

The Impact of the Quality Management System ISO 9000 on Customer Satisfaction of Slovenian Companies

Franka Piskar

Many companies invest great efforts into achieving appropriate organization and through it better quality of products and services. They try to achieve this in a systematic way following the standard ISO 9000. Implementing ISO is a management decision that requires consideration of company's operations, strategy, staff and, most importantly, customers. The theoretical part of the research is focused on literature review. Second part-empirical research has been done on the basis of structured questionnaires gathered from 212 responses of Slovenian companies that had already acquired the ISO 9000 quality standard certificate by 2002. We have posed eight questions about the impact of the ISO 9000 on customer satisfaction. The research results in Slovenian companies confirm the ISO 9000 quality standard's impact on better satisfying customers' needs and demands, but not the direct impact on business success. This paper also presents a very useful source of solutions and information for managers and researchers in the field of quality systems and customer satisfaction. Additionally, it comprises an short overview of customer relationship management (CRM) as a system that companies can use for monitoring and satisfying the needs of a customer during any given interaction.

Key Words: ISO 9000, quality management systems, customer satisfaction, customer relationship management, marketing

JEL Classification: L15, M31

Introduction

Today's competitive market, in almost every category of products and services, is characterized by accelerating changes, innovation, and massive amounts of new information. *Much of this rapid evolution in markets is fueled by changing customer needs. Significant customer behavior and market changes happen almost overnight.* Changes in market preference or technology, which used to take years, may now take place in a few short months. As the pace of change accelerates, it becomes more diffi-

Franka Piskar is Medical Area Director, Sanolabor, d. d., Slovenia

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cult to maintain stable relationships with suppliers, customers, brokers, distributors, and even your own company personnel.

Commitment to product quality and customer satisfaction programs are essential for companies to compete against competitors. Thinking about 'post-sale' customer satisfaction (or managing customer 'dissatisfaction') programs as a way to reinforce customers' buying preferences for companies products and services for their current and future purchases.

Quality of product is also defined according to the extent to which customer's expectations, needs and demands are met. Customers choose products which maximize delivered value (Kotler 1998). This results in another purchase or customer loyalty. The discrepancy between customer's expected product and delivered (perceived) product is a basic measure for quality of product and customer satisfaction.

Why does customer satisfaction matter? There are two reasons. Customer satisfaction shows whether we are doing the right things and whether we are doing them in the right way. A customer is the only financial contributor and in times of harsh competition customer satisfaction plays a more and more important role in making a purchase decision (Goodman and Colin 1992).

Implementation of the ISO 9000 defined as a set of quality standards that are determined as being necessary for manufacturers and service organizations to be effective competitors (Raisinghani et al. 2005) can be used by management of the companies to improve performance and higher quality output. *The emphasis is on the eight principals, that are: customer focus, leadership, employee involvement, process approach to activities and resources, system approach to management, continuous improvement, and strategic supplier and customer partnerships (ISO 9001:2000).* There are also other quality systems, such as Zero Defects, Total Quality Management, a national quality award named Malcolm Baldrige National Quality Award or MBNQA, and the Six Sigma approach (Vokurka 2003). They were all instituted to award those producers of goods and services that met the highest level of standards. *The most important principle in all systems is customer focus; how customers perceive quality and what are their quality expectations.*

The theoretical part of the research is focused on literature review, which confirms the correlation between quality systems and customer satisfaction with the goal of steering the company's marketing activities. As far as quality systems and customer focus are concerned, we support

the introduction of customer relationship management (CRM), which is confirmed by numerous research. *The goal of empirical research is to confirm or reject the hypothesis that ISO 9001 standard has an impact on customer satisfaction in Slovenian companies.* The research was carried out in 2002. The hypothesis will be confirmed or rejected on the basis of companies' responses to the eight questions we have posed. When researching the certificate's impact on customer satisfaction, we were interested in finding whether product and service quality improved, whether customer satisfaction and their loyalty were enhanced, whether there was a decrease in customer complaints, whether the quality of post-sale services improved, and whether the number of customers, their profitability and the sales in general increased.

