ISO 9000 AND ITS INFLUENENCE TO CREATE A COMPETITIVE ADVANTAGE FOR CERTIFIED COMPANIES

By

Nicole Knoernschild

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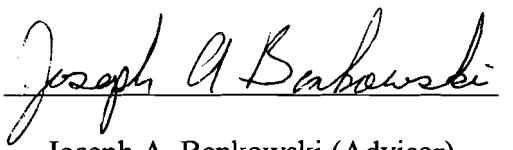

Joseph A. Benkowski (Advisor)

The Graduate School

University of Wisconsin-Stout

May, 2005

The Graduate School

University of Wisconsin-Stout

Menomonie, WI 54751

ABSTRACT

Knoernschild | Nicole | J.
(Last name) | (First) | (Initial)

ISO 9000 Certification and Its Influence in Creating a Competitive Advantage for Certified Companies
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The U. S. corporate world is highly competitive and companies are trying hard to secure their competitive advantage in the marketplace. One way to stay competitive and to secure an advantage over other companies is to develop a total quality management program. This program assists companies in tracking their successes and also helps locate areas that need improvement. One of the most accepted and respected total quality initiative is called ISO 9000. This is a program that organizations can adapt to their business and are given a guide to follow to comply. This program is prevalent around the

world and suppliers, and customers will request that organizations have this certification prior to doing business with them.

This study will examine how ISO 9000 certification affects the organization's competitiveness with its customers.

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Chapter I: Research Problem and Objectives

Introduction

The U. S. corporate world is highly competitive; companies are fighting for customers and good employees. Organizations are also trying to streamline their processes to save money and produce a quality product. Many organizations that want to continue to build high quality products or services are looking at ways to secure a competitive advantage (Ho, 2000). The market place is a hostile, complex and dynamic environment. In any given sector or niche, businesses find themselves facing a barrage of competitive forces. Porter (1980) names the following five forces that affect the performance of an organization: entry, threat of substitution, bargaining power of buyers, bargaining power of suppliers and rivalry among current competitors. These forces can be considered as barriers to business or enterprise success. A successful enterprise, then, is one that can respond to, or anticipate, these forces more effectively than its competitors. The result is competitive advantage (Frangou, 1997).

It is estimated that it costs five times as much to acquire new customers as it does to keep current ones. The organization that has poor products or service will need to spend more to get and keep customers than an organization whose service is of a high standard. U. S. studies show that one dissatisfied customer tells eight to fifteen other potential or existing customers about the experience with poor quality and if one customer writes a complaint letter, it represents 27 others who had the same experience (Sohal, 1994).

One way for an organization to stay competitive seems to be to develop a Total Quality Management (TQM) program or to become certified with the International

Organization for Standardization (ISO). Some organizations are being asked to pursue the ISO certification by its customers (Leland, 2000). ISO encourages a proactive rather than reactive approach to environmental practices at manufacturing sites. The program helps manufacturers reduce the cost of waste management by doing the following: saving in the consumption of energy and materials, lowering distribution costs, improving corporate image among regulators, customers and the public, and providing a framework for continuous improvement in environmental performance (Leland, 2000). It forces the organization to formalize procedures and produce the best practices for their organization and abide by them. It sets clear standards for every process so that everyone is doing the same thing in the same basis, all the time, without variance.

Perceptions of quality and its role in an organization's competitiveness have changed dramatically over the past 30 years. Consumerism, the global marketplace, and e-commerce have been key factors in these shifts. Consumers and businesses demand high quality products, and now, with the popularity and availability of the Internet, they can shop the world to find them. The global supply chain has become a reality. Thus, the role of quality in an organization's competitiveness has evolved into a strategic one and, as a result, quality is an imperative that no organization can ignore (Whithers, 2000).

Many quality philosophies and initiatives have appeared in recent years, and virtually every manufacturing organization has pursued some type of quality system. For a number of years total quality management appeared to be the most popular quality strategy; however, it is now generally accepted that ISO 9000 has become the most prevalent global quality initiative. According to the literature, the pursuit of ISO 9000 certification is primarily motivated by the need for a way into the global marketplace,

competitive pressures, or customer requirements are among the top reasons for an organization to pursue certification (Whithers, 2000).

Statement of the Problem

This study will focus on determining whether an organization's ISO certification has given the organization a competitive advantage with customers and employees. The researcher is aware that there are many TQM programs in which an organization can implement. For the purposes of this study, the researcher will examine organizations with the ISO certification(s).

Purpose of this Study

This study will examine the effects an ISO certification has on the organization's competitive advantage with its customers.

Objectives of this Study

The objectives of this study are:

1) Determine the degree to which an ISO certification has affected an organization's competitive advantage.
2) The effect the organizational structure has on the effectiveness of its implementation.

Significance of the Study

The significance of this study is to determine the impact of an organization obtaining an ISO certification and their competitive advantage in their market. It will also show the effectiveness of implementing this change.

Limitations of this Study

This study is limited to the ISO 9000 certified organizations in Madison, WI. The size of the organization, the number of employees, and number of years they have been in business is not taken into consideration for purposes of this study.

Definition of Terms

The following section defines terms used in this paper:

ISO 9000 certification: International Organization for Standardization

TQM: Total quality management

Benchmarking: Comparing to the best

LQRA: Lloyd's Register Quality Assurance Ltd.

