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QUALITY SYSTEM REQUIREMENTS QS-9000: THE NEW AUTOMOTIVE INDUSTRY STANDARDS

By
Jayanta K. Bandyopadhyay
Central Michigan University

INTRODUCTION

In the current decade, globalization of the market and tough competition have brought a tremendous thrust for higher quality and productivity [13]. Many companies are moving through early stages of quality and productivity management, promoting quality from narrowly defined quality control function at lower level to becoming integrated with the overall systems of business management [2]. There is a growing consensus that traditional quality control based on inspection is outdated, and it should be replaced with customer focused, prevention based approaches to quality and productivity improvement [8]. The U.S. auto industry has been continuously striving for quality to survive in its own back yard. In this effort, each of the three big automakers has developed numerous standards and specifications which not only confuse many of their suppliers but also place tremendous burden on them for compliance [5]. Besides, it is not uncommon for a supplier to supply all three big automakers. In such case the supplier has to comply with completely different standards, specifications, and requirements as required by three different customers. This creates not only confusion but also an archive of documentation and standards, and monuments of wasteful inspection, testing, and quality assurance activities. While the big three automakers are attempting to cut their cost by maintaining just-in-time inventory, their suppliers are wasting their valuable resources to provide just-in-time zero defect quality parts. In the past decade, this situation has resulted in a severe strain in supplier-customer relationships in the automotive industry. In perspective of this quality standards and specification confusion, all three big automakers and some truck manufacturers have finally realized the need for harmonization and internationalization of their standards, specifications and requirements. evolution of the QS-9000 series of automotive quality system requirements as a result of this harmonization and

internationalization process.This new standard and the mandates by the major auto makers to have their direct suppliers registered under QS=9000 using third party registration imposed severe strain upon the direct(first level) suppliers. It has been becoming their survival strategy to get the registration. But the registration process is very expensive and painstaking., as a result many auto suppliers who will not get it, will degenerate in the long run, and manywho will get it will grow substantially. Specially many small manufacturers are vulnerable in this game of competetive survival This research attempts to find out the current strategic moves of small auto parts manufacturers and the impacts of this new quality systems requirements on the small manufacturers of auto parts and sub-assemblies

DEVELOPMENT OF QS-9000 QUALITY SYSTEMS REQUIREMENTS

Companies seeking to serve several different customers are facing a multitude of separate quality requirements and audits, and traditional methods of quality control, incoming inspection, and on site inspection, etc. are becoming obsolete, unreliable, and cost

ineffective [3,4]. This created a critical need for development of an independent, reliable, consistent, and economical system for assessment of suppliers quality assurance systems in conformance to a commonly recognized uniform quality standards, which ultimately lead to the development of International Standard Organization ISO 9000 series of quality standards by ISO Technical Committee (TC) 176 in 1987. Many nations approved them instantly, and they became the standards for the world market place [4,12]. This event marked a new beginning in Pan European trade among European Economic Community (EEC) member countries, and their trading partners around the world Then each participating country consequently adopted a equivalent version of ISO 9000 series of quality standards [7,12]. In 1987 the United States adopted its version ANSI/ASQC Q 90 using American terminology. The United Kingdom uses the same standards as BS 5750. The European countries adopted the ISO standards as EN 29000 [11].

Instead of inspecting an individual product or service to see whether it meets required specifications, under the ISO 9000 the emphasis is on auditing the production

system or service system to make sure that the system is capable of producing the desired quality of products or services according to its customers requirements. While ISO 9000 provides general guidelines for quality systems assurance, and is applicable to all types of industries, many find it too generic for their particular systems application. The three big automakers, General Motors, Ford, and Chrysler who have already created monsters of standards, policies, and procedures so individualized and cumbersome that it started choking their suppliers with paper works and unproductive times for repetitive inspection and audit. Finally they realized that they would gain substantial advantages by adopting common standards for all of their supplier bases. In June 1988. the representatives from the three automotive original equipment manufacturers (OEMs) and the Automotive Division of American Society for Quality Control (ASQC) created the Supplier Quality Requirement Task Force for developing a common understanding on topics of mutual interest within the automotive industry [1].

