
MARKETING AND COST DIMENSIONS OF ISO 9001 IMPLEMENTATIONS OF SMALL AND MEDIUM SIZED MANUFACTURERS: A CASE ANALYSIS

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ÖZET

Çalışmanın amacı küçük ölçekli firmalarda ISO 9000 uygulamaları hakkında daha derinlemesine bilgi sahibi olmaktır. Bu amaçla ISO 9000'ne sahip üç üretici firma, onların temel tedarikçi ve müşterileriyle ISO 9000'ne sahip olmanın nüsheri tatmini, maliyet azaltılması ve finansal performansın artırılması üzerine etkilerini ortaya çıkarmak amacıyla derinlemesine mülakat gerçekleştirilmiştir.

ABSTRACT

The objective of this paper is to provide a better understanding of the implementation of ISO 9001 in small firms through three different case studies. For this we have conducted deep interviews with 3 manufacturing firms that have registered under the ISO 9001 quality assurance standard, their main customers and suppliers, to highlight the importance of standardization through customer satisfaction, cost reduction, and integration with suppliers to improve financial performance.

This study applied to ISO 9001 certified companies verify that, ISO implementation can be regarded especially as a marketing tool since its marketing dimension gains more importance than its cost dimension.

INTRODUCTION

Global competition and increasing customer awareness have made the quality as the key indicator for customer satisfaction and a success factor to achieve competitive advantage. On these circumstances, companies try to become quality leadership companies and they began to implement certain quality management approaches. But at the same time, they recognize that sustainable growth not only demands quality leadership and customer satisfaction but also cost leadership, human resource effectiveness and effective business integration with the suppliers. These approaches forces the companies to; (Quality Digest, 1998)

- Make quality the centre of increasing revenue growth and competitive leadership
- Achieve complete customer satisfaction by offering essentially perfect goods and services whose quality the customer determines
- Accelerate sales and earnings growth through quality failure reduction
- Innovate in product and service leadership and cycle time management
- Encourage employee participation in quality improvement
- Develop effective supplier partnerships
- Create seamless quality value network among customer, producer and supplier relationships

- Provide environmental and safety leadership.

Companies that can able to implement all will successfully face the social and economic dimensions of the new global business climate. This is relevant for companies of all sizes but unfortunately resource constraints can cause a quality disadvantage for small companies. Thus, many small firm manufacturers adopt standardized programs to overcome this problem. The most recognized standardized quality program was known as “International Standardization Organization (ISO) 9000” program which gains international attention (Khan and Hafiz 1999, Brown and Anders 1994).

The objective of this paper is to provide a better understanding of the implementation of ISO 9001 in small firms through three different case studies. For this we have conducted deep interviews with 3 manufacturing firms that have registered under the ISO 9001 quality assurance standard, their main customers and suppliers, to highlight the importance of standardization through customer satisfaction, cost reduction, and integration with suppliers to increase financial performance.

The next section of this paper provides a literature survey followed by methodology and findings.

LITERATURE SURVEY

ISO 9000

Within the globalization, the requirement to set stronger buyer-supplier interactions forced

companies to concentrate on standardization programs such as ISO 9000 and these standards has been widely adopted in different sectors. ISO 9000 is largely based on the British Standard BS 5750 and was developed by International Standardization Organization in Geneva. ISO 9000 series help companies to demonstrate their abilities to design produce and deliver products and services with the same quality. But it is not only a quality standard, it is a management control system that consists of five related quality assurance standards numbered from 9000 to 9004. Table 1 shows the contents of series.

According to ISO 9000 context, the standardized definition of quality refers to all those features of a product or service, which are required by the customer. (International Organization for Standardization, 2004). It is important to note that ISO 9000 is not a product standard and does not guarantee improved product quality. The focus is on managing core value-added process to deliver quality. ISO 9000 establishes the requirements for what the company must do to manage its quality related process (Briscoe, et. al, 2005).