QMS: Quality Management Systems

Chapter II: Review of Literature

Introduction

There is a lot of literature available to discuss Total Quality Management and ISO certifications and their effect on achieving a competitive advantage. This chapter will discuss both total quality management and ISO certifications by giving a history of each, the pros and cons of each and explain the similarities and differences of them.

Total Quality Management

The 1970s and 1980s are regarded as an era in which a quality revolution took place worldwide. Manufacturing companies in both the east and west came to recognize quality as a strategy for success rather than just a function to be performed. Many journals and magazines feature articles on companies that have achieved substantial benefits through quality initiatives (Sohal, 1994).

Since 1985, Total Quality Management (TQM) has become as pervasive a part of business thinking as quarterly financial results. A study in 1992 by Arthur D. Little reported that 93 percent of America's largest 500 firms had adopted TQM in some form. Analysts have credited TQM with leading Japan to global economic prominence in the postwar years, and with restoring America's economic competitiveness (Powel, 1995). TQM is an integrated management philosophy and set of practices that emphasizes, among other things, continuous improvement, meeting customer's requirements, reducing rework, long-range thinking, increased employee involvement and teamwork, process redesign, competitive benchmarking, team-based problem-solving, constant measurement of results, and closer relationships with suppliers (Powell, 1995).

TQM's origins can be traced to 1949, when the Union of Japanese Scientists and Engineers formed a committee of scholars, engineers, and government officials devoted to improving Japanese productivity, and enhancing their postwar quality of life. Influenced by Deming and Juran, the committee developed a course on statistical quality control for Japanese engineers, followed by extensive statistical training and the widespread dissemination of Deming philosophy among Japanese manufacturers (Powell, 1995).

Japanese companies were of the first to adopt quality principals into their organizations. Ederwick (1990) identifies four principal areas where Japanese service firms have augmented their competitive advantage:

1) Market knowledge: This is acquired both through increasing international management experience and through a strong external orientation within Japan. Concentration on specific regions, pooling of information sources and drawing upon the comprehensive information networks of the large general Japanese trading companies are amongst the strategies being pursued to increase the export of services rapidly.

2) Innovation and technical change: Information technology, automation and computerization are among the new technologies being adopted by the Japanese to create and exploit opportunities overseas and it increases the international transportability of services, which favors exports over direct investment.

3) Quality maintenance: High quality services are resulting from Japan's extensive experience in producing high quality products. Differentiation is being created in markets such as banking, finance and construction through the deployment of a highly educated, trained and multi-skilled workforce.

4) Corporate integration: The structure of Japanese industry is characterized by a much lower degree of corporate integration than occurs in Western countries. This allows higher flexibility and increased value added from the service content.

American firms began to take serious notice of TQM around 1980, when some U. S. policy observers argued that Japanese manufacturing quality had equaled or exceeded U. S. Standards, and warned that Japanese productivity would soon surpass that of American firms. Productivity trends supported these assertions, leading some opinion leaders to predict that-barring a radical change in American management practices-Japan and other Asian countries would soon dominate world trade and manufacturing, relegating the U. S. to second-tier economic status (Powell, 1995).

Board members, investors, and prospects have increased expectations for economic development of organizations. TQM is used to improve process consistency and reduce the errors through an ongoing, organization-wide effort, led from the top, instilling pride in workmanship, using staff teams involved in the process and empowering to make changes. They will use measurement tools to track processes and pinpoint problems, benchmark, focus on increasing customer satisfaction, work with partners, think long-term and act short-term (Canada, Summer 93).

Total quality management is an organization-wide philosophy that requires commitment to change, not just once, but as an ongoing process. This commitment is usually the result of an internal desire of top management to meet external challenges from and to beat its competitors in the delivery of products and services (Roethlien, 1999).

There is agreement among Crosby, Deming, Fligenbaum, Ishikawa, and Juran that the purpose of quality management is to reduce costs and improve customer satisfaction. Quality management has the potential to generate competitive advantage by reducing rework and savings that emerge from improving quality and better satisfy customers (Reed, 2000).

Reed (2000) discusses the importance of top management and their ability to create a vision and promote change as the heart of TQM implementation. Without top management as the driving force, it will not succeed. Douglas (2001) identified seven key or common practices that combine to support the TQM philosophy. These are: top management team involvement, adoption of a quality philosophy, emphasis on TQM oriented training, focus on customers, continuous improvement of the process, management by fact, and use of TQM methods. It has been said that there is a theoretical link between competitive advantage and performance with TQM or similar quality management practices generating a competitive advantage (Reed, 2000). Reed said that the customer defines quality and, in turn, quality creates customer satisfaction, which leads to an improved competitive position.

Leadership and commitment, training and education, using teams and having the appropriate culture are musts in a TQM environment (Reed, 2000). Successful quality improvement requires collective efforts of all staff at various levels of the organization. The complex nature of the quality problem stems from factors influencing quality does not stem from a single organizational function or department cross-functional teams are very important in handling quality issues in the TQM implementation process (Ho, March 2000).