In 1990, the Task Force released a Measurement System Analysis manual which is now available through Automotive Industry Action Group (AIAG).This document provides all automotive suppliers a common approach to calibrate measurement equipment and evaluate the presence of error in such devices [1]. In 1991, a Statistical Process Control Reference Manual was released through AIAG. This manual provides a common approach to statistical process control in the automotive industry. Then followed the Advanced Product Quality Planning (APQP) Reference Manual and Reporting Format. This manual provides guidelines for preparing plans and checklists for ensuring that advanced product quality planning has actually been carried out by the supplier. Finally, in December 1992, the Task Force was directed to harmonize the fundamental supplier quality systems manuals and assessment tools. As a result, the Task Force developed and released in August 1994, Quality Systems Requirements QS-9000, a common sets of requirements for all automotive suppliers [14]. By September 1994, it was announced that QS-9000 would immediately replace all previous automotive supplier quality programs. A number of heavy truck manufacturers. for example, Mack Trucks, Navistar International, Peterbilt Trucks, Volvo GM Heavy Trucks, Kenworth Trucks, and

Freightliner Corporation, also adopted the QS-9000. In the future, most of the automotive original equipment manufacturers and their suppliers will adopt QS-9000 [14].

QS-9000 QUALITY SYSTEMS REQUIREMENTS ARCHITECTURE

QS-9000 defines the fundamental quality systems requirements of the big three auto makers General Motors, Ford, and Chrysler, Truck Manufacturers, and other subscribing companies. They apply to all internal and external suppliers of raw materials, components, sub-assemblies, and service parts. QS-9000 is the outcome of internationalization of quality standards and harmonization of quality requirements of the auto and truck manufacturers. Internationalization involves adoption of the ISO 9001:1994, Section 4 as the core quality requirements while harmonization occurred from blending of the existing quality requirements of Chrysler's *Supplier Quality Assurance Manual*, Ford's *Q-101 Quality Systems Standards,* General Motor's *NAO Target of Excellence*, inputs from the truck manufacturers, and other subscribing companies. ISO 9002 instead of ISO 9001, forms the core requirements for those suppliers who do not design their products but manufacture them from the design specified by their customers. Companies providing testing and inspection services only such as testing laboratories use ISO 9003 as core requirements instead of ISO 9001 or ISO 9002.

QS-9000 aims to provide a common basis for prevention of defects, reduction of variation, elimination of waste, and continuous improvement of quality. It will also develop a common understanding on topics of mutual interest, a closer working relationship and cooperation among all participants within the automotive and truck industry.

QS-9000 Quality Systems Requirements consists of three distinct group of requirements [1]: (1) *Core Requirements*. This includes all twenty elements of ISO 9001:1994 Section 4. Each element is exactly the same as provided in original ISO 9001 document, only typed in italics. However, additional requirements as needed for the automotive and trucking industry are described in regular type following each ISO element. Thus, this section may be considered as an elaboration of each element of ISO 9001:1994 Section 4 as specially fitted to the needs of the automotive and truck industry.

(2) *Sector Specific Requirements:* This section includes additional requirements beyond the scope of ISO 9001:1994 Section 4 elements but common to the automotive and truck industry. They include *Production Part Approval Process, Continuous Improvement,* and *Manufacturing Capabilities.* These programs are already in place within the automotive and truck industry.

(3) Customer-Specific Requirements: This section includes the unique specific requirements for each individual customer such as General Motor, Ford, and Chrysler and truck manufacturers such as Mack Trucks, Navistar International, Freightliner, Volvo GM Heavy Truck, and Peterbilt Trucks. Each supplier must also discuss with its customer about the unique specific requirements applicable to any existing or future contracts.

QS-9000 IMPLEMENTATION AND REGISTRATION

The conformance to QS-9000 quality systems requirements is generally verified by third party audit by a customer approved QS-9000 registrar [14]. In rare occasion a second party audit by the customer's auditor is allowed. It should be noted that many existing requirements of automakers such as Statistical Process Control (SPC), Advanced Product Quality Planning (APQP), Failure Mode Effect Analysis (FMEA), etc. ,and requirements of the programs such as Chrysler's Supplier Quality Assurance, General Motor's NAO Targets of Excellence, Ford's Q-101 Quality Systems Standard, and of other programs are still prevailing under QS-9000 requirements. What have been added are the requirements of ISO 9001 or ISO 9002 and that of a third party audit. The ISO 9001 or ISO 9002 based requirements and the sector-specific requirements are normally examined by a third party audit during the registration process, while the customer-specific requirements are usually audited by the customer through a second party audit. The guidelines for such audits are developed by the Task Force in a document entitled Quality Systems Assessment (QSA). This document is also available from the Automotive Industry Action Group (AIAG 1994).

