

TQM in Egypt: a case study

An empirical analysis of management attitudes towards ISO 9001:2000 in Egypt

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Keywords

ISO 9000 series, Egypt, Quality, Competitive advantage, Supplier evaluation, Management attitudes

Abstract

ISO certification is expected to help organisations to enhance quality and efficiency, improve communications, achieve competitive advantage and an increase in market share, reduce costs and achieve a higher stock price. This paper presents the results of a study to identify management attitudes towards ISO 9001:2000. To realise this goal, a sample consisting of 38 managing directors (MD) in Egypt was obtained. Results indicated that Egyptian organisations have a high level of understanding of the purpose of ISO certification. The main motivators behind the implementation of certified quality system in Egypt were to improve the efficiency of the quality system, and to cope with pressures from competitors/foreign partners. The principal perceived benefits of ISO 9001:2000 for Egyptian organisations include improved documentation, improved efficiency of the quality system and more effective supplier selection.

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Introduction

Organisations have been concerned with quality for many years but only in the past twenty years have they really begun to implement specific measures to achieve a higher rate of quality (Dreyfus *et al.*, 1999), in order to achieve competitive advantage (Sousa and Voss, 2002; Savolainen, 2000). It is clear that the emphasis on quality is not surprising, because achieving and sustaining competitiveness is primarily dependent on delivering superior quality products/services to customers (Yong and Wilkinson, 2002; Wong, 1998; Agus *et al.*, 2000). One way organisations seek to ensure quality is through the development of a properly implemented quality management system for all the functional areas including marketing, production, finance and human resources (Curkovic and Pagell, 1999; Gotzamani and Tsiotras, 2001). One such quality management system, the ISO 9000 series of standards has formalised systems for evaluating the ability of any firm to consistently design, produce, and deliver quality products/services (Fuentes *et al.*, 2000; Curkovic and Pagell, 1999).

The ISO 9000 series of quality standards was developed by the International Organisation of Standards (ISO) in 1987, and has since become the international quality standard (Abraham *et al.*, 2000). The ISO 9000 standards are based on the concept that certain minimum characteristics of a quality management system could be usefully standardised, giving mutual benefit to suppliers and customers, and focusing on process rather than product/service quality (Dick *et al.*, 2002; Withers and Ebrahimpour, 1998). ISO 9000 is a management control procedure (Stein and Hitchcock, 1997), which involves businesses in documenting the processes of design, production and distribution to ensure that the quality of products and services meets the needs of customers (Withers and Ebrahimpour, 2001). The ISO 9000 series is actually made up of five separate standards: ISO 9001, 9002, and 9003 are conformance standards for quality assurance systems and relate to supplier-customer relationships. ISO 9000 and 9004 are guidelines and relate to the development of quality systems within the company (Buttle, 1996). The objective of these standards is to provide an effective quality



system reflecting a company's practice for producing goods and services that conform to requirements (Quazi *et al.*, 2002; Calisir *et al.*, 2001).

To survive in the highest competitive business environment, the quality management system based on the model of ISO 9001, ISO 9002, ISO 9003, which is aimed at achieving customer satisfaction by preventing nonconformity, is not enough (Russell, 2000). Instead, a more proactive system, are driven more by customer satisfaction should be introduced (Zuckerman, 2001; Oztas and Ulusoy, 2000). The International Organisation for Standardisation (ISO) published a new series of ISO 9000 standards on 15 December (ISO, 2000). The new ISO 9001:2000 will overcome the problem of choosing between the current ISO 9001, 9002 and 9003 (Frate, 2001; Ho, 2001). The significant changes in the new standard are related to management activities, process approach management, customer satisfaction and continual improvement (McAdam and Fulton, 2002; Pheng, 2001). The new standard was developed on the basis of a process model where the generic requirements of the quality management system are depicted as linked processes (McAdam and Fulton, 2002; Gano, 2001; Janas and Luczak, 2002; Cargill, 2001; West *et al.*, 2000; Zuckerman, 2000).