ISO 9000 Certification

Like TQM, the process of becoming ISO 9000 certified is a matter of the different departments communicating and becoming teams and it cannot be accomplished unless the organization is committed to the change. The ISO 9000 series of quality standards is a non-governmental organization that was developed by the International Organization for Standardization (ISO) in 1947 (ISO, 2005). This has since become the international quality standard (Watson, 1992). The mission of ISO is to promote the development of standardization and related activities in the world with a view facilitating the international exchange of goods and services, and to developing cooperation in the spheres of intellectual, scientific, technological, and economic activity (ISO, 2005). This standard identifies the basic attributes of a firm's quality management system and specifies practical procedures and approaches to ensure that products and services are produced in accordance with the standards specified by the firm (Curkovic, 1999). It is debatable whether it is better to implement TQM or ISO 9000 first. However, if one sees ISO 9000 as a route to TQM, they are complementary to one another. For the companies who are already on TQM, installing ISO 9000 is relatively straightforward. On the other hand, if companies are leaning towards TQM, they can use ISO 9000 as a vehicle (Ho, 1995).

The ISO 9000 process directs managers to reexamine all their business processes that can impact quality, and identify any discrepancies between what employees are actually doing and what the documentation states should be done. For example, during the registration process, an organization must prove that it is following its own procedures for inspecting production processes, updating engineering drawings, maintaining machinery, calibrating equipment, purchasing material, training workers and

handling customer complaints. In cases when a discrepancy exists, there are three possible actions: 1) retrain employees with respect to their process activities, 2) change documentation to reflect what employees are actually doing, and 3) engineer the entire process, retrain employees, and change the documentation. The ISO 9000 standards focus in 20 specific aspects of a quality program. A company will fail the audit if any of these 20 subsystems is not present and functional (Curkovic, 1999).

While numerous articles report that companies derive benefits from their ISO 9000 certification efforts, virtually all of these benefits are reported as operational improvements, such as reductions in operating costs, reductions in scrap, and fewer defects. These benefits may or may not be transferred to the customer. There is only the implication that quality, as reflected by its eight dimensions, does improve as a result of ISO 9000 certification. The dimensions that appear to benefit the most from improvements in one's quality system are reliability, conformance, serviceability, and perceived quality. The dimensions impacted the least by ISO 9000 are aesthetics and features. Overall, if a firm competes on the basis of the quality dimension, then its competitiveness would be enhanced (Withers, 2000).

In a study completed by Lloyd's Register of Quality Assurance Ltd. (LQRA). The study interviewed 400 Quality Managers and Senior Managers from a cross section of LQRA's consumer base. The study showed that organizations embark on the certification largely in response to real or anticipated external needs. The organizations have also found significant internal benefits of ISO 9000 approval, benefits that exceed original expectations. The summaries of main findings from this study show the following:

- The impact of the internal benefits of ISO 9000 is much greater than anticipated. It also exceeds the impact of external benefits. Significant internal improvements include better management control and increased efficiency and productivity.
- Despite this, most companies originally sought the standard for its external benefits, such as increased market share and the ability to bid for tenders. These and other important external benefits were also reported.
- A total 89% of companies that have gained ISO 9000 approval say the standard has either met or exceeded their expectations.
- The benefits of ISO 9000 increase the longer approval is held. Certification should therefore be seen as a long-term investment.
- Total Quality Management (TQM) is seen as a complement to ISO 9000, not as an alternative.
- ISO 9000 is beneficial to small firms, of which 83% reported an improvement in management control and 64% an increased ability to tender for work.
- In contrast to all other sectors, the food industry saw internal, rather than external benefits as the main reason for obtaining ISO 9000.
- Disappointments with ISO 9000 were relatively low. Only 3% of the organizations reported that ISO 9000 increased their paperwork and only 6% said the standard was too costly.
- 73% said a quality management system (QMS) had enabled them to deliver a better service to customers and ensured a consistency of systems company-wide. Productivity gains and increased efficiency were reported by over two-thirds.

The ISO 9000 series of standards has formalized systems for evaluating the ability of any firm to consistently design, produce, and deliver quality products and services (Curkovic, 1999). The importance of managing quality requires that it not be dealt with on an ad-hoc basis. Only a properly implemented management system can provide protection from short-term actions, which do not serve long-term goals. Daily details can impede an organization's long-term quality goals unless some formal quality management system clearly sets the requirements as a standard for daily activities. The ISO 9000 series of standards has formalized systems for evaluating the ability of any firm to consistently design, produce and deliver quality products and services. There are now more than 95 countries that have endorsed the ISO 9000 standards (Curkovic, 1999).

Chapter III: Research Methods and Procedures

Introduction

ISO 9000 has become the international quality standard. The mission of ISO is to promote the development of standardization and related activities in the world. ISO is a route to TQM and this is a straightforward way to meet the goal of becoming a total quality organization. The ISO 9000 process provides managers with a way to examine all their business processes that impact quality, and identify any discrepancies between what employees are actually doing and what the documentation states should be done.

This research study was conducted to assess the degree to which the organization uses ISO 9000 as a quality management tool, the effect of the organizational structure on implementation effectiveness and the corresponding competitive advantages gained through the ISO 9000 certification. The survey asked the quality manager to rate their company on a scale of extent or degree of a current practice targeting several areas of the company. Including, commitment to quality, awareness of the mission of the organization, concern for need for quality, quality improvement, panning ahead for changes, quality-related training, supplier selection and rating, quality improvement responsibility, quality data availability, customer relations, analyzing information related to TQM procedures, and other various quality management issues. The setting for this study is the ISO Certified organizations in Madison, WI.