QS-9000 THIRD PARTY REGISTRARS AND ACCREDITATION BODIES

QS-9000 third party registrars are an independent company who are accredited by a national accreditation body to verify compliance with QS-9000 Quality Systems Requirement through a third party independent audit. They maintain a register of names of the companies who have achieved QS-9000 registration through them. Accreditation body for registrar is either chartered or appointed by the government of the country where it is located. For example, in the United Kingdom, all registrars must be accredited by the National Accreditation Council for Certification Bodies (NACCB) which must issue certificates with the Crown Stamp of the NACCB. The accreditation body in The Netherlands is Raad voor de Certificatie (RvC). Similarly, most European countries has their own accreditation body [10]. In December 1991 American National Standard Institute (ANSI) and American Society for Quality Control jointly set up the Registration Accreditation Board (RAB) for accrediting American registrars of quality systems according to European Norm (EN) 45000 series of standards which govern all conformity assessment activities. When choosing a registrar, it is also important to find out whether its certificate will be recognized by the customers [6].

QS-9000 REGISTRATION MANDATES

General Motor Corporation has already mandated that its suppliers must be registered by a third party Quality Systems Registrar no later than December 31, 1997. For all new suppliers General Motors began Potential Supplier Audit since January 1, 1995 based on Quality Systems Assessment (QSA) document. By January 1, 1996 third party registration to the QS-9000 Quality Systems Requirements will be required of all new suppliers by General Motor [14].

Ford expects all its suppliers to be registered to QS-9000 Quality Systems Requirements on or before December 31, 1996. Ford has announced that it will also perform second party assessment on an exceptional basis. Chrysler Corporation has laid down a demanding schedule for QS-9000 implementation by its suppliers. All Chrysler's suppliers must complete a self-assessment to QS-9000 by July 7, 1995, and all production and service part suppliers to Chrysler must register to QS-9000 by a third party registrar by July 31, 1997 [14].

WHO SHOULD REGISTER TO QS-9000?

QS-9000 is having a huge impact on the automotive and truck industry in the United States and all over the world. All direct suppliers of General Motors, Ford, and Chrysler are required to implement QS-9000 Quality Systems Requirements by July of 1997. All direct suppliers of the big three automakers and major truck manufacturers in the United States must eventually have to implement QS-9000 in their quality systems by getting registered in the long run as their survival strategy. QS-9000 registration can also provide a company with a sharp competitive edge. It proves the company's capability as a high quality supplier and can open up the gateway to a wealth of business opportunities in the United States and all over the world. Automakers in Japan and other countries may also require their suppliers to register under ISO 9000 or QS-9000 in the future. Many of their suppliers, however, might be already registering under ISO 9000 or QS-9000. However, ISO 9000 registration alone is not enough to meet the QS-9000 Quality Systems Requirements [1, 14].

Companies belonging to other industry groups such as appliance, aerospace, electronics, etc. need not seek QS-9000 implementation unless they supply directly to the big three automakers and truck manufacturers. The suppliers of equipment, warehouses, and service to the big three automakers and truck manufacturers should be aware that plans are being developed to include them in a common quality systems efforts in the future. This does not mean that they should rush into registration to QS-9000 but they should discuss with their customers about their specific quality system requirements [6, 14]. Considering all these developments, a company whether located in the United States or abroad should seriously attempt to achieve QS-9000 registration if it is a direct supplier of any of the big three automakers and major truck manufacturers in the United States. The companies who are sub-contractors of any of the direct supplier of any of the big three automakers or major truck manufacturers in the United States are not covered by the current mandate. They may be required by their customers to register to QS-9000 in

the near future. Finally, the requirement of QS-9000 registration is not geographically limited in the United States. Any direct supplier to the big three U.S. automakers and major U.S. truck manufacturers in whether located in the United States or abroad are required to register to QS-9000 under the current mandate.

HOW TO PREPARE FOR REGISTRATION?

Before proceeding for QS-9000 registration, a number of questions must be answered and a lot of preparation must be made. Many companies tend to rush towards registration, but to their disappointment, they encounter countless nagging difficulties. Failure to plan, prepare and anticipate problems can lead to unnecessary and frustrating delays. Table 1 provides a list of questions that must be asked by the QS-9000 committee before proceeding for QS-9000 registration [2].

