Lower	Upper	t	df	Sig.
Leadership	1.0579	0.69879	0.07169	0.9155	1.2002	14.756	94	0.000
Policy and strategy	1.1339	0.79360	0.08142	0.9722	1.2956	13.926	94	0.000
Partnerships and resources	1.0873	0.68373	0.07015	0.9480	1.2266	15.500	94	0.000
Human resources	1.0906	0.73924	0.07584	0.9400	1.2412	14.380	94	0.000
Process management	1.4422	0.91478	0.09385	1.2568	1.6285	15.366	94	0.000

Table II.
Paired sample statistics

Note: df – degrees of freedom

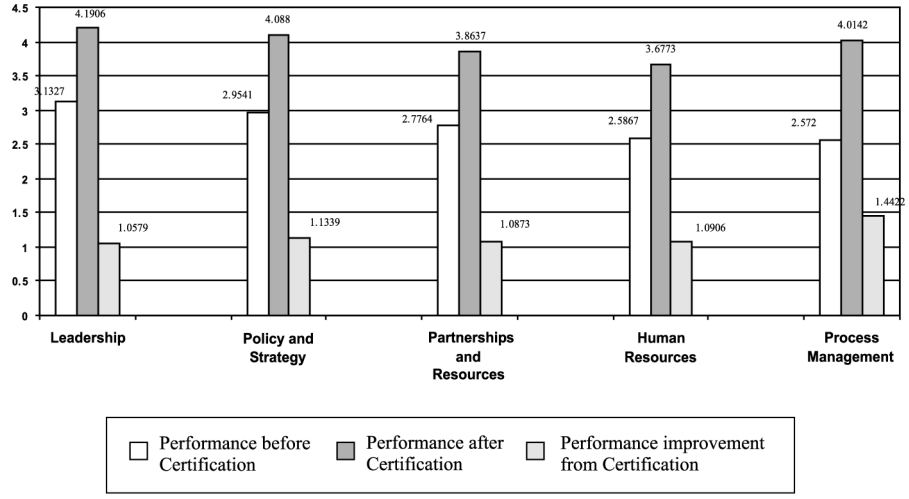

Figure 1.
Performance in BE enablers before and after certification

The standards' most important contribution was in the "Process Management" criteria. While the mean performance in this dimension before certification was less than moderate ($\Delta\bar{x} = 2.57$) and it was actually the lowest of all dimensions, it reached very high levels (4.01) after certification. This is mainly attributed to the standards' requirement for systematic documentation and control of critical processes for the quality of products, and provides a solid basis for future improvement. The most significant improvements in this dimension were related to processes concerning customer satisfaction, like systematic monitoring of internal indicators related to customer satisfaction ($\Delta\bar{x} = 1.95$), systematic measurement of customers' satisfaction ($\Delta\bar{x} = 1.87$), and use of these measures for improvement ($\Delta\bar{x} = 1.76$), while improvements were lower in the management of processes related to new products and services design.

The "Human Resources" criteria show low performance before certification and the lowest of all the other categories after certification. The improvements in this dimension related more to the education of personnel on quality issues and less to the wellbeing, satisfaction and development of personnel, the promotion of social and cultural activity and the involvement of personnel in the development of plans that concern them.

In the "Partnerships and Resources" criteria, the most significant improvements concerned the systematic recording of process performance results ($\Delta\bar{x} = 1.96$), the demand for quality certificates from partners ($\Delta\bar{x} = 1.85$), and the comprehensive nature of the partners' evaluation system ($\Delta\bar{x} = 1.71$), while improvements concerning the management of economic resources, equipment, materials, and technology were found to be moderate.

In the "Leadership" criteria, the most significant improvements concerned the implementation of an effective organizational structure and process management system and the support of improvement activities, whereas communication and recognition of personnel had the lowest improvements.

Finally, the most significant improvements in the "Policy and Strategy" criteria were achieved in strategy deployment within the organization, through a framework of processes and action plans, while there is low-performance improvement in the use of the external environment's information (market, competition, etc.) for the development of business strategy.

The above findings are presented clearly in Table III, which shows the highest and the lowest improvement items in each excellence enabler criteria, together with their mean improvement scores.