Survey Process

The survey is adopted from a TQM survey developed by Thomas J. Douglas from Clemson University and William Q. Judge from the University of Tennessee. The survey

(Appendix A), the list of certified companies in Madison, WI (Appendix B), and permission to use the survey (Appendix C) are included.

Selection of Population

The population chosen for this research study was comprised of the eighteen ISO 9000 registered companies in Madison. The population was not sampled; the entire population in Madison was surveyed. All participants were selected from a current list of ISO registered companies obtained from the ISO 9000 Registered Company Directory, 2001.

The information gathered in this survey was rated on a scale of 1-5. The information was collected and was processed to find the standard deviation and mean of each of the questions.

Weakness of the Study

The weakness of this study is that the information gathering method is the quality manager using his or her opinion to complete the survey. He or she may rate their company differently depending upon the kind of day or week they are having the day they completed the survey. Also, if the survey was given to a different person in the company, their opinion could have been completely different than that of the quality manager completing the survey. So, overall, the survey was completed according to the quality manager's opinion.

Chapter IV: Findings and Analysis of Results

Overview

This chapter presents the results of the questions developed, which rate the organization's continuous improvement programs. The results will show how the organizations compare to each other. The researcher will also explain the possible reasons why the organizations differ enough to cause the standard deviation to be greater than 1.1.

Discussion

Researcher called the companies from the ISO 9000 directory and the name of the person in charge of the quality assurance division was obtained prior to sending of the surveys. One of the companies combined with another company listed. One company did not accept surveys and one other company no longer remained ISO 9000 certified. The total number of organizations surveyed is 18. The number of companies that responded is 12.

See appendix D for a copy of the survey used. The researcher used the survey from Dr. Bill Judge and Dr. Thomas Douglas (Appendix A) and made adjustments accordingly to relate to the ISO 9000 companies used in this study. The survey asks the person surveyed to rate their company very low, low, medium, high, or very high to show the extent or degree of which their company implements current quality practices. See Appendix E for a table of results of the surveys.

Results

The results show that there were some conflicting views proving that not all companies have the same standards set to provide quality. The following provides some insight as to why there is a difference in the results. The researcher will focus on the questions where the results are greater than 1.1 that would indicate that the companies surveyed did not agree with the question. The table also shows the results of the mean.

Question	**Results of standard deviation greater than 1.1 and the mean**		Possible reasons for disagreement
Question 4-Continuous quality improvement is an important goal of this organization.	**1.311372**	**3.6364**	The reason for disagreement in this question could be that the organization's goals may be focused more on financial issues vs. quality issues.
Question 6- Quality-related training is given to hourly employees throughout the organization.	**1.337116**	**3.2727**	Some organizations focus their quality training solely with the managerial employees and they are responsible for quality in the organization.
Question 7- Quality-related	**1.279204**	**3.0909**	Some organizations are

training is given to managers and supervisors in the organization.			very strong in this and view it as being very important, while other organizations may be expecting the managers and supervisors to develop their own quality training.
Question 8- Training is given the "total quality concept" (i.e., philosophy of company-wide responsibility for quality) throughout the organization.	**1.378954**	**3.1818**	Some organizations use this philosophy very clearly in their training and other companies may not focus as much on training in their companies due to various reasons.
Question 9- Training is given the basic statistical techniques (such as histograms and control charts) in the organization as a whole.	**1.206045**	**2.0909**	Some companies take training on quality very seriously while others may provide little training to their staff. Or the training could be focused for the managerial and supervisor staff vs. the organization as a whole.

Question 10- The organization's top management is committed to employees training for quality.	**1.1645**	**3.0909**	Some organizations focus on training using quality issues as the focus. Other organizations may not see training as important. They may get the information using other avenues.
Question 11- Resources are provided for employee training in quality.	**1.4035**	**3.0000**	Some organizations are strong in the "training" arena yet others are not.
Question 13- The organization's supplier rating system is thorough.	**1.3817**	**3.5455**	The organization has used certain suppliers for so many years that they do not really see this as a necessity in rating their suppliers or that the rating system is not a complete system.
Question 16- Longer-term relationships are offered to suppliers.	**1.2673**	**3.7273**	Some companies find that they choose the supplier that costs less, while other

			companies like to do business with the suppliers that will provide them with the best quality service.
Question 21- Quality data (defects, complaints, outcomes, time, satisfaction, etc.) are available.	**1.2309**	**3.9091**	Some organizations do not make this information readily available to its customers or its employees, while other organizations make this information readily available. This could be due to the idea that only management is privy to the information gathered.
Question 22- Quality data are timely.	**1.2401**	**3.5455**	Some organizations view quality data as a great importance to them, therefore, they make sure this information is available in a timely manner. Other companies may not see this

			information as such a priority to the success of their company.
Question 24- Quality data are available to hourly employees.	**1.3114**	**3.6364**	Some organizations may not see that the hourly employees would benefit from this information.
Question 32- Associates use the basic statistical techniques (such as histograms and control charts) to study their work processes.	**1.3114**	**2.0909**	The information could be displayed or communicated in different ways.
Question 34- Associates keep records and charts measuring the quality of work displayed in their work area.	**1.1146**	**3.0000**	Some organizations make it a priority to display the information, while others may simply keep the information in a drawer.
Question 35- Statistical techniques are used to reduce variation in processes in the organization.	**1.1645**	**2.5455**	Some organizations may not use many statistical techniques, while others may find this to be a priority.