The time to implement a quality assurance system conforming to the QS-9000 model and achieving QS-9000 registration generally depends on the size of the company, the commitment of the top management to achieve registration by a certain date, the expertise of the consultant in guiding the client, the amount of documentation required, availability of qualified and trained personnel to prepare the documentation, the type and kind of resistance against the efforts from the various organizations, the amount of participation from individuals and group involved, and other intangibles factors. A company with approximately 200 employees having only a rudimentary quality system in place, generally takes about 6 to 9 months to bring its quality system up to QS-9000 standards. Most companies, if seriously committed, can achieve the task within nine to fifteen months. Assuming that a company is seriously committed, the rule of thumb would be to allow 25 to 30 working days for the actual writing of the quality manual (tier 1 document), while many

Table 1 List of Questions for QS-9000 Registration Preparation

*	Who will be responsible for the implementation efforts?
*	How the employees will be informed of the company's plan for QS-9000 registration?
*	Which plant, plants, division or product lines will be registered?
*	Who shall be responsible for which QS-9000 sub-section?
*	Who (in-house team, consultant or combination) will perform the pre-assessment audit, and when it will be carried out?

*	Who will write the quality manual and who will review it ? Will it be written by a single individual or various persons will be assigned to different sections ?
*	Who will write tier two and tier three documents?
*	Who will manage document control ? Which documents need to be controlled ?
*	Who will conduct internal audit ? How internal audit will be conducted ?
*	How training needs will be accomplished ?

more (12 to 16) weeks may be needed to decide on what to include in it. One should allow one-half to a full day for each quality assurance procedure (tier 2 document), while these activities may spread over 12 to 16 weeks. Preparing a work instruction (tier 3 document) may take about 1 day to write and 1 day to edit, and may spread over 12 to 16 weeks. Then internal audits and corrective actions may take anywhere from 40 to 50 days, depending on plant size and number of non-conformities found for auditing and testing the system. These estimates assume that the company is totally committed to the task and is willing to invest the necessary resources in order to achieve QS-9000 registration within a reasonable time frame of nine to fifteen months. However, these estimates do not include any training and preparation time. The training may easily lengthen the registration process and increase the cost significantly. Since technical and quality related training sessions are very expensive, and are required by QS-9000 registration and by other agencies such as OSHA, and EPA,, it may consume as much as seventy percent of the allocated budget. These training programs must be carefully timed and should be practical rather than theoretical in order to be effective.

Table 2 provides an overview of a QS-9000 implementation plan of a typical company of approximately 200 employees [2]. It is assumed that the company is stable and not experiencing any reorganization. Companies who are in the middle of a major or even a minor restructuring, can anticipate a much longer implementation time period.

The purpose of the quality awareness campaign is to inform the work force about why the company desires to achieve QS-9000 registration within a certain period of time. A few one/two day in-house *QS-9000 Awareness* seminar is probably the appropriate way to bring awareness as compared to sending one or two representatives to one of the many QS-9000 seminars. *A well planned informative campaign is the most effective way to bring this awareness.*

The next step will be to appoint the *QS-9000 representatives and teams* whose purpose will be to organize, monitor, catalyze and energize the implementation process including the assignment for tier 1, tier 2, and tier 3 documentation. Then the whole process has to be constantly monitored to ensure effective and steady progress.

As the process progresses, the time will come (in about six months) to conduct the first *internal audits* This is a critical step for the implementation process. Most third party registrars will not even bother to audit a company until its quality assurance system has been in place for at least six months. In the mean time, *a quality training program must be*

Table 2 QS-9000 Implementation Plan for a Typical Company

* Initiate QS-9000 awareness campaign
  Establish implementation timetable
  Communicate the QS- 9000 implementation plan across the organization
* Nominate QS-9000 coordinator(s) and delegate authority and responsibilities
* Establish implementation teams
  Assign responsibilities for writing Quality Manual and procedures
* Start writing quality manual
  Review QS-9000 guidelines
* Coordinate with procedure teams
* Develop Process Flow chart
  Flow chart the processes as needed
* Document procedures (tier 2)
* Document work instructions (tier 3)
* Set up quality audit training according to QS-9000 standards
* Set up pre-registration audit
* Monitor the implementation process
  Start internal audits
  Document corrective actions
* Schedule a compliance audit
* Clear any discrepancy
* QS-9000 registration

on-going for training of the quality verification personnel and the personnel whose activities may have impact on product's quality.

If the pre-registration audit reveals some non-compliance, corrective actions must be taken to remove those discrepancies. Those corrective actions must be documented. Then a third party auditor can be invited to officially assess your readiness. If everything goes well, the company may receive its registration certificate within a few months.