On the other hand, it was found that most SME’s feel forced to apply for ISO 9000 and do not move further down the quality path. This shows that very few SME’s will be converted into quality believers and will move forward down on the Total Quality Management (TQM) journey (Van Der Wiele and Brown, 1997). However, in Turkey there is no comprehensive finding about the effects of ISO implementation on TQM approaches of firms

Table 1: ISO 9000 Quality Assurance Standards

Standard	Content
ISO 9000	Outlines quality management and quality assurance standards, defines key terms for fundamental quality concepts, offers guidance on the usage of 9001, 9002 and 9003.
ISO 9001	It is a standard for design, development, production, installation and servicing. It is the most comprehensive standard in the series.
ISO 9002	It is a standard for production and installation only. It includes the prevention, detection and correction of problems during production and installation.
ISO 9003	It is a standard to perform testing and final inspection. It includes the detection and control of problems during final inspection.
ISO 9004	It is a guide for the development and implementation of a quality system.

Advantages and Disadvantages of ISO Implementation

Findings in literature related with the advantages and disadvantages of certification regarding quality, costs and other performance benefits are mixed (Briscoe, et. all. 2005). A number of studies highlighted the ISO 9000 registration costs and benefits and some of the experiences of small firms implementing the standard. Chittenden et al., (1998) states that, "ISO 9000 should be adapted so that more small firms can enjoy the advantages of registration".

Chittenden et al., (1998) study compares the characteristics of the registered and unregistered firms. Only a tiny minority of small firms has registered for ISO 9000. However, the great majority of small business using ISO 9000 felt the advantages of the standard outweighed the disadvantages. Based upon the analysis in this study, it was concluded that ISO 9000 provides a formal solution to the problems of quality management and a badge of quality to reassure purchasers about the quality consistency of their suppliers' products and services. Also the following benefits for adopting ISO 9000 were identified from over 1000 respondents;

- 52% retaining business
- 44% less customer complaints
- 38% broke into new markets
- 30% increased sales turnover

There are also many other studies that emphasize the pros and cons of ISO 9000 implementation. The pros of ISO 9000 implementation was derived as follows; (Sun 1999, 2000; Khan and Hafiz 1999; McAdam and McKeown 1999; Ismail and Hashmi 1999; Kanji 1998; Callghan 1997; Rao, Ragu-Nathan and Solis 1997)

- Implementation of ISO 9000 standards improves product quality and reduces quality costs
- Improves productivity and profitability
- Enhances marketing advantage vis-à-vis no certified companies' leads to increased sales and market share.

On the other hand, the cons of ISO 9000 implementation was derived as follows; (Zhang 2000; Lima, Resende and Hasenclever 2000; Simmons and White 1999; Terzionski, Sohal and Moss 1999; Van Der Wiele and Brown 1998, 1997)

- Implementation of ISO 9000 does not yield improved productivity, quality or profitability
- No difference in performance between ISO certified and non certified companies
- No sales, marketing or competitive benefits.

Most of the studies about the relationship between ISO 9000 and small firms concentrate on the effect of ISO 9000 to improve the competitiveness of the small manufacturer. Briscoe et al., (2005) have indicated; managers at small manufacturers can enhance the probability that ISO 9000 implementation will positively influence competitiveness by (1) assuring that a real need for change exists; (2) establishing a quality culture; (3) performing a compelling and thorough analysis of the ISO support infrastructure; and (4) making ISO practices a part of the company's quality routine. Also they stated that, ISO 9000 can help the small manufacturer consolidate its quality certification efforts but at the same time, the program must be well conceived and well executed to justify its costs and deliver on its promise of better quality and enhanced competitiveness.

Sun and Cheng (2002) found that SME's main reason for implementing QM is customer requirement while large companies implement QM mainly due to corporate decision, survival of the company, and the need to cut cost. They stated that for SMEs, TQM and ISO 9000 should be used as proactive tools to improve quality management system, improve product quality and reduce product cost so that they can improve their competitive capability.

North et al., 1993 and 1994 determined the motives that contribute to the implementation of ISO 9000;

- as a reaction to external market conditions
- in order to obtain procedural benefits relating to their internal systems and,
- the desire for an improved market image.