Question 36- TQM procedures (such as brainstorming, cause and effect diagrams, Parato charts) are used to analyze information for process improvement.	**1.2309**	**2.6364**	Organizations may not have implemented this as a way to analyze the functions of their organizations.
Question 37- The top organization executive assumes responsibility for quality performance.	**1.4848**	**3.2727**	This could be the philosophy of the companies' top executive. He/she may not feel it is their sole responsibility for quality performance; they may delegate that responsibility to their other staff.
Question 38- The major department heads participate in quality improvement practices.	**1.4975**	**3.3636**	Some organizations may have only top executives assume responsibility as the quality improvement specialist.
Question 39- the organization's top	**1.3027**	**3.4545**	Certain organizations do not view quality

management (top administrator and major department heads) has objectives for quality performance.			performance as an important objective to the success of the company, or that the organization has not developed objectives as guidelines to follow for the company.
Question 40- The goal-setting process for quality within the organization is comprehensive.	**1.2060**	**2.9091**	Certain quality managers do not view the process to be comprehensive, or that they do not set specific goals.
Question 41- Importance is attached to quality by the organization's top management in relation to cost objectives.	**1.2401**	**3.6364**	Certain organizations may look to other areas rather than in relation to cost objectives for their organization.
Question 42- Quality issues are reviewed in the organization's top management meetings.	**1.4433**	**3.8182**	Management in certain organizations may focus the agenda of their meetings in other areas.

Summary of Results

After analyzing the results of the surveys and the standard deviation results, the researcher concludes that there are several organizations in the Madison area that believe in and practice total quality management guidelines as a way to measure success of their organizations. The researcher noticed that there are two companies in particular that rated their organization low or very low on many of the questions that pertained to total quality management practices. For uses of this study the researcher will call the first company XYZ and the second company ABC. Companies XYZ and ABC caused the standard deviation of the statistical, data collecting, and training questions to appear to not be in agreement with the other organizations in the area. This leads the researcher to believe that these particular organizations would strongly benefit from the implementation of total quality practices that would give the employees guidelines to work with that may improve the performance of the company.

Chapter V: Summary and Conclusions

Summary

This descriptive study explained the history of Total Quality Management and ISO 9000 and showed the similarities and differences of the practices. The writer received permission to use Dr.Douglas' survey pertaining to total quality management and used the survey to have the Quality Managers of the ISO 9000 certified companies in Madison,Wi. rate their company's overall standards of quality on a scale of very low, low, medium, high, or very high. The writer then used the information to determine similarities and differences the companies had in relation to the questions asked on the survey. The writer completed a statistical analysis of the results of the survey and focused on the questions that statistically revealed a result of above 1.1 standard deviation. Most of the ISO 9000 companies in Madison were similar in their responses, however, two companies rated their companies rather low in comparison, thus causing the standard deviation to be greater than 1.1. In reviewing each of the surveys individually, the researcher determined that two companies rated their companies low on the surveys in comparison to the other companies in Madison. As a result, the companies listed as XYZ and ABC made the findings of the survey to be not in agreement. Companies XYZ and ABC completed the surveys with honest opinions of their companies and may have discovered that their companies needed some extra work to reach the level of success they want. The researcher believes that companies XYZ and ABC have potential they have not tapped into yet and perhaps through this survey process, they may have found that they have some areas they could strive to improve in. The researcher focused on the questions that the companies rated themselves low. There

are 22 questions rated above the 1.1 standard deviation and all of the questions are directly related to the top management and their values to the organization as a whole. The areas listed include keeping records of quality information, communicating quality expectations, handling and communicating quality data results, providing managers and employees training in quality, communicating the organization's performance and goals, and rating suppliers and valuing the relationships with the suppliers. These areas are crucial to the success of an organization.

Future Studies

The researcher would recommend a more in-depth study of companies XYZ and ABC focusing on quality and communication values of the organization to try and determine what kinds of issues the company is experiencing and try and help them to become more focused on these areas of business. The areas these companies could each work to improve would include quality improvement and goals, studying quality, communicating the information to the managers and employees of the organization, provide quality training throughout the organization, and overall, making the organization a "total quality" organization.

Recommendations

The researcher would recommend that the companies listed as XYZ and ABC rework their total quality management program into one that would work to increase customer and employee satisfaction. With the changes they could make, the companies may find that they are much more competitive and more successful as a result. The researcher would also recommend that companies XYZ and ABC take a serious look at

the top management and their goals for the organization to see if they are appropriate to the success of the organization.

The purpose of the ISO 9000 quality program and other total quality programs is to assist organizations in becoming the most successful organization they can be and to assist a company in meeting standards their customers are looking for when purchasing products. This writer would recommend companies XYZ and ABC use this program to their advantage by using the information provided to them and customize it to meet their organizational needs. Therefore, this would assist them in becoming more quality focused and competitive as a result.