Overall, the practices with the greatest improvement from ISO 9001 certification among all practices included in the questionnaire are: "Establishment of a formal process management system" ($\Delta\bar{x} = 2.09$); "Systematic recording of process performance data" (1.96); "Systematic monitoring of internal indicators related to customer satisfaction" (1.95); and "Demand for quality proofs from partners" ($\Delta\bar{x} = 1.85$). Performance in all these practices, which concern the basic requirements of the standard, was less than moderate before certification ($\Delta\bar{x} = 2.21, \Delta\bar{x} = 2.25, \Delta\bar{x} = 2.26, \Delta\bar{x} = 1.62,$ respectively.) and consequently they had a large improvement margin.

On the contrary, the practices with the lowest improvement from certification are: "Promoting social and cultural activity of personnel" ($\Delta\bar{x} = 0.48$); "Managing risks related to financial resources" ($\Delta\bar{x} = 0.48$); "Developing business strategy based on information from the external environment" ($\Delta\bar{x} = 0.64$); and "Developing long-lasting relations with suppliers" ($\Delta\bar{x} = 0.63$).

Another important finding of the research is that although there is significant variation in the organizations' performance before certification in each of the 85 elements, this variation decreases after certification. The same is true for the variation of performance in each one of the five enablers of excellence. This finding proves that lower performance organizations make greater efforts than the others, thus minimizing the performance distance that separates them. This finding was also confirmed by the statistically significant but negative relationship between the organizations' performance before ISO 9001 implementation and the improvement of their performance in each individual element and each excellence enabler. Organizations with high performance in excellence practices before certification have less to gain from it, compared to organizations with a lower performance on excellence practices before certification.

Finally, an organization's performance in any excellence enabler was found to be positively related to its performance in all other enablers, both before and after certification, since all relevant correlation coefficients were found to be positive and statistically significant at a significance level less than or equal to 0.01 (sig. $< = 0.01$). Thus, organizations with a high or low performance in one excellence enabler tend to have similar performance in all five enablers, indicating the holistic nature of the excellence model.

The effect of certification motives on excellence

The application of factor analysis (principal components analysis and oblique rotation) in the results on certification motives, in Part A of the questionnaire, grouped them according to their inter-relationships and revealed three main factors/categories of motives:

Practices with highest improvement		Practices with lowest improvement	
Leadership ($\Delta\bar{x} = 1.06$)			
Ensuring effective organisational structure and process management system to deliver policy and strategy	$\Delta\bar{x} = 1.32$	Achieving effective communication with people and responding to their needs	$\Delta\bar{x} = 0.68$
Encouraging and supporting creativity, innovation and people involvement in improvement activities.	$\Delta\bar{x} = 1.32$	Recognizing and praising people efforts in a timely and appropriate manner	$\Delta\bar{x} = 0.76$
Communicating the organisations mission, vision, values, strategy, plans and objectives to people	$\Delta\bar{x} = 1.27$	Communicating with customers, partners and representatives of society, meeting their needs and expectations, and actively participating in joint improvement activities	$\Delta\bar{x} = 0.81$
Policy and strategy ($\Delta\bar{x} = 1.13$)			
Policy and strategy are deployed through a network of key processes, plans and objectives	$\Delta\bar{x} = 1.7$	Policy and strategy are based on information from the market	$\Delta\bar{x} = 0.64$
Policy and strategy are systematically reviewed and updated	$\Delta\bar{x} = 1.6$	Policy and strategy are based on information from comparisons with competitors	$\Delta\bar{x} = 0.68$
Policy and strategy are based on internal performance indicators	$\Delta\bar{x} = 1.29$	Policy and strategy are based on analysis of the external environment	$\Delta\bar{x} = 0.73$
Partnership and resources ($\Delta\bar{x} = 1.09$)			
Systematic recording of process performance data (times, scrub, delays, etc)	$\Delta\bar{x} = 1.96$	Managing risks to financial resources	$\Delta\bar{x} = 0.48$
Require quality certificates from partners	$\Delta\bar{x} = 1.85$	Developing long-lasting relations with suppliers	$\Delta\bar{x} = 0.63$
Having a comprehensive system for evaluating partners	$\Delta\bar{x} = 1.71$	Systematic collection of data for comparison with excellent organisations for learning and improving	$\Delta\bar{x} = 0.70$
Human resources ($\Delta\bar{x} = 1.09$)			
Training people on quality issues	$\Delta\bar{x} = 1.71$	Promoting social and cultural activity	$\Delta\bar{x} = 0.48$
Promoting awareness in health, safety, environment and social responsibility issues	$\Delta\bar{x} = 1.39$	Promoting people well being, satisfaction and development	
Aligning HRM with strategic objectives	$\Delta\bar{x} = 1.38$	Involving people in developing human resource plans	$\Delta\bar{x} = 0.80$
			$\Delta\bar{x} = 0.85$