Marketing Dimension

Researchers have described understanding the nature of the relationship between a firm's financial outcomes and its customers' perception of quality as "... the highest priority" and quality of goods and services, and customer satisfaction have come to occupy an important position in the literature. Much of this attention is due to the premise that improving the quality of goods and services will increase customer satisfaction and loyalty, decrease costs and ultimately will lead to better financial performance (Babakus, 2004). ISO 9000 and its

effects on the marketing outcomes of a firm is investigated in many other studies, mainly because marketing issues seem to be very important for adopting ISO 9000.

Quality is essential to customer satisfaction hence, competitive success. This is a reality for all the firms (Briscoe, et. all. 2005). For companies that are not able to reach to the world class quality standards that, customers expect there would be no chance to be successful in the long term. In the 1990s quality emerged as a strategic competitive tool for business. However the perception of quality shifted over the past 30 years. Whereas quality was previously measured by or assumed to result from attaining some allowable level of defects, it is now defined as meeting customer requirements and expectations (Withers, Ebrahimpour, 1999) which are increasing continuously.

In literature it is suggested that the leading reason for implementing ISO 9000 is customer preferences of ISO certified firms (Rao, Ragu- Nathan, and Solls 1997). This is especially true for SME's. They tend to implement this standard mainly because of market and customer demand or external pressure rather than internal initiation (Sun & Cheng, 2002). After they obtain the certification, their products are more likely to be accepted by their customers, such as other larger firms or government organizations (Hall, 1996), thus leading to an improvement in their performance.

In ISO 9000 context, the "standardized definition of quality refers to all those features of a product or service which are required by the customer". (International Organization for Standardization 2004). Thus the stated ISO 9000 goal is to ensure that the organization can time and again deliver products or services that ((Brisco et. All, 2005):

- meet the customers quality requirements and
- applicable regulatory requirements, while aiming to
- enhance customer satisfaction, and
- achieve continual improvement of its performance in pursuit of these objectives

Rayner and Porter's (1991) investigation of the standards impact on 20 SMEs found that 70% of companies cited marketing advantages as the principle benefit as: customer retention, customer acquisition, entry into new markets, and fewer dissatisfied customers. The vast majority of firms felt their expectations had been met or exceeded.

Likewise similar findings were reached in other studies (Mann and Kehoe,1991).

However ISO 9000 has gained great acceptance and positioned itself as the quality standard of choice (Khan and Hafiz 1999; Brown and Anders 1994), many companies have failed to achieve the quality and competitive benefits sought through ISO implementation (Lima, Resende and Hasenclever 2000). As Sun and Cheng (2002) states: "Undoubtedly ISO certifications are crucial in responding to market and customer requirements, but the certification itself does not have much implication for quality and performance". A recent survey found that the ISO 9000 certificates helps companies gain benefits in internationalization, quality improvement, sales enhancement, and cost reduction (Huarng, 1999). Buttle(1996) in his study found marketing benefits provided by ISO 9000 certification to be as gaining new customers, keeping existing customers, using the standard as a promotional tool, increasing market share, increasing growth in sales and improving customer satisfaction. In another survey, respondents agreed that ISO 9000 certification improved documentation, was a beneficial marketing tool and improved export potential. There was also general agreement that implementation had benefits in dealing with both suppliers and customers. (Ragothaman and Korte 1999).

But does really customers demand for this kind of a certification? Or can this certification help companies meet customer expectations better? We will try to find an answer to this question.

Cost Dimension

Besides marketing aspects of ISO 9000, cost reduction issues also have significant importance. At this point, we should have to diversify cost issues into two;

- Product costing activities involved in producing and delivering products and services.
- Costs of the quality.