Literature Review

The areas responsible for quality control are marketing, design, procurement, process design, production, inspection and test, packaging and storage and product service (Besterfield 2004). Marketing has been in existence longer as a management discipline, and its recent history has been one of questioning, redefining and developing the marketing concept and the techniques of implementing new approaches to marketing. The shift of focus from quantity to quality in production represented by total quality management (TQM) has seen the development of a range of techniques to implement total quality strategies. TQM is defined as the 'management approach of an organization, centered on quality, based on participation of all its members and aiming at the long-run success through customer satisfaction, and benefits to all members of the organization and to society' (Slovenski standard 2005.). Customer satisfaction is a broad concept that includes perceived evaluation of product and service (Leem and Yoon 2004). Bathie and Sarkar (2002) in their paper started with the observation that both marketing and TQM had a core value in common – a customer focus. From the process approach (principle in ISO 9001:2000), there is great potential to use it in operationalising marketing. Working toward a process that will bring TQM and marketing together to deliver a customer focus will require changes in the way that marketing is thought of and organized.

Chien et al. (2002) stated that many companies fail to implement customer satisfaction owing to lack of experience, or not being able to keep up with the continuous implementation of customer satisfaction (requirement of the ISO 9001:2000). One of the ways is the introduction

of CRM. Bose (2002) stated that CRM is an integration of technologies and business process used to satisfy the needs of a customer during any given interaction. An important issue is also the capacity of information technology (Lesjak 2000). CRM is also a process by which a company makes good use of customer information to enhance customer loyalty (Choy et al. 2003). All this derives from six categories of customer information: technical support, customer service, product price, product quality, product package and customer satisfaction; including quality standards (Choy et al. 2003). Companies wishing to improve their relationships with customers need constantly to monitor their behavioral and internal processes. Sin et al. (2005) proposed a scale in their study which could be used as a diagnostic tool to identify areas where specific improvements are needed, and to pinpoint aspects of the firm's CRM that require work. The paper by Ahn et al. (2003) provides a comprehensive review of CRM and marketing data sources, and considers some design concepts for creating an effective CRM system from the viewpoint of practical use of the data sources. CRM is different in each country, depending on country specific factors (William and Endacott 2004). Once a CRM strategy and technology for customer service was in place, it became vital to develop processes for measuring and monitoring performance (Smith 2006). Continual monitoring of customer satisfaction and behavior, and measuring successes with benchmarking and more, will ensure that the processes continue to evolve into the best method. In the paper (Curry and Kkolou 2004) the authors present a self-assessment tool which organizations can use to evaluate their use of CRM. *The CRM approach has also a consequent beneficial effect on the organization's TQM culture.* The paper by Zineldin (2005) examines the product and service quality and customer relationship factors that influence the customer selection and image of the principal banks. *One necessary condition for the realization of quality and the creation of value added is quality measurement and control.* This is an important function to ensure the fulfillment of given customer requirements. The key ways to building a strong competitive position are through CRM, product/service quality and differentiation. In the journal *Strategic Direction* three leading organizations – John Lewis, Boots the Chemists, and Standard Life – have made customer relationship management (CRM) central to their business, but conceive, prioritize and manage it differently (Getting better every day 2005). Ngai (2005) made the first identifiable academic literature review of CRM research. The bibliography provides an academic database of the literature between 1992 and

2002 covering 89 journals. The classification approach provides a means to conceptualize the coverage of CRM and the relative popularity of CRM topic areas. CRM solutions not only improve customer loyalty, but also internal processes which in turn increase efficiency (Xu et al. 2002; Ahn et al. 2003).

Every country cognizant of this trend is gradually including customer satisfaction as an important judgment criterion for the National Quality Award to be one of the major orientations in a quality promotion policy. *Therefore, customer satisfaction should play a central role in the company's TQM, and it will also be one of the most important strategies and issues for the corporation in the future* (Chan 1993; Ekloef and Westlund 1998; Naumann et al. 2001). Another research (Chien et al. 2003) is also focused on measuring customer satisfaction. Measuring factors are: perceived quality and value, customer expectation, satisfaction and loyalty, etc., and they all affect customer satisfaction. Spathis and Constantinides (2003) also support the correlation between quality and customer satisfaction based on preliminary enterprise resource planning. Ho et al. (2005) equally confirm that quality is the key element and synonymous with the consumer's ability to choose from a wide array of products and features that provide a closer match to individual needs and desires.