(*continued*)

Table III.
Performance improvement in business excellence dimensions

Practices with highest improvement		Practices with lowest improvement	
Process management ($\Delta\bar{x} = 1.44$)			
Establishing process management system	$\Delta\bar{x} = 2.09$	Providing service before, during and after sales	$\Delta\bar{x} = 0.80$
Systematic monitoring of internal indicators related with customer satisfaction	$\Delta\bar{x} = 1.95$	Designing and developing new products and services together with partners	$\Delta\bar{x} = 0.94$
Systematic measurement of customers' satisfaction	$\Delta\bar{x} = 1.87$	Designing products aimed at customer satisfaction rather than lowering cost and satisfying production requirements	$\Delta\bar{x} = 0.98$
Setting process performance targets	$\Delta\bar{x} = 1.80$		

Table III.

- quality improvement;
- market growth; and
- external pressure.

The titles of the factors were given based on the "descriptive approach" reflecting the nature of the motives that belong to them.

To test the effect of certification motives on excellence enablers, the correlation coefficients Pearson's r and Spearman's ρ were calculated between the three main motive-factors and the performance improvement from certification in each excellence enabler (Table IV).

The survey results verified the importance and the impact of the certification motives, to the overall value added by the standards. More specifically, the motive factor "Quality Improvement" was the only factor that was substantially correlated with performance improvement in all excellence enablers. The other two motive-factors were not correlated with performance improvement in any of the excellence enablers. This finding is also confirmed by the calculation of the correlation coefficients between the individual motives and the performance improvement from certification in each excellence enabler. The certification motives "Internal operations' quality improvement" and "Final products' and services' quality improvement" were positively correlated with all excellence enablers.

Combining the results of this survey with similar results of other surveys

The results of this survey aligned well with the results from previously undertaken national studies on ISO 9001 (Douglas *et al.*, 1999; Escanciano *et al.*, 2001; Fenghueih *et al.*, 1999; Gotzamani and Tsiotras, 2001; Gustafsson *et al.*, 2001; Hongyi, 2000; Torre *et al.*, 2001; Withers and Ebrahinpour, 2000), thus providing grounds for generalisations regarding the contribution of the ISO 9001 standard to excellence and TQM.

More specifically, similar results with those taken in Cyprus industry were taken from national surveys in Greece (Gotzamani and Tsiotras, 2001) and Spain (Escanciano *et al.*, 2001) which also indicated the ISO 9001 certification's

	Leadership		Policy and strategy		Partnerships and resources		Human resource		Process management	
	r	ρ	*r*	ρ	*r*	ρ	*r*	ρ	*r*	ρ
Quality improvement										
Correlation coefficient	0.327**	0.321**	0.309**	0.281**	0.339**	0.273**	0.271**	0.214*	0.272**	0.168
Sig. (two-tailed)	0.001	0.002	0.002	0.006	0.001	0.007	0.008	0.038	0.008	0.104
Market growth										
Correlation coefficient	0.005	0.008	0.035	0.001	0.073	0.103	−0.019	−0.019	−0.080	−0.095
Sig. (two-tailed)	0.962	0.941	0.738	0.990	0.481	0.319	0.854	0.852	0.443	0.360
External pressure										
Correlation coefficient	0.055	−0.007	0.092	0.013	0.129	0.108	0.114	0.101	−0.016	−0.050
Sig. (two-tailed)	0.599	0.945	0.380	0.904	0.216	0.299	0.276	0.332	0.879	0.631

Notes: *Correlation is significant at the 0.05 level (two-tailed test); **correlation is significant at the 0.01 level (two-tailed test)

Table IV.
Correlation coefficients between motives' factors and performance improvement

contribution as a management tool and source of competitive advantage and most of all, its potential to stimulate the companies' transitions towards excellence and TQM. Again, the main motive for certification was found to be the companies' intentions to improve quality, while certification results satisfied or even surpassed expectations. Similar results were also reported by Hongyi (2000), who showed that ISO 9001 certification is positively related to TQM enablers such as the availability of quality information, quality assurance of products, quality of processes and co-operation with customers, but is less so with strategic quality plans, employee participation and human resource development, while Withers and Ebrahinpour (2000) showed that all dimensions of quality improve as a result of ISO 9001 implementation and especially the dimensions of reliability, conformance, serviceability, and perceived quality, while the degree to which they are improved is influenced by the reasons for seeking implementation.