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Appendix A: Continuous Quality Improvement Practices.

There are a number of practices that can be implemented as part of a continuous improvement program. The following questions concern the extent to which your organization has adopted certain of these practices.

Please circle the appropriate number to indicate the extent to which the following items are practiced in your organization. If you don't know the answer to a question, you may skip to the next question.

CURRENT PRACTICE	EXTENT OR DEGREE OF				
	Very Low	**Low**	**Medium**	**High**	**Very High**
1. There is a strong commitment to quality at all levels of this organization.	1	2	3	4	5
2. People in this organization are aware of its overall mission.	1	2	3	4	5
3. Members of this organization show concern for the need for quality.	1	2	3	4	5
4. Continuous quality improvement is an important goal of this organization.	1	2	3	4	5
5. Managers here try to plan ahead for changes that might affect our performance.	1	2	3	4	5
6. Quality-related training is given to hourly employees throughout the organization.	1	2	3	4	5
7. Quality-related training is given to managers and supervisors throughout the organization.	1	2	3	4	5
8. Training is given in the "total quality concept" (i.e., philosophy of company-wide responsibility for quality) throughout the organization.	1	2	3	4	5
9. Training is given in the basic statistical techniques (such as histograms and control charts) in the organization as a whole.	1	2	3	4	5
10. The organization's top management is committed to employee training for quality.	1	2	3	4	5
11. Resources are provided for employee training in quality.	1	2	3	4	5
12. Suppliers are selected based on quality rather than price.	1	2	3	4	5
13. The organization's supplier rating system is thorough.	1	2	3	4	5
14. The organization relies on reasonably few, but dependable suppliers.	1	2	3	4	5
15. The organization provides education to its suppliers.	1	2	3	4	5
16. Longer term relationships are offered to suppliers.	1	2	3	4	5
17. Clear specifications are provided to suppliers.	1	2	3	4	5

18. Associates in the organization try to improve the quality of their service.	1	2	3	4	5
19. Associates in the organization believe that quality improvement is their responsibility.	1	2	3	4	5
20. Associates in the organization analyze their work products to look for ways of doing a better job.	1	2	3	4	5
21. Quality data (defects, complaints, outcomes, time, satisfaction, etc.) are available.	1	2	3	4	5
22. Quality data are timely.	1	2	3	4	5
23. Quality data are used as tools to manage quality.	1	2	3	4	5
24. Quality data are available to hourly workers.	1	2	3	4	5
25. Quality data are available to managers and supervisors.	1	2	3	4	5
26. Quality data are used to evaluate supervisor and managerial performance.	1	2	3	4	5
27. Associates know who their customers are.	1	2	3	4	5
28. Associates attempt to measure their internal customers' needs (customers inside this organization).	1	2	3	4	5
29. Associates attempt to measure their external customers' needs (customers outside this organization).	1	2	3	4	5
30. The organization uses customer requirements as the basis for quality.	1	2	3	4	5
31. Our organization is more customer focused than our competitors.	1	2	3	4	5
32. Associates use the basic statistical techniques (such as histograms and control charts) to study their work processes.	1	2	3	4	5
33. Associates analyze the time it takes to get the job done.	1	2	3	4	5
34. Associates keep records and charts measuring the quality of work displayed in their work area.	1	2	3	4	5
35. Statistical techniques are used to reduce variation in processes in the organization.	1	2	3	4	5
36. TQM procedures (such as brainstorming, cause-and-effect diagrams, Pareto charts) are used to analyze information for process improvement.	1	2	3	4	5
37. The top health care organization executive assumes responsibility for quality performance.	1	2	3	4	5
38. The major department heads participate in the quality improvement process.	1	2	3	4	5
39. The organization's top management (top administrator and major department heads) has objectives for quality performance.	1	2	3	4	5

40. The goal-setting process for quality within the health care organization is comprehensive.	1	2	3	4	5
41. Importance is attached to quality by the organization's top management in relation to cost objectives.	1	2	3	4	5
42. Quality issues are reviewed in the organization's top management meetings.	1	2	3	4	5

Appendix B: ISO 9000 Registered Company Directory, North America on CD-ROM; Volume 4, Number 1

SICs	Company	City	State	Phone
3600	Artesyn Communication Products, Inc	Madison	WI	608-831-5500
3600	Rayovac Corporation	Madison	WI	608-246-1000
3800	Nicolet Biomadical, Inc.	Madison	WI	608-276-6261
3800	Nicolet Analylical, Inc.	Madison	WI	608-276-6261
3800	Nicolet Instrument Technologies, Inc.	Madison	WI	608-276-5600
2600	Rexam Medical Packaging	Madison	WI	608-249-0404
3500	Lubriquip, Inc.	Madison	WI	608-221-1100
3500	Marquip, Inc.	Madison	WI	715-339-2191
3600	Nicolet Instrument Corporation	Madison	WI	608-276-6156
5000	Crescent Electric Supply Company	Madison	WI	608-241-2882
3000	Placon Corporation	Madison	WI	608-276-4970
3300	Madison-Kipp Corporation	Madison	WI	608-242-5373
5000	Graycer Electric Company, Inc.	Madison	WI	218-722-6685
3500	Warman International, Inc.	Madison	WI	608-221-5894
2800	Promega Corporation	Madison	WI	608-277-2649
7500	Auto Glass Specialists, Inc.	Madison	WI	608-827-0101
5000	Betson Scales and Systems, Inc.	Madison	WI	608-249-1114
8700	Covance Labratories, Inc.	Madison	WI	608-241-4471
3800	Bruker AXS, Inc.	Madison	WI	608-276-3030
	Ulratec, Inc.	Madison	WI	608-238-5400
3000	Madison-Kipp	Madison	WI	608-242-5292
7300	Manpower International, Inc	Madison	WI	608-233-5244

Appendix C: Letter of Permission to use Survey

Appendix D: Continuous Quality Improvement Practices.