THE COST OF QS-9000 REGISTRATION

Using the preliminary pre-assessment audit findings and the implementation schedule as guidelines, the cost of QS-9000 registration may be estimated. Without a preliminary audit, it is extremely difficult, to estimate the cost of QS-9000 registration . A medium size company of 200 employees may spend anywhere between $50,000 to $150,000 towards QS-9000 registration which exclude any training and preparation costs. There are too many variables with too many parameters to consider when estimating the cost of QS-9000 registration. Table 3 provides a model for estimating cost for various activities related to QS-9000 registration based on 1995 estimates for a company of approximately 200 employees. These cost and time estimates are based on the assumption that a company is committed to the QS- 9000 registration process [2].

The QS-9000 registration costs, of course, vary from company to company. The majority of the costs are associated with documentation, audit, and training. A recent survey by Dusharme (1995) on ISO 9000 registration, reports that a registrar may charge from $5000. to $10,000. for pre-assessment audit, $10,000. to $45,000. for registration audit, and $5000. to $15,000. for surveillance audit. It also reports that an initial documentation review may cost from $6000. to $18,000, while the internal cost for documentation and training ranges from $100,000 to $150,000. There are software available for documentation and training which may be used to speed up the documentation and training process. This survey also reports that consultants charge from $800. per day to $2000. per day, and the consulting costs for a company may vary from $20,000. to $50,000.[2]

OPPORTUNITY WITH QS-9000 REGISTRATION

By registering to QS-9000 Quality Systems Requirements using a third party registrar a company can earn recognition as a quality producer of automotive components and service parts and gain tremendous competitive advantages. This will increase its

business significantly not only within the United States but also in the world market place.

Table 3. Model for QS-9000 Registration Related Costs Using Values Based Upon 1995 Estimates for Companies With Approximately 200 Employees

ITEM	RATE	AVERAGE TIME	AVERAGE COST
Preparation of Quality Manual	$40/hr.*	150 man-hrs	$6,000.
Preparation of Quality Procedures	$40/hr.*	200 man-hrs	$8,000.
Preparation of Work Instructions	$40/hr.*	250 man-hrs	$10,000.
Internal Audit + Corrective Actions	$50/hr.*	100 man-hrs	$5,000.
Pre-assessment Audit (3 rd party)	$1500/au/day	4 auditor-days	$6,000.
Certification Audit (3 rd Party)	$1500/au/day	10 auditor-days	$15,000.
Average Total One-time Cost (Excluding Preparation and On-going Training Costs)			$50,000.
Training Quality Resource Personnel	$100/hr	500 man-hrs	$50,000.
Registration Fee	Variable	N/A	
Semi-annual Surveillance Audit	$1500/au/day	4 auditor-days/yr.	$6000./yr.

* Estimated from salary + benefits

Auto and truck makers all over the world may become its potential customers. On the other hand, failure to achieve registration may results in loss of business from the big three automakers and truck manufacturers in the United States and possible from other overseas auto and truck manufacturers. Once implemented, QS-9000 may save substantial amount of resources used in repetitive inspection and quality control, Once the system is under control it is bound to produce good quality products at substantial cost savings [7, 14]. QS-9000 registration also reinforces customer-supplier relationship as a

team and can strengthen long-term business relationship, profit potential, growth and prosperity [14]. In 1995 AIAG surveyed over 3500 auto related companies with 610 responses (17% response rate) and reported in its findings that 71% of the companies responded are planning to seek QS-9000 registration by the end of 1996, while 21 companies have already achieved registration [8].

CONCLUSION

The mandates of registration dictated by General Motors, Ford, and Chrysler have placed tremendous pressure upon their supplier bases. There are simply not enough trained and qualified registrars, auditors, and quality personnel to accomplish this monumental task. The laws of supply and demand will dictate the costs and waiting times for a company to get registered to QS-9000. Many suppliers are still questioning the need for third party registration, debating whether to commit needed resources to get third party registration, and doubting whether it will be cost-effective or not. Because of the mandates by the big three automakers, their suppliers must ask their customers about when and how to get started. The supplier must choose the right register who fits in with its culture, is eager to help the company to succeed, has experience in the area of its operations and products, has an unbiased attitude towards the company, and is well recognized by its customers. Finally, QS-9000 implementation demands total commitment to quality by the supplier's top management without which all efforts will be useless.

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ABOUT THE AUTHOR

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