A number of other empirical surveys also indicate the influence of certification motives on performance. More specifically, Fenghueih *et al.* (1999) indicated that motivation and implementation processes influence the overall performance and benefits. The role of active motivation stands out in particular, influencing most performance factors, especially as time progresses over achievement of certification. Douglas *et al.* (1999) proved with the help of a case-study that ISO 9000 benefits can only be achieved when the certification motives are true and internal (part of a Continuous Improvement or TQM philosophy), implementation does not solely rely to external consultants and it is part of an overall quality strategy. Also, Gustafsson *et al.* (2001), found through an empirical study in small enterprises (less than 50 employees), that the most important factor for the successful implementation of ISO 9001 is the company's basic attitude to the system when the implementation starts. In other words, successful implementation depends on the degree to which the company seeks certification as a way to improve quality and organization and not as a result of external pressure. This was also the main conclusion from a survey on ISO 9000 certified companies in the Swedish industry, since the overall benefits that companies gained from the standards showed dependence on the motivation which initiated their drive for certification (Poksinska *et al.*, 2002). Finally, Torre *et al.* (2001), studied ISO 9001 certification in Spain and found that the most important certification motive for all companies was to continue to work towards quality.

The above empirical results, although involving differing research methods and different organisations in different countries, seem to be aligned, supporting the results of this study in Cyprus industry, allowing ground for generalisations. However, it would be very important to have further research exploring the effect of certification not only on criteria related to excellence enablers, but also on criteria related to excellence results. After all, although excellence enablers are critical for long-term performance and success, excellence results are crucial in judging the overall effectiveness and efficiency of the system's performance. Also, it would be very interesting to have further research considering the results of ISO 9001 certification on hard measurements instead of managers' perceptions, although in this case we should be very careful how to accurately measure the contribution of ISO 9001 certification on these measures as distinct from other business and environmental parameters.

Conclusions and discussion

The basic conclusion drawn from this research is that ISO 9001 certification indicates an improved excellence enablers' performance in Cypriot certified organizations, especially in the category of process management. Even more, it is indicated that certification motives are particularly significant for the contribution of certification in excellence performance The contribution of standards is indicated to be higher for organizations that implement them focusing mainly on true quality improvement of their internal operation and their final products and services.

Overall, the results of the empirical research in Cyprus industry, aligned with those of similar empirical studies conducted elsewhere, indicating that efforts after certification should focus on the "soft" elements of TQM (leadership, employee participation and empowerment and customer relations), since these are the ones with the least improvement from certification. Improvements in these elements are particularly important, since there is adequate research (Samson and Terziovsi, 1999; Ahire *et al.*, 1996; Powell, 1995) proving that the key to excellence and TQM performance does not lie in tools and techniques such as ISO 9001 certification and benchmarking. The "soft" enablers of TQM and excellence (leadership, management involvement, human resource management and customer focus) have a higher influence on performance improvement than do the "hard" ones (the more systems and analytic-oriented factors of information and analysis, process analysis and strategic planning). The results of a survey in Asia/South Pacific, Europe and North America found that from a number of different approaches to quality, the major factors that influence actual quality were the organization's knowledge of quality management, its degree of customer focus, and management involvement (Adam *et al.*, 1997).

However, Hongyi (2000) proved that although TQM and the excellence enablers of quality leadership and human resource development are predominant in terms of contribution to customer satisfaction and performance, none of them could contribute alone to improvement of performance. TQM and excellence are holistic approaches and all these enablers contribute collectively to improvement.

Overall, for those companies aspiring to excellence, focus and efforts need to extend well beyond the requirements of ISO 9001:2000 and encompass other management standards, tools and techniques. In order for any organisational change to be successful, organisations must first fully realise the need for the change. They must be well aware of the strengths, weaknesses and limitations of their current situation (ISO 9001), as well as the potential and the characteristics of their desired future state (excellence or TQM). Standards such as ISO 9001:2001 provide complimentary rather than competing approaches (Russell, 2000) and standards' requirements, no matter how good, can always be copied by competitors.

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