Management accountants generally concentrate on product costing activities but as Borthick and Roth (1992) states that the standards impose the requirements that the costs and benefits of a quality assurance system be measured and documented. Measuring cost and benefits of a quality system will require expanding the management accounting system to include the measurement and reporting of life cycle costs, quality costs and measures of

continuous improvement (Ragothaman and Korte 1999). In addition, Reicheld and Sasser (1990) emphasize that when manufacturers unravel the costs and implications of scrap, rework or jammed machinery, they realize that quality is the most profitable way to run a business (Ragothaman 1999). Also small firm managers had a stronger belief that ISO 9000 registration results in cost reduction and increases export potential than large firm managers (Ragothaman and Korte 1999)

METHODOLOGY

This research is a case study of 3 ISO 9000 certified medium sized Turkish manufacturing firms including their main customers and main suppliers. The aim is to highlight the influence of ISO 9000 certification on customer satisfaction and financial performance of the firms. For this, in-depth site interviews were conducted with the main companies considered, their main suppliers and customers. Also a small questionnaire was applied to the main supplier and customer of the manufacturer firm. The interviews and questionnaires were undertaken between the dates January 16- January 27, 2006. With the manufacturer firm the researchers conducted semi-structured interviews with the owner-manager of the company, quality and production managers. Interviews were conducted by the researchers themselves. Interview with each respondent lasted approximately 30 minutes. In the interview firstly demographical and general information related with the companies' market share, customers, suppliers and international market activities were questioned. Then respondents were asked to answer why they adapted ISO 9000, and if this adaptation helped them to reach their expected benefits, also considering their costs. In addition, the benefits were deeply questioned including the outcomes regarding cost and marketing dimensions. The interviews were ended by questioning if the adaptation of ISO 9000 motivated them for total quality management.

In addition to the interviews conducted in selected manufacturing firms, a questionnaire was applied to the main suppliers and customers of these firms. The questionnaires included demographic and open ended questions. The questionnaire for the suppliers composed of eight questions, within this the relation of the supplier and the manufacturer under ISO 9000 was examined. The questionnaire for the customer is also composed of eight questions designed to examine the perception of the customer about the manufacturer with ISO 9000 on different dimensions influencing the customer (pricing, product quality, product reliability, firms' ability to meet demands, image of the company).

The questionnaires were answered by the managers and main contacts of the manufacturer firm. The findings from 18 different respondents were important to support our findings from the in depth interviews and to learn about their perceptions related with ISO 9001 registration.

Findings and Observations

Among the companies considered 2 companies are medium sized, and 1 company is a small sized company according to the definition of Turkish Small and Medium Industry Development Organization's definition. Also all 3 companies are family owned companies and they are among the leader in the industries they operate. We will refer to the companies as company A, company B and company C respectively. The 3 firms in this study represent a very heterogeneous group in terms of industries they operate, number of employees, and number of years certified. The detailed company profile information for each will be presented in the following parts.

Company Information

Company A

The first company considered is a 26 years old company established in 1979. The company produces remote controls and satellite receivers. The company is privately owned, employing about 110 employees. Their production for the year 2004 was 5.000.000 pieces. Approximately 95% of their production is exported to 40 countries.

In 1988 the company established a quality control department and in 2001 has taken ISO 9002 Certification followed by the ISO 9001 Certification taken in 2003. Also CE Certification is provided to all products completed. The company has been growing steadily, gaining competitive advantage among its competitors by offering high quality products at competitive prices.

Reasons for ISO Implementation

The main reasons considered in company A for ISO 9001 certification were identified to be:

- Achieving higher quality in products,
- Increasing customer satisfaction,
- Reducing the costs of defective products, materials and wastes,
- Identifying the job definitions and responsibilities within the organization effectively.

Effects of ISO Implementation

Overall we can say that company A sought certification primarily to meet internal needs rather than as a response to external market forces. However the first action to be certified seems as a proactive response, we could not see a clear effort in the company to evaluate the actual results of this process.

Despite all, it has been stated that the certification has enabled them to achieve higher quality, productivity thus product reliability and increase in customer satisfaction. From the aspect of cost dimension it was declared that ISO implementations had moderately positive impacts on cost reductions by the increase in productivity and decreases in spoilage, rework and scrap. A factor affecting the occurrence of previous impacts is careful selection of the appropriate supplier. Overall the most important impact of certification was stated to be the improvements in the brand image of the company from the viewpoint of their customers. This will also be very advantageous in the retention of existing customers and attraction of new ones. As a result of the synergy between the stated improvements company achieved a significant competitive advantage compared to competitors that are not certified.