ISO certification is expected to help organisations to enhance quality and efficiency, improve communications, achieve competitive advantage, gain an increase in market share, reduce costs and achieve a higher stock price (Pheng, 2001; McAdam and Fulton, 2002; Laszlo, 2000; Tsim *et al.*, 2002; Najmi and Kehoe, 2001; Zhang, 2000; Docking and Dowen, 1999). Withers and Ebrahimpour (2001) and Heras *et al.* (2001) concluded that the increase in perceived quality as a result of ISO implementation should results in new customers, increased sales and reduced operating costs. Moreover, Beattie and Sohal (1999) and Aarts and Vos (2001) demonstrated that organisations, which have implemented ISO standard managed to achieve continuous enhancement and improvement, profit improvement, marketing benefits and a better run organisation. Furthermore, Heras *et al.* (2002) concluded that ISO certified firms are more profitable than non-certified firms. However, the implementation and the impact

of ISO standards can vary from organisation to organisation and from country to country. This is supported through the fact that ISO has been viewed in different ways: as a means to improve organisational quality (Singels *et al.*, 2001); as a way to achieve competitive advantage (Casadesus *et al.*, 2000); as a way to increase sales through a better quality image (Leung and Chan, 1999); as a step forward towards customer satisfaction (Gano, 2001; Conti, 1999); as a way for organisations to enter the knowledge age of this century (Tsim *et al.*, 2002); and, by fulfilling customers' requirements, as a necessary response to competitive pressure (Leung and Chan, 1999; Lee and Palmer, 1999; Lee *et al.*, 1999).

The Egyptian government and the business community have placed a greater emphasis on achieving superior quality in order to compete in both domestic and foreign markets through a quality assurance system (ISO 9001:2000). This is vital because more and more European and foreign buyers have become frustrated having to verify the quality of Egyptian goods they purchase, a costly and time consuming process. Therefore, the Egyptian government and consulting firms have been persuading Egyptian companies to seek ISO certification to ensure quality of products/services. The quality standard has also become a subject of interest in Egypt due to the fact that ISO has been used widely throughout Europe, the USA and worldwide as a nationally and internationally accepted quality standard (Tan and Lim-Teck Sia, 2001). However, the implementation of the standard in Egyptian companies depends on how the standard is perceived by the Egyptian companies themselves. Despite the number of publications and the amount of research into ISO, little empirical research has been carried out in the Arab world and more specifically Egypt. There is very little known about management attitudes in Egypt towards ISO. Therefore, the focus of the present study was to examine management attitudes of Egyptian organisations toward ISO 9001:2000 standard. In order to answer the overall question of the study, data will be provided in the following areas:

- the level of understanding of ISO;
- the most compelling reasons for seeking ISO certification;
- the expected benefits of ISO certification.

Methodology

This study is exploratory in nature and seeks to collect data about management attitudes towards ISO 9001:2000 through a structured mail survey. A questionnaire was developed based on an extensive review of the literature in the areas of ISO. A considerable amount of care was taken in constructing the questions to ensure that the participants would have little trouble in answering them. This is important in questionnaire design because there are no interviewers on site who can assist with any problems, unlike in the personal interview or telephone survey situation. The basic design of the postal questionnaire relied on closed questions and a five-point Likert scale (1 = strong disagreement, 5 = strong agreement). During January 2002, 100 mail questionnaires were sent to companies throughout Egypt, randomly chosen from those listed in the Egyptian telecommunications directory. A covering letter accompanied the questionnaire, which explained the nature of the study, asked the participants to fill in and return the questionnaire in the self-addressed envelope provided, and explicitly requested completion of the questionnaire by the managing director (MD) or owner of the business, rather than a person with the title of quality manager or equivalent. This was as MDs have an overview of the entire organisation and they are more likely to provide objective view.

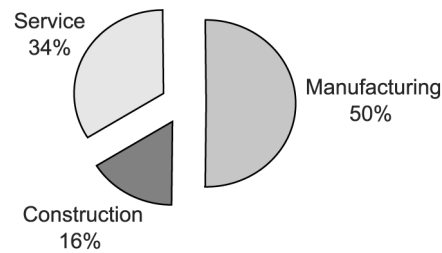
A total of 52 questionnaires were returned, of which 14 were unusable, leaving 38 for analysis (a response rate of 38 per cent). The response rate (38 per cent) is quite reasonable compared with other studies in the field of quality management (Dissanayaka *et al.*, 2001). Following the data collection stage, the responses were coded to enable them to be computer processed. The researcher used the software package referred to as Statistical Package for the Social Sciences (SPSS).