A number of research activities have been conducted worldwide, which confirm the correlation between quality systems and customer satisfaction, in other words quality system's impact on customer satisfaction. Prabhu et al. (2000) confirmed that there are significant correlations between the elements of TQM and the improvement in competitiveness in 74% of English companies, as well as in 28% of companies that were ISO 9001 certified. Mendham et al. (1994) in a survey of 4,091 small businesses reported that their principal motivation for seeking certification, other than to improve quality, was to win new customers. The research results from Casadesus and Gimenez, Spain (2000), showed improved responsiveness to customer demands, increased satisfaction and access to new markets. *Terziovski et al. (1995) reported that there was no significant link between ISO 9000 certification and customer satisfaction.* Unfortunately, they failed to ask customers directly whether they were satisfied, preferring only to seek the views of contacts in their manufacturing firm sample.

Analysis of the effect of ISO 9000 quality standards and TQM on small companies in Northern Ireland (McAdam and McKeown 1999) also experienced positive effects. Veritas Labs' survey of 48 certificated com-

panies in the New York (USA) area found that the primary reason for seeking certification was pressure from existing customers, and that benefits were obtained in the form of increased employee motivation and personal accountability for job performance. *The introductions of quality standards into the Dutch companies improved competitive advantage as well as customer and employee satisfaction* (De Vries and De Jong 2002). Vloeberghs and Bellens (1996) conducted a census of all known Belgian certificate-holders. Most of the benefits experienced by these firms were internal; however, the greatest benefit is that the formal quality assurance (QA) system leads to 'greater client trust'. Brown and van der Wiele's (1995) census of accredited firms in Western Australia found that pressure from customers was the primary motivation for seeking certification, and that the four most important benefits experienced were improved quality awareness, improved awareness of problems, improved management control and improved customer service. In the research from Pan (2003) among four Far Eastern countries the benefits of ISO 9001 certification are: improved competitive edge since it is composed of 'increased productivity', 'quality improvements', 'increased customer satisfaction', 'increased profit margin', and 'cost reduction'; and improved public relations. Six Sigma is also being adopted by some service industries to improve their process that results in quality customer satisfaction (Raisinghani et al. 2005).

Carpinetti et al. (2003) presents a reference model for the process of management of quality and improvement based on a conceptual framework for managing the process of systematically deriving improvement actions from customer expectations and strategic decisions through business processes, and prioritizing actions that will most contribute to the achievement of strategic objectives. A number of similar studies reach broadly the same conclusions (Prybutok and Cutshall 2004; Heras et al. 2002; Magd et al. 2003; Fuentes et al. 2003, Martínez-Lorente and Martínez-Costa 2004; Heras et al. 2002; Magd and Curry 2003; Dolinšek and Kopač 2000).

The literature review identified benefits which had been claimed as products of ISO 9001 certification. *All this analysis indicates that the benefits are the marketing benefits.* Marketing benefits include gaining new customers, keeping existing customers, using the standard as a promotional tool, increasing market share, increasing growth in sales and improving customer satisfaction (Buttle 1997). Companies are satisfied with the impact of the standard on their organizations. These findings are

TABLE 1 Plan for data collection

Statistical population	companies and other organizations in Slovenia in 2002
Sample unit	individual company/organization in Slovenia in 2002
Sample frame	987 companies/organizations from the population: <ul style="list-style-type: none"> • addresses acquired through Infolink • our business partners
Sample size	planned: from 200 to 250 sample units, achieved: 212 sample units
Sampling procedure	simple random sampling within population
Research instrument	structured questionnaire
Data collection method	combined postal questionnaire (including mail and personal delivery and distribution of questionnaires by intermediaries), supported by telephone contacts and personal contacts; the purpose was to obtain the highest number of responses
Data processing methods	<ul style="list-style-type: none"> • statistical processing using the MSSQL Server 2000; we distinguished criteria by processing pages and used ASP technology (active server pages) to review the data • interpretation of questionnaire responses • confirmation or rejection of hypothesis
Time of data collection	from September to December 2002
All the answers refer to	June 30, 2002

broadly in keeping with the majority of previous research detailed earlier in this paper.