Company has neither any application nor any action regarding TQM and quality costs.

Company Information

Company B

Company B is an 11 years old company established in 1994. The company operates in the stainless steel market processing and selling stainless steel sheets/plates, bars, pipes, tubes and fittings. To meet the customers' demand on-time with high quality products, the company holds a huge stock of its products. To ensure on-time delivery of high-demand products, orders are regularly given to the main manufacturers in Europe, Japan, Korea, and India.

The company is privately owned, small firm employing 10 employees. Mainly they operate in the domestic market. Approximately 98% of their production is sold in the domestic market, 1% in international market and the remaining 1% to the government.

Company has taken ISO 9001 Certification recently in 2005. Also the company is proceeding in their work related with CE Certification. The company has been growing steadily, gaining competitive

advantage among its competitors by offering high quality products at competitive prices and their customer-friendly attitude with a great sales team and huge inventory.

Reasons for ISO Implementation

The main reasons considered in company B for ISO 9001 certification were identified to be:

- search for corporate identity
- the need for certification to show their quality
- to organize authority and responsibility within the company
- as a first step to professionalism
- to create a discipline for the sales of products and services

Effects of ISO Implementation

Company managers stated that the certification has enabled them to achieve targeted reasons however, there have been some problems regarding the adaptation of the personnel to the new system creating some obstacles both in the implementation and execution phases.

Even though the company has got the certification currently the managers stated a very positive impact of it for entering new markets, increasing the reliability of the product and most importantly helping the brand image to strengthen. Also certification has been efficacious for the increase in sales in current markets and export markets. Overall they stated that by the help of ISO certification they have gained competitive advantage over other firms, but most importantly, they have obtained an increase in their customers' satisfaction. Also, the 30% increase in sales and 15% increase in market share after certification creating a 5% increase in total sales revenues can verify this. However, this increase in the sales revenue caused only a 1% increase in the overall profit of the company.

Company has no formal application to evaluate the effects of certification on costs like the quality costs but they have not realized any reduction in production costs. Even though it may be early to see clearly the effects of certification in this case we can say that the positive marketing effects outweigh the financial effects.

One interesting finding is that with the certification product reliability among customers increased

much more than the actual quality of the product. This does not mean to say that ISO certification had no effects on quality but the image it constituted on customers was much bigger than its actual effect.

Another positive effect of ISO certification was observed to be the interest of the company managers in TQM, which is a further step in the quality journey.

Company Information

Company C

The third company, which will be referred as C, manufactures medical equipment and was founded in 1972. It produces various orthopedic surgical implantations and special hand tools. It is the biggest implantation equipment producer in Turkey. It produces 8.000 different products.

Catching up with the developing technology, it performs its sales in the globalizing world markets while maintaining its place as the leader in the domestic market. The company achieves its objectives in quality- productivity-economy in cooperation with its social stakeholders including producers, consumers, personnel, suppliers and the public being granted with the certificates that approve its product quality and technical performance by spreading out the total quality principle in all levels of management.

The company has taken ISO 9002 Certification in 1994 followed by the ISO 9001 Certification taken in 1996. Also CE Certification is provided and TQM applications have been started in 1998. Their company philosophy is to operate being aware of the fact that the last judgment belongs to the customers, delivering products of good quality with reasonable prices on time to create satisfied customers. It goes beyond the competitors by following innovations and improvements in management and production applying them in accordance with relevant regulations to create a "content workplace". Their aim is to decrease costs, increase productivity and work performance. In addition to all these, they refuse to use any materials hazardous to the environment under any condition to create a greening policy.

Reasons for ISO Implementation

The main reasons considered in company C for ISO 9001 certification were identified to be:

- Believing the importance and benefits of working systematically

- Achieving competitive advantage among competitors
- Achieving higher quality and continuous improvement

Effects of ISO Implementation

It is evident that in order to make ISO 9001 a practical and beneficial tool for small and medium sized firms the administrative burden should be reduced. In this company it was observed that the management is highly aware of the advantages and importance of ISO 9001 and TQM applications. In many different areas they had identified advantages. It was stated that the three areas of benefit identified mostly were entering the new markets, increasing the export potential and customer satisfaction and achieving a significant competitive advantage compared to competitors that are not certified. It appears that the company highly achieves benefits that relate to marketing and competitive issues. Also it was claimed that ISO implementations had secondarily positive impact on brand image.