Questionnaire survey results

Background information

The result of the sample distribution by industry sector is presented in Figure 1. Of the 38 organisations surveyed, 19 organisations belong to the manufacturing industry, 13 belong to the service sector, and the remaining 6 were construction organisations.

Figure 1 Distribution of participants by sector type



It is clear that the manufacturing sector constituted the largest portion of respondents.

For the purpose of this study, organisations with less than 100 employees were classified as “small”, those with 100-300 as “medium”, and those with more than 300 as “large”. With respect to the size of the organisations surveyed, 13.2 per cent had a staff of less than 100 (small sized organisations), 28.9 per cent had a staff of less than 300 (medium sized organisations), and 57.9 per cent had a staff of more than 300 employees (large organisations). However, in terms of organisational ownership, 39.5 per cent of the total participant organisations were of a joint venture type, while 31.6 per cent were privately or foreign owned organisations and, finally, 28.9 per cent were government owned organisations. The majority of organisational ownership belonged to the joint venture type (39.5 per cent), which demonstrates that organisations in Egypt have a strong link with foreign partners with international based organisations. In terms of ISO certification, the majority were found to be either in the process of acquiring ISO certification (34.2 per cent) or were planning to pursue it (21.1 per cent). 15.8 per cent of the organisations surveyed are still undecided about the standard, which is minimal. However, 28.9 per cent of the organisations surveyed were found to be certified, which represents a satisfactory rate of certification.

Understanding the purpose of ISO 9001:2000

Activities related to quality are often misunderstood. On a regular basis, quality is often equated with the checking activity of quality control, or understood in terms of product grade or excellence. Quality management systems are not new, but the introduction of ISO as a new vocabulary might lead to confusion over its purpose and the way it is understood. However, due to the

attention being given to ISO certification, there is a danger that management can become familiar with the standard and assume that they understand it fully, whereas they only have a limited view of what it really is (Taylor and Adair, 1993). Therefore, since this was the first study to investigate management attitudes towards ISO 9001:2000 in Egypt, it was important to assess management understanding of it. Respondents were asked to select the description which best matched their perception of the purpose of ISO 9001:2000. Table I showed that the majority of the respondent companies (86.8 per cent) stated that the purpose of ISO 9001:2000 is to establish a consistent documentation method (60.5 per cent), and to establish a quality/formal system (26.3 per cent). It is clear that the results from the survey revealed a high level of understanding the purpose of the standard among Egyptian companies.

A cross-tabulation was performed, classifying the participant companies into their respective sector type, size, and state of ISO certification, in order to determine whether the level of understanding of ISO differed within each category. As a result, it was further established that more of the participants from the manufacturing companies had a higher level of understanding of ISO than did the service and construction companies. The same was true of the large participant companies compared to the medium sized and small companies. Moreover, certified companies and companies that are fulfilling all the

requirements for achieving ISO show a higher rate of understanding of the purpose of ISO than organisations that are undecided and planning to pursue the standard.

Motivation for seeking certification

The literature has suggested many reasons as to why companies seek ISO certification (Buttle, 1997; Lee, 1998; Dissanayaka *et al.*, 2001). These reasons were condensed to 12 reasons in the survey. Respondents were asked to rate the importance of these reasons on a five-point Likert-type scale ranging from 5 = strongly agree to 1 = strongly disagree. Table II presents the motivators as identified by the respondents, in terms of mean score and standard deviation. It also presents rank ordered responses.

Table II highlights the most important motivations for seeking ISO certification in Egypt. The bracketed figures represent the mean scores. It is understood that the most important motivations behind seeking certification in Egypt are as follows:

- to improve the efficiency of the quality system (4.68);
- pressures from competitors/foreign partners (4.62);
- to maintain/increase market share (4.60);

Table I Purpose and understanding of ISO

No.	Purpose of ISO	Frequency	Percentage
1	To establish a consistent documentation method	23	60.5
2	A new name for not-so-new management practices	0	0
3	Continuous improvement through problem solving and teamwork	0	0
4	To establish a quality/formal system	10	26.3
5	Making the customer the focus of all business processes	2	5.3
6	A means of guaranteeing high grade products/services	3	7.9
7	Not known	0	0
8	Other	0	0
	Total	38	100