Research Method

Quality systems' impact on customer satisfaction has become extraordinarily important, and companies around the world are dedicating an increasing amount of attention to it. That is why a part of our research is devoted to this issue. In table 1, the parameters and methods of data collection for later analysis are outlined. *We have set eight questions on the impact of the quality system ISO 9001 on customer satisfaction.* The questionnaire was filled out by business-functional managers. The research was carried out in the transitional period between the ISO 9001/2:1994 to the ISO 9001:2000. This period took two years from official issue of the ISO 9001:2000. Analysis of results can also be done through filters, which show mutual impacts of different variables such as:

- company economic activity,



FIGURE 1 Standard's impact on quality, customer loyalty and customer satisfaction
 ●— standard deviation — mean value

- number of employees,
- year of standard acquisition.

The sample of companies was large and the responses required detailed analysis. In this part we were mostly interested in the effect of the standard on customer satisfaction. Before choosing the appropriate statistical method, we reviewed researches of other authors, and the statistical methods they used. When proving similar research issues, they often used calculations of medium value and standard deviation. Therefore our research is based on providing proofs through the analysis of medium value (MV) and standard deviation (SD) based on the responses that respondents circled in the questionnaire (from 1 to 5: I strongly disagree, I disagree, I don't know, I agree, I strongly agree). With evaluations higher than 3.5 a confirmation of the hypothesis will follow; under 3.5 rejection will follow. Grades 4 – I agree – are close to the grade over 3.5 which is why we regard them as confirmation of the hypothesis.

Results of the Survey Data

THE IMPACT OF THE ISO 9001 STANDARD ON QUALITY, CUSTOMER LOYALTY AND CUSTOMER SATISFACTION

Figure 1 shows that the introduction of the standard both improved product and service quality and also enhanced customer satisfaction because of various reasons: better internal work organization, trainings for the employees who have direct contact with customers (eg. trainings or the salesmen/customer relationship, sales techniques) etc. The ISO 9001:2000 standard is customer oriented. This principle is emphasized in several chapters of the above mentioned standard.

The crossing of variables showed how the year of standard acquisition had a positive impact on product and service quality (table 2).

The standard deviation shows that company estimations are clustered around the medium value and that companies' opinions on the impact

TABLE 2 The impact of the year of standard acquisition on improved product and service quality

Year of standard acquisition	MV	SD
before 1997	4.02	0.72
in 1997, 1998 or 1999	3.86	0.71
in 2000 or 2001	3.85	0.72

TABLE 3 The impact of the year of standard acquisition and the number of employees on customer satisfaction

The standard's biggest impact on customer satisfaction in companies	MV	SD
that acquired the standard before 1997	3.94	0.52
that employ from 51 to 250 people	3.93	0.49
The standard's smallest impact on customer satisfaction in companies	MV	SD
that acquired the standard in 1997, 1998 or 1999	3.63	0.80
that employ over 250 people	3.72	0.75

of this factor are very similar. This factor did not receive low estimations, all of them were distributed around 4 and 5. *Survey results also show the standard's impact on increased customer satisfaction* (figure 1). The crossing of variables showed the impact of the year of standard acquisition and the number of employees (table 3).

We are well aware of the fact that customer satisfaction in market systems, where only a price or other factors (political factors, acquaintances ...) determine the choice of suppliers. Customers choose a supplier on the basis of a price or other factors, even though this supplier does not meet their expectations. *Research results also show that there is no impact of the standard on customer loyalty* (figure 1). The crossing of variables shows only the impact of the year of standard acquisition and the number of employees (table 4) on customer loyalty.

Better product and service quality boosts customer satisfaction. Unfortunately, in the market system, where most business transactions are

TABLE 4 The impact of the year of standard acquisition and the number of employees on customer loyalty

The standard's biggest impact on customer loyalty in companies	MV	SD
that acquired the standard before 1997	3.70	0.79
that employ up to 50 people	3.50	0.84

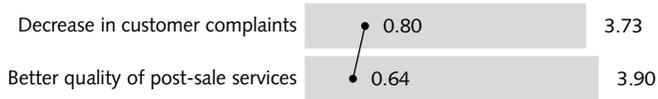


FIGURE 2 The standard's impact on customer complaints and post-sale services

●—● standard deviation — mean value

effectuated through the system of public contracts, a price represents the only purchase criterion, and not customer satisfaction.