However, the company also derived significant benefits related to the internal operational efficiency. It was stated that ISO implementations improves operational efficiency through productivity, product quality, product reliability and enables cost reduction by decreasing the spoilage, rework and scrap. At this point, supplier selection criteria of ISO also supports the impact occurred in operational efficiency. Besides operational benefits, company also experienced a better understanding of the processes and responsibilities because of ISO implementation.

Possible effects in all these areas might show that ISO 9001 strongly affects financial performance. It was asked if they had measured the effect of implementing the standard on their sales and cost performance. It was derived that implementing the standard caused a 20% increase in their sales volume by taking the market shares of their competitors, which can not meet the standards demanded by customers. Also from the aspect of costs, it was derived that a 10% decrease achieved in costs due to the implementation of the standard through efficient and effective production.

On the other hand, company's quality practice does not end with ISO implementations. Although most of the SMEs feel they have completed their job by hanging the certificate on the wall, the company moves further down the quality path and moves forward on the TQM journey. It was stated that TQM is more creative and flexible than the ISO implementation. In addition, company goes one

step further and reflects all these practices to its accounting process through the computation and recording of the cost of defective products separately in order to determine the priorities in the areas or processes of production which will be improved.

Supplier – Producer – Customer Interactions

In order to gain a thorough understanding of the ISO implementations in the studied firms, the viewpoints of their main suppliers and customers were also identified by the help of a short questionnaire with open-ended questions. The purpose is to cross-examine the accuracy of the findings according to the customer and to highlight the responsibilities assigned to the suppliers and benefits it offers.

All the 3 companies' main customers approximately have been working with the companies for 10 years. From the results of the questionnaire, it was derived that, all 3 customers were found more satisfied with the product quality and reliability of Companies A, B and C after the certification have been granted by them. Also, customers stated that they observed a significant increase in company A, B and C's ability to meet demands on time and accurately. However, all 3 customers claimed that, they found the prices of the companies A, B and C higher than the other competitors.

Suppliers emphasized that their customers' certification brought them additional responsibilities. Thus, from the suppliers' point of view, in order to make their customers A, B and C feel confident about their ability to perform the responsibilities the standard had brought; suppliers are trying to adapt themselves to the requirements of the standard as well. By this way, they become more customer-centered and eager to be certified. As a result, all 3 suppliers got ISO certification after their customers. This also confirms the importance of the customer in giving the decision to be certified.

According to the results of the interviews and questionnaires, a conceptual model for visualizing the successful implementation of ISO 9000 is illustrated in Figure I.