Table II Motivations for seeking ISO certification

Rank	Motivations for seeking ISO certification	M ^a	SD ^b
1	To improve the efficiency of the quality system	4.68	0.47
2	Pressures from competitors/foreign partners	4.62	0.49
3	To maintain/increase market share	4.60	0.49
4	To meet government demands, requirements or pressure	4.56	0.50
5	To comply with customers' requirements	4.40	0.56
6	To achieve quality improvement	3.64	1.02
7	To market products in the international arena	3.45	1.10
8	To use ISO as a marketing/promotional tool	3.26	1.41
9	To be a step towards TQM	3.17	1.31
10	To achieve cost reduction	2.23	1.26
11	To meet corporate objectives	2.19	1.20
12	To improve employees' relations	2.05	1.18

Notes: ^a The mean score is based on participants' level of agreement with each statement on a scale of 1 = strongly disagree to 5 = strongly agree. A mean score above 4 indicates high, between 3 and 4 indicates moderate and a score less than 3 indicates a low level of agreement. ^b SD = standard deviation

- to meet government demands, requirements or pressures (4.56);
- to comply with customers' requirements (4.40).

Improving the efficiency of the quality system appears to be the leading motivator for seeking ISO. It is clear that Egyptian managers recognised that the standard is geared towards quality system efficiency rather than achieving quality improvement, as this ranked in sixth place. However, pressure from competitors/foreign partners was considered very important in seeking certification. To investigate how important this motive was for joint venture companies, a comparison of means was performed for this type of firm. The result shows that the foreign partner did require Egyptian firms to seek ISO certification. Seeking ISO as a step towards total quality management (TQM) was not a significantly important motivation for seeking it. This outcome is of fundamental interest, as it reflects the Egyptian companies' level of ambition with regard to quality as well as their awareness and understanding of the possibilities of using the standard as a tool for organisational development. Furthermore, Egyptian organisations are moving towards achieving organisational success and focusing on growth as a strategy by seeking certification; this is clear from the fact that maintaining and increasing market share ranked in third place as one of the motivations for seeking ISO certification. Egyptian companies considered internal improvement of the organisation's products and processes and external pressure to obtain the certificate as the main motivations for seeking certification. Comparing these findings to other studies, Tang and Kam (1999), Torre *et al.* (2001), Escanciano *et al.* (2001) and Buttle (1997) looked at the reasons why organisations in Hong Kong, Spain and the UK, respectively, sought ISO certification. These studies were similar to the present study and they suggested that the most important motivators for seeking certification were government pressures, customer pressures, foreign partners' requirements, to improve market share, improve efficiency, and achieve quality improvements. The order of these reasons varies within the studies. Moreover, Brown and Van der Wiele (1995) and Vloeberghs and Bellens (1996) concluded that improving the efficiency of the quality system was very important in both countries,

which is consistent with the present study. Therefore, it can be concluded that the results of the present study are strongly supported and consistent with the findings of previous studies.

A cross-tabulation and *t*-tests were performed, classifying the participant companies into their respective sector type, and size, in order to determine whether the motivations for seeking ISO certification differed within each category. As a result, it was further established that manufacturing companies are significantly more likely to seek certification as a part of a TQM programme, and to improve the efficiency of the quality system than are service and construction companies in Egypt. The same was true of the large participant companies compared to the medium sized and small companies. This can be explained by the fact that large and manufacturing companies are concerned about quality issues in both the short and long term.

Perceived benefits from ISO certification in Egyptian organisations

Subjective assessments were undertaken to identify the perceived benefits from implementing ISO 9001:2000 in Egyptian organisations. It is often very difficult to quantify such benefits due to their nature, whether tangible or intangible. Table III shows the number of benefits extracted from the literature to undertake this research. The participants were asked to rate these benefits on a five-point scale from "strongly disagree" = 1 to "strongly agree" = 5. Table III highlights the most important perceived benefits from implementing ISO 9001:2000 in Egypt. The bracketed figures represent the mean scores. It is understood that the most important perceived benefits from implementing ISO in Egypt were as follows:

- improves documentation (4.47);
- improves the efficiency of the quality system (4.46);
- helps supplier selection (4.44);
- improves product/service quality (4.41);
- helps develop quality management (4.32);
- the use of ISO 9000 as a promotional tool (4.22).

Improving organisational documentation (4.47) and the efficiency of the quality system

Table III Perceived benefits from implementing ISO 9001:2000 in Egyptian organisations

Rank	Perceived benefits	Mean score*	Level of ranking*
1	Improves documentation	4.47	High
2	Improves the efficiency of the quality system	4.46	High
3	Helps supplier selection	4.44	High
4	Improves product/service quality	4.41	High
5	Helps develop quality management	4.32	High
6	Promotional tool	4.22	High
7	Improves export potential	3.92	Medium
8	Improves public relations	3.82	Medium
9	Customer satisfaction	3.72	Medium
10	Increases quality awareness	3.71	Medium
11	Improves employee productivity	3.63	Medium
12	Improves employee motivation	3.58	Medium
13	Improves employee relations'	3.41	Medium
14	Reduces costs	2.14	Low
15	Reduces production time	2.10	Low
16	Product development tool	1.92	Low

(4.46) appear to be the leading benefits for implementing ISO certification. Similar positive responses were indicated relative to supplier selection (4.44).

It is clear that Egyptian managers recognised that the standard is geared towards quality system efficiency rather than achieving quality products/services as it ranked fourth. These two (improves documentation and the efficiency of the quality system) are tangible direct effects since ISO includes mainly requirements for a better quality system. However, improving product/service quality ranked fourth among all the benefits, which was reasonable since ISO is not designed to address the quality of product but the efficiency of the quality system. Implementation of the standard was perceived to assist in the development of quality management. This is evident from the fact that, as firms improve documentation of products and processes, new potential for quality improvement may become apparent. As these possibilities are identified, changes that might improve quality can be further investigated. ISO implementation is definitely perceived as a positive promotional marketing tool (4.22). This is because of the international recognition of the standard.

Respondents generally agreed that ISO implementation had certain positive outcomes, although this was generally not as positive as the above six outcomes. Survey participants generally agreed that ISO implementation could yield the following outcomes:

- improved export potential (3.92);
- improved public relations (3.82);
- customer satisfaction (3.72);
- increased quality awareness (3.71);
- improved employee productivity (3.63);
- improved employee motivation (3.58);
- improved employee relations" (3.41).

Issues concerning cost reduction [reduces costs (2.14) and production time (2.10)] aspects were not as positive as other benefits. This may be a result of the increased documentation of processes that results in reduced variability in the production operations, yielding greater output per input and translating into reduced cost. The lowest rating in the study was in response to ISO 9001:2000 as a product development tool (1.92). This can be explained by the fact that the increased emphasis on documentation can be viewed as a potential drawback to the research and development process.

Comparing the findings on the main positive outcomes of implementing ISO in Egypt to other studies, Dissanayaka *et al.* (2001), Ragothaman and Korte (1999), Van der Wiele *et al.* (2000), Yahya and Goh (2001), Tang and Kam (1999), Escanciano *et al.* (2001), Stevenson and Barnes (2001), Dick *et al.* (2001) and McAdam and Fulton (2002) looked at the main benefits of implementing ISO in Hong Kong, the USA, Malaysia, The Netherlands, Hong Kong, Spain, the UK, and The Republic of Ireland. These studies were similar to the present study and they suggested that the most important benefits occurring from

implementing the standard were: improved documentation; improved the efficiency of the quality system; the use of ISO as a promotional tool; enhanced development of quality management; better supplier selection; improved product/service quality; improved image of the company; improved exports; and improved workforce motivation. The order of these reasons varies within the studies. Brown and Van der Wiele (1995) and Vloeberghs and Bellens (1996) concluded that improving the efficiency of the quality system was a very important benefit of ISO implementation, which is consistent with the present study. Therefore, it can be concluded that the results of the present study are strongly supported and consistent with the findings of previous studies.

A cross-tabulation and *t*-tests were performed, classifying the participant companies into their respective sector type, and size, in order to determine whether the main benefits derived from implementing ISO differed within each category. As a result, it was further established that there were no significant differences between manufacturing and service firms in Egypt. However, small and medium sized firms had a stronger belief that the implementation of the standard results in an increase in export potential and cost reduction than did large organisations. This can be explained by the fact that small and medium sized firms tend to use ISO to identify existing production processes with a resulting cost reduction because of improved knowledge of the production process. Ferguson (1994) and Ragothaman and Korte (1999) support this.

Conclusions

The dramatic growth in ISO 9000 certification in overseas countries and the sudden surge in firms seeking certification in Egypt were the main motivators behind undertaking this study. The quality standard has become a subject of interest in Egypt, and this is because more and more European and foreign buyers have become frustrated having to verify the quality of the Egyptian goods they purchase, a costly and time consuming process. In this article, a study was carried out to examine the management attitudes of Egyptian organisations toward ISO 9001:2000 standard. A response rate of 38 per

cent was obtained. This response rate (38 per cent) is quite reasonable compared with other studies (Dissanayaka *et al.*, 2001).

Results indicate that Egyptian companies that tend to be more exposed to ISO were mostly manufacturing firms and belonged to joint venture ownerships, which demonstrates that organisations in Egypt have strong links with foreign partners with internationally based organisations. These results were not surprising because at the beginning of the industrial development process in any society, the manufacturing sector usually takes the lead. Joint venture ownership companies are likely to be influenced by their foreign partners in focusing on recent issues concerning quality. Egyptian companies emphasised the vital importance of quality through their substantial positive response toward certification, and this was supported by the fact that the most of these companies were either in the process of registration or were planning to be registered.

Egyptian companies were found to have a high level of understanding of the purpose of ISO, and this can lead to successful implementation of the standard. Wong (1998) has highlighted that many of the TQM programmes implemented in developing countries fail due to a lack of real understanding of the principles. These results were not surprising because Egyptian companies and quality agencies are promoting ISO and providing information about the standard to organisations.

The study revealed that many of the Egyptian companies place a great emphasis on certification as 84.2 per cent of the participants indicated that they were either in the process of registration, were planning to be registered or had achieved ISO 9000:1994 certification. The most common reasons for seeking certification were to improve the efficiency of the quality system and pressures from competitors/foreign partners. Surprisingly, the desire to achieve customer satisfaction ranked fifth, whereas in western society, customer pressure has been perceived by many companies as the main motivating factor for seeking ISO certification. It is clear that ISO 9001:2000 is perceived in Egypt as a quality model where it can help organisations to achieve efficiency of the quality system. This finding is consistent with the work reported by Zairi (1996) who suggested that Middle Eastern countries tend to place

greater emphasis on ISO certification. The analysis and comparisons also revealed that manufacturing companies are significantly more likely to seek ISO certification as a part of a TQM programme and to improve the efficiency of the quality system than service and construction companies in Egypt. The same was true of the large participant companies compared to the medium and small sized companies. This can be explained by the fact that large and manufacturing companies are concerned about quality issues in the short and long term. This finding is consistent with the work of Beaumont and Sohal (1999) in Australia.

Improving organisational documentation and the efficiency of the quality system were found to be the leading benefits for implementing the standard. These two benefits are tangible direct effects since ISO includes mainly requirements for a better quality system. However, there was general agreement that ISO implementation had benefits for dealing with supplier selection, improving product/service quality, and helping develop quality management and the use of ISO as a promotional tool. Consideration of firm size and sector activity in understanding the ISO certification phenomenon in prior research has led researchers to investigate if there are differences in perceived benefits based on firm size and sector. This study revealed that there were no significant differences between manufacturing and service firms in Egypt. However, small and medium sized firms had a stronger belief that the implementation of ISO results in an increase in export potential and in cost reduction than large organisations. This can be explained by the fact that small and medium sized firms tend to use ISO to identify existing production processes with a resulting cost reduction because of improved knowledge of the production process. Ferguson (1994) and Ragothaman and Korte (1999) support this.

The findings presented in this article have possible implications of Egyptian managers. Implementation of the standard will likely improve the extent of documentation of products and processes within the firm. This enhanced documentation will probably produce benefits in marketing a firm's products and the international recognition of the standard will improve the potential for export to international markets. The

understanding of the standard requirements will affect selection of suppliers and may lead to improved efficiencies and lower costs.

Implementation of ISO is a tool for understanding products and processes, but by itself it will not solve existing problems or guarantee quality. However, in order to achieve the true commercial value associated with it, it should be made consistent with organisation's strategic direction. This refers to using the standard as a foundation for a much broader system such as total quality management.

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