THE IMPACT OF ISO 9001'S ON CUSTOMER COMPLAINTS AND POST-SALE SERVICES

In this chapter, we analysed the standard's impact on customer complaints, that is whether the handling of complaints improved, and on post-sale services. When customers are satisfied, the number of complaints drops (figure 2).

The standard deviation is relatively high. This explains why companies have different opinions on this impact. The crossing of variables showed that the number of employees and the company economic activity both have an impact on the decrease in customer complaints (table 5).

Well established internal work organization in the company improves the quality of post-sale services and enhances customer satisfaction (figure 2); the number of employees affects post-sale services quality (table 6).

Companies with more employees achieve better quality of post-sale services. However, even the worst estimation is still good. Partial analysis

TABLE 5 The impact of the number of employees and company economic activity on the decrease in customer complaints

The standard's biggest impact on the decrease in customer complaints	MV	SD
companies that employ from 51 to 250 employees	3.84	0.73
service companies	3.82	0.80

TABLE 6 The impact of the number of employees on better post-sale services quality

Standard's impact on better post-sale services quality in companies	MV	SD
with more than 250 employees	3.95	0.62
with 51 to 250 employees	3.91	0.65
with up to 50 employees	3.88	0.59

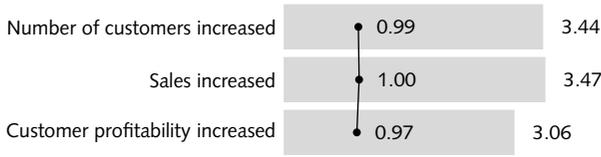


FIGURE 3 Standard's impact on sales success

●— standard deviation — mean value

according to company economic activity or the year of standard acquisition shows no deviation from the average estimation.

The sale of a product is not the final step. There are many post-sale services that follow, such as customer education, machine servicing, or possible customer complaints handling. If the internal work organization is well established and controlled, these services must be carried out fast and in an organized way with the final goal to achieve 100% customer satisfaction.

THE IMPACT OF STANDARD ISO 9001'
ON THE SUCCESS OF SALES

Survey results show only insignificant standard's impact on the increase in the number of new customers, sales and customer profitability (figure 3).

The reason for this insignificant impact lies in the fact that it was difficult to extract the standard's impact on improved sales from other business impacts. The crossing of variables showed that the best estimations were given by companies that acquired the standard before 1997, and are mostly production-oriented companies, while the worst estimations were given by companies that acquired standard in 1997, 1998, 1999 (table 7). Companies, which have acquired the standard many years ago, identified the standard's impact more easily. Before 1997, companies that acquired standards were mostly production-oriented. The crossing of other variables did not show any deviations from the average estimation.

The same results derive from the analysis of the standard's impact on the increase in sales (figure 3). The estimations of this impact either vary significantly from company to company (this is expressed by high standard deviation) or else this impact is unidentifiable.

The crossing of variables showed the impact of the year of standard acquisition and the number of employees (figure 4).

We can conclude that companies which have acquired the standard



FIGURE 4 The effect of the year of standard acquisition on the increase in sales
 ■ mean value

many years ago identify the standard's impact on the increase in sales more easily, because the importance of quality has been incorporated into company's culture for a longer period.

The analysis of the standard's impact on the increase in customers' profitability does not show significant results (figure 3). The introduction of the standard does not help companies improve business operation. The crossing of variables showed very low MV of estimations.

The problem with identifying the standard's impact on sales success appears in all companies included in the survey. We could only identify the impact of the year of standard acquisition. Companies, which acquired the standard many years ago (before 1997), identify the standard's impact more easily than companies that have acquired the standard recently. The reason is that in a longer period, the company incorporates the standard into its culture (all employees are well aware of the importance of quality).