CONCLUSIONS AND RECOMMENDATIONS

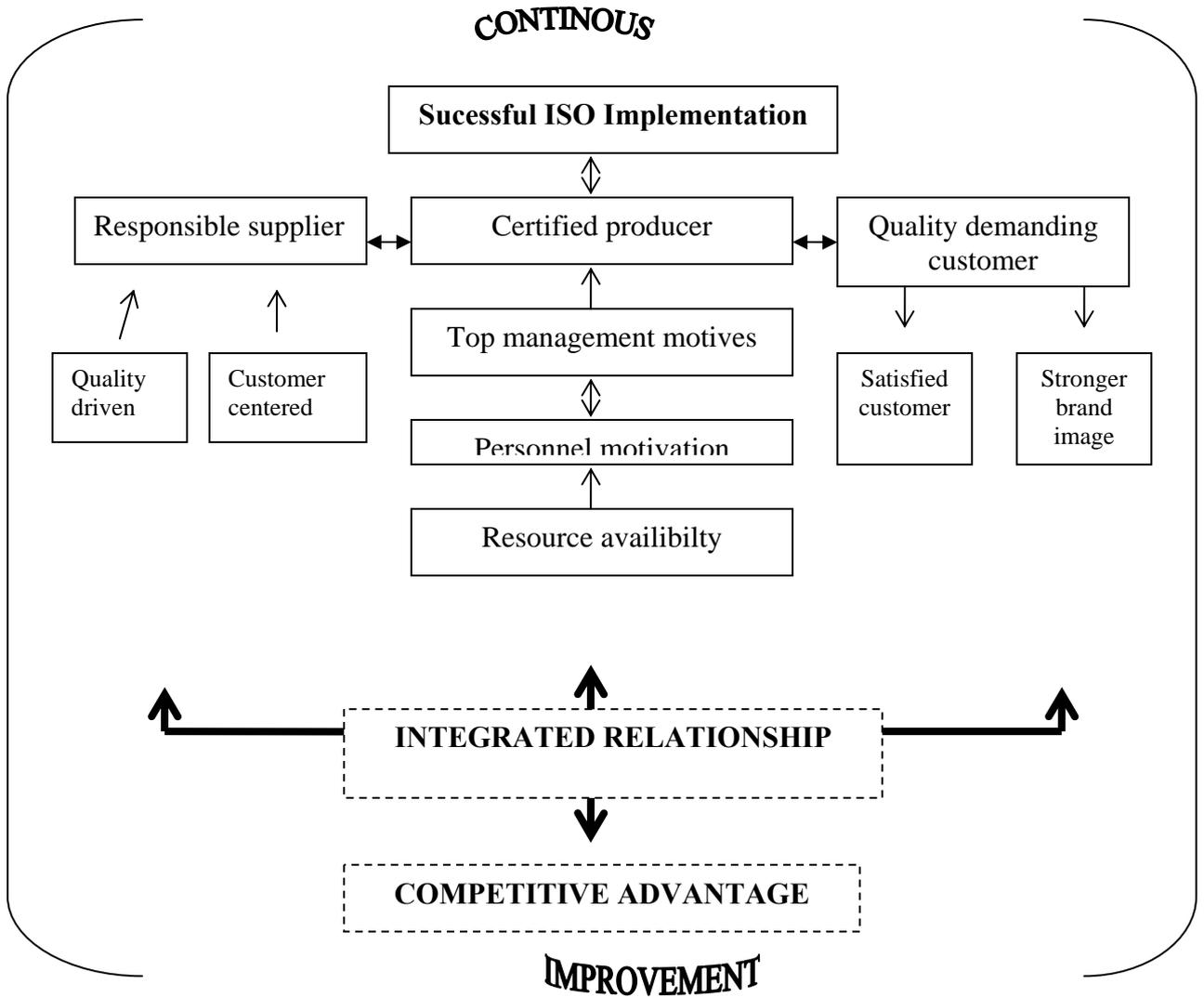
Intense competition and increasing customer demands urges companies to do better. While meeting or exceeding customer demands they have to also minimize their costs and increase their profits. While reaching those purposes quality, thus quality standards plays an important role. ISO 9000 is a widely known and accepted standard series for quality. However it is important to evaluate the costs and benefits of ISO 9000 certification before implementation. Companies pursue ISO 9000 certification to get operational and marketing benefits, which in turn impact on costs, revenues and thus overall financial performance. However it is a costly process and may not be successful every time especially for small and medium sized manufacturers.

It is clear that in the ISO 9000 process customer has the most important place. If companies do not give the needed attention to their customers either internal or external the probability of the certification success will be very low. Main reason for this is that, today quality is determined by customers.

The most stringent standard is ISO 9001, which builds on other two by adding design and after sales service standards which are critical participants for customer satisfaction. As competition intensifies more and more companies' see a need to acquire ISO 9001. This study applied to ISO 9001 certified companies verify that, ISO implementation can be regarded as a marketing tool and its marketing dimension gains more importance than its cost dimension.

There are some limitations of this study. First of all, as it is a case analysis of three companies our results are not conclusive but just exploratory. The findings can by no means generalize to small and medium sized companies in Turkey. Also, as a second limitation, the information represents the viewpoints of owner/manger or senior management but not the employees. However, these case studies provide invaluable insights which can not be derived from questionnaire and literature surveys.

Figure 1:



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