There are a number of practices that can be implemented as part of a continuous improvement program. The following questions concern the extent to which your organization has adopted certain of these practices.

Please circle the appropriate number to indicate the extent to which the following items are practiced in your organization. If you don't know the answer to a question, you may skip to the next question.

CURRENT PRACTICE	EXTENT OR DEGREE OF				
	Very Low	**Low**	**Medium**	**High**	**Very High**
1. There is a strong commitment to quality at all levels of this organization.	1	2	3	4	5
2. People in this organization are aware of its overall mission.	1	2	3	4	5
3. Members of this organization show concern for the need for quality.	1	2	3	4	5
4. Continuous quality improvement is an important goal of this organization.	1	2	3	4	5
5. Managers here try to plan ahead for changes that might affect our performance.	1	2	3	4	5
6. Quality-related training is given to hourly employees throughout the organization.	1	2	3	4	5
7. Quality-related training is given to managers and supervisors throughout the organization.	1	2	3	4	5
8. Training is given in the "total quality concept" (i.e., philosophy of company-wide responsibility for quality) throughout the organization.	1	2	3	4	5
9. Training is given in the basic statistical techniques (such as histograms and control charts) in the organization as a whole.	1	2	3	4	5
10. The organization's top management is committed to employee training for quality.	1	2	3	4	5
11. Resources are provided for employee training in quality.	1	2	3	4	5
12. Suppliers are selected based on quality rather than price.	1	2	3	4	5
13. The organization's supplier rating system	1	2	3	4	5

is thorough.					
14. The organization relies on reasonably few, but dependable suppliers.	1	2	3	4	5
15. The organization provides education to its suppliers.	1	2	3	4	5
16. Longer term relationships are offered to suppliers.	1	2	3	4	5
17. Clear specifications are provided to suppliers.	1	2	3	4	5
18. Associates in the organization try to improve the quality of their service.	1	2	3	4	5
19. Associates in the organization believe that quality improvement is their responsibility.	1	2	3	4	5
20. Associates in the organization analyze their work products to look for ways of doing a better job.	1	2	3	4	5
21. Quality data (defects, complaints, outcomes, time, satisfaction, etc.) are available.	1	2	3	4	5
22. Quality data are timely.	1	2	3	4	5
23. Quality data are used as tools to manage quality.	1	2	3	4	5
24. Quality data are available to hourly workers.	1	2	3	4	5
25. Quality data are available to managers and supervisors.	1	2	3	4	5
26. Quality data are used to evaluate supervisor and managerial performance.	1	2	3	4	5
27. Associates know who their customers are.	1	2	3	4	5
28. Associates attempt to measure their internal customers' needs (customers inside this organization).	1	2	3	4	5
29. Associates attempt to measure their external customers' needs (customers outside this organization).	1	2	3	4	5
30. The organization uses customer requirements as the basis for Quality.	1	2	3	4	5
31. Our organization is more customer focused than our competitors.	1	2	3	4	5
32. Associates use the basic statistical techniques (such as histograms and control charts) to study their work processes.	1	2	3	4	5
33. Associates analyze the time it takes to get	1	2	3	4	5

the job done.					
34. Associates keep records and charts measuring the quality of work displayed in their work area.	1	2	3	4	5
35. Statistical techniques are used to reduce variation in processes in the organization.	1	2	3	4	5
36. TQM procedures (such as brainstorming, cause-and-effect diagrams, Pareto charts) are used to analyze information for process improvement.	1	2	3	4	5
37. The top organization executive assumes responsibility for quality performance.	1	2	3	4	5
38. The major department heads participate in the quality improvement process.	1	2	3	4	5
39. The organization's top management (top administrator and major department heads) has objectives for quality performance.	1	2	3	4	5
40. The goal-setting process for quality within the organization is comprehensive.	1	2	3	4	5
41. Importance is attached to quality by the organization's top management in relation to cost objectives.	1	2	3	4	5
42. Quality issues are reviewed in the organization's top management meetings.	1	2	3	4	5

Appendix E: Results of the Surveys

Question.	**Results**	
	Standard Deviation	**Mean**
1. There is a strong commitment to quality at all levels of this organization.	0.87386	3.8182
2. People in this organization are aware of its overall mission,	0.67420	3.6364
3. Members of this organization show concern for the need for quality.	0.52223	3.5455
4. Continuous quality improvement is an important goal of this organization.	1.3618	3.6364
5. Managers here try to plan ahead for changes that might affect our performance.	1.0269	3.3636
6. Quality-related training is given to hourly employees throughout the organization.	1.3484	3.2727
7. Quality-related training is given to managers and supervisors throughout the organization	1.3003	3.0909

Question:	**Results**	
	Standard Deviation	**Mean**
Training is given in the "total qualith concept" (i.e.,		

philosophy of company-wide responsibility for quality) throughout the organization.	1.4013	3.1818
8. Training is given in the basic statistical techniques (such as histograms and control charts) in the organization as a whole.	1.2210	2.0909
9. The organization's top management is committed to employee training for quality.	1.2210	3.0909
11. Resources are provided for employee training in quality.	1.3416	3.0000
12. Suppliers are selected based on quality rather than price.	0.94388	3.0909
13. The organization's supplier rating is thorough.	1.4397	3.5455
14.The organization relies on reasonably few but dependable suppliers.	1.0269	3.3636
15. The organization provides education to its suppliers.	1.0593	2.3000
16.Longer term relationships are offered to suppliers.	1.2721	3.7273
17.Clear specifications are provided to suppliers.	1.0090	3.7273

18. Associates in the organization try to improve quality of their service.	0.68755	3.5455
19. Associates in the organization believe that quality improvement is their responsibility.	0.70065	3.0909
20.Associates in the organization analyze their work products to look for ways of doing a better job.	0.94388	2.9091
21.Quality data (defects, complaints, outcomes, time, satisfaction, etc.) are available.	0.94388	3.9091
22. Quality data are timely.	1.2136	3.5455
23. Quality data are used as tools to manage quality.	1.0090	3.7273
24. Quality data are available to hourly employees.	1.1201	3.6364
25. Quality data are available to managers and supervisors.	0.99443	4.1000
26. Quality data are used to evaluate supervisor and managerial performance.	1.5776	2.6000

Question	Results	
	Standard Deviation	**Mean**
27. Associates know who their customers are.	0.78625	3.7273
28. Associates attempt to measure their internal		

customers' needs.	1.0269	2.3636
29. Associates attempt to measure their external customers' needs.	1.0090	3.7273
30. The organization uses customer requirements as the basis for Quality.	0.78625	3.7273
31. Our organization is more customer focused than our competitors.	1.1304	3.5556
32. Associates use the basic statistical techniques (such as histograms and control charts) to study their work processes.	1.3751	2.0909
33. Associates analyze the time it takes to get the job done.	1.0445	2.9091
34. Associates keep records and charts measuring the quality of work displayed in their work area.	1.0000	3.0000
35. Statistical techniques are used to reduce variation in processes in the organization.	1.1282	2.5455
36. TQM procedures (such as brainstorming, cause-and-effect diagrams, Pareto charts) are used to analyze information for process improvement.	1.2863	2.6364

Question:	**Results:**
37. The top organization executive assume	

responsibility for quality performance.	1.5551	3.2727
38.The major department heads participate in the quality improvement process.	1.5667	3.3636
39. The organization's top management (top administrator and major department heads) has objectives for quality performance.	1.2933	3.4545
40. The goal-setting process for quality within the organization is comprehensive.	1.2210	2.9091
41. Importance is attached to quality by the organization's top management in relation to cost objectives.	1.2865	3.6364
42. Quality issues are received in the organization's top management meetings.	1.2505	3.8182

Appendix F: Voluntary Consent Form

I understand that by returning this questionnaire I am giving my informed consent as a participating volunteer in this study. I understand the basic nature of this study and believe the risks are very small, as indicated in the cover letter enclosed. I also understand the potential benefits that might be realized from the successful completion of this study. My company was identified as being an ISO 9000 certified company in Madison, WI by using the ISO 9000 registered company directory and I am aware the information is being sought in a specific manner so that no identifiers are needed to ensure confidentiality. I realize I have the right to refuse to participate and that my right to withdraw from participation at any time will be respected.

Note: Questions or concerns about participation in the research or subsequent complaints should be addressed first to myself, Nicole Knoernschild, 1705 St. Albert Dr., Sun Prairie, WI 53590 (608) 825-7926 or my research advisor Dr. Joseph Benkowski 278A Tech Wing, UW-Stout, Menomonie, WI 54751 (715) 232-5266. Secondly, to Susan Foxwell, UW-Stout Human Protections Administrator, 11 Harvey Hall, UW-Stout, Menomonie, WI, 54751, phone (715) 232-1126.

Appendix G: Cover Letter Sent with Surveys

Date

Address

Dear Madam or Sir:

Your organization has been identified as one that is ISO 9000 certified. I am completing a study of all of the organizations in Madison with this certification. Your organization's name was listed in the ISO 9000 Directory of North America and I would greatly appreciate it of you could take a few minutes to complete the survey enclosed and return it in the self addressed stamped envelope.

The basic nature of the questionnaire lists several areas of total quality management that an organization may participate in. The information will be used to obtain a further understanding of how ISO 9000 creates a quality work environment for the organizations in Madison, WI.

Please note, all of the information used will be kept confidential, there will be no names used in the study. I am pursuing a graduate degree in Training and Organizational Development through UW-Stout and this information will be used in my graduate thesis.

Thank you in advance for your participation. I greatly appreciate your time.

If you have any questions, please feel free to contact me. My e-mail address is nknoerns@terracom.net Phone number (608) 825-7926

Sincerely,

Nicole Knoernschild