CONFIRMATION OR REJECTION OF HYPOTHESIS

The main conclusion deriving from this survey is that companies, which have acquired the quality certificate, achieve better quality from the technical point of view and therefore satisfy customers' needs and demands more successfully (figure 1: customer satisfaction, product and service

TABLE 7 The impact of the year of standard acquisition and company economic activity on the increase in the number of customers

	MV	SD
The standard's biggest impact on the increase in the number of new customers in companies that		
acquired certificate before 1997	3.73	0.88
are mostly production-oriented	3.65	0.93
The standard's smallest impact on the increase in the number of new customers in companies that		
acquired certificate in 1997, 1998, 1999	3.33	1.09

quality; figure 2: decrease in customer complaints, better quality of post-sale services). *We can therefore partly confirm with certainty the hypothesis that the ISO 9001 standard impacts customer satisfaction in Slovenian companies.* Because the area of research was broad, we also discovered areas where the introduction of standards did not have a decisive impact. *We partly reject the hypothesis, being unable to confirm that quality standards positively influenced, for example, an increase in the number of new customers, sales or customer profitability* (figure 3: all factors, and figure 1: customer loyalty).

On the basis of the research results, we conclude that in several examples the standards had an effect on customer satisfaction, but not on the increase of profits, or on the improved business results of the organizations. While organizations are able to measure certain effects, there are other effects that they cannot measure. The impact of the standards on increased profitability remains dubious. The problem of this survey is that it cannot recognize or extract the impact of standard acquisition on business success from other factors in a company that also affect its business success.

Solutions for Managers

Research results, and our experience in this field showed that companies must think seriously about making the commitment to quality systems. It has been proved that the standard affects business decisions of top managers regarding continuous improvements, mostly improvements in processes, improvements achieved by the Deming circle (P-D-C-A) and internal audits. The research results show that their main non-financial goals will be directed towards employees (improving competences, encouraging working environment) and towards the development of information capabilities. *They are also planning improvements in business processes (improvements in quality of business operations, company reputation in the eyes of customers, development of solutions with added value (e. g. finding new markets, new products for new customers, etc.).* These activities are consecutively connected with the Deming circle (P-D-C-A), which represents the basis for the implementation of continuous improvements (Piskar and Dolinšek 2004). Therefore managers of the companies should:

1. Provide specific programs, written guidelines, and training sessions for all company personnel (every company function, level; supplier). How can they incorporate what is stated?

- *Total company commitment begins at the top.* The head of the company must be committed to total quality ‘marketing’ and customer satisfaction, live it every day, and institute procedures and information systems to ensure all employees do the same.
 - Customer service, customer satisfaction, and customer commitment become the top company priorities. The entire company must work to support the sales staff and customers.
 - Employee hiring and training programs for quality work and customer orientation need to be implemented and enforced. Regular training programs, with weekly department meetings to discuss customer problems, solutions, and complaints and next step actions for customers, are necessary.
 - *Customer feedback on performance and on the success of the new TQM programs, must be sought and received on a regular basis.*
 - Suppliers committed to quality must be sought out, so that customer satisfaction is a priority all the way up and down the chain of distribution.
2. Allow for decision-making and mistakes by all company personnel.
 3. Be committed to weeding out uncooperative company personnel.

Companies are often sales-driven, instead of market-driven or customer-driven. So, it is natural for a sales-driven company to think about TQM improvements in terms of ‘where it counts the most’, in sales. *But the sales force cannot succeed without good quality products, services and organization that are distinct from and valued by customers when compared to what competitors provide.* So, they should change to a customer-driven company. One system that can be also used to achieve this is CRM (Xu et al. 2002; Ahn et al. 2003).

Conclusion

In the present competitive environment, companies need to retain existing high-value customers to remain competitive. The research results proved that with some factors there is a link between the quality standard ISO 9000 and customer satisfaction; with the goal of steering the company’s marketing activities. One of many ways is implementing the CRM system, that is now making it possible to recreate customer service, together with the corresponding quality system.

Survey results in Slovenian companies shows some positive effect of the quality standard ISO 9001 on more successful satisfaction of customers’ needs and demands. The impact of the year of standard acquisition is

also perceived. Companies that acquired the standard many years ago (before 1997) more easily identify this impact than companies that have acquired the standard recently. The reason is that in a longer period, a company incorporates the standard into its culture. *The direct impact of the standard on business success, i. e. on the increase in the number of new customers, sales and customer profitability and loyalty, cannot be perceived.* Establishing the methodology for defining the direct impact on business success can represent the main challenge for researches in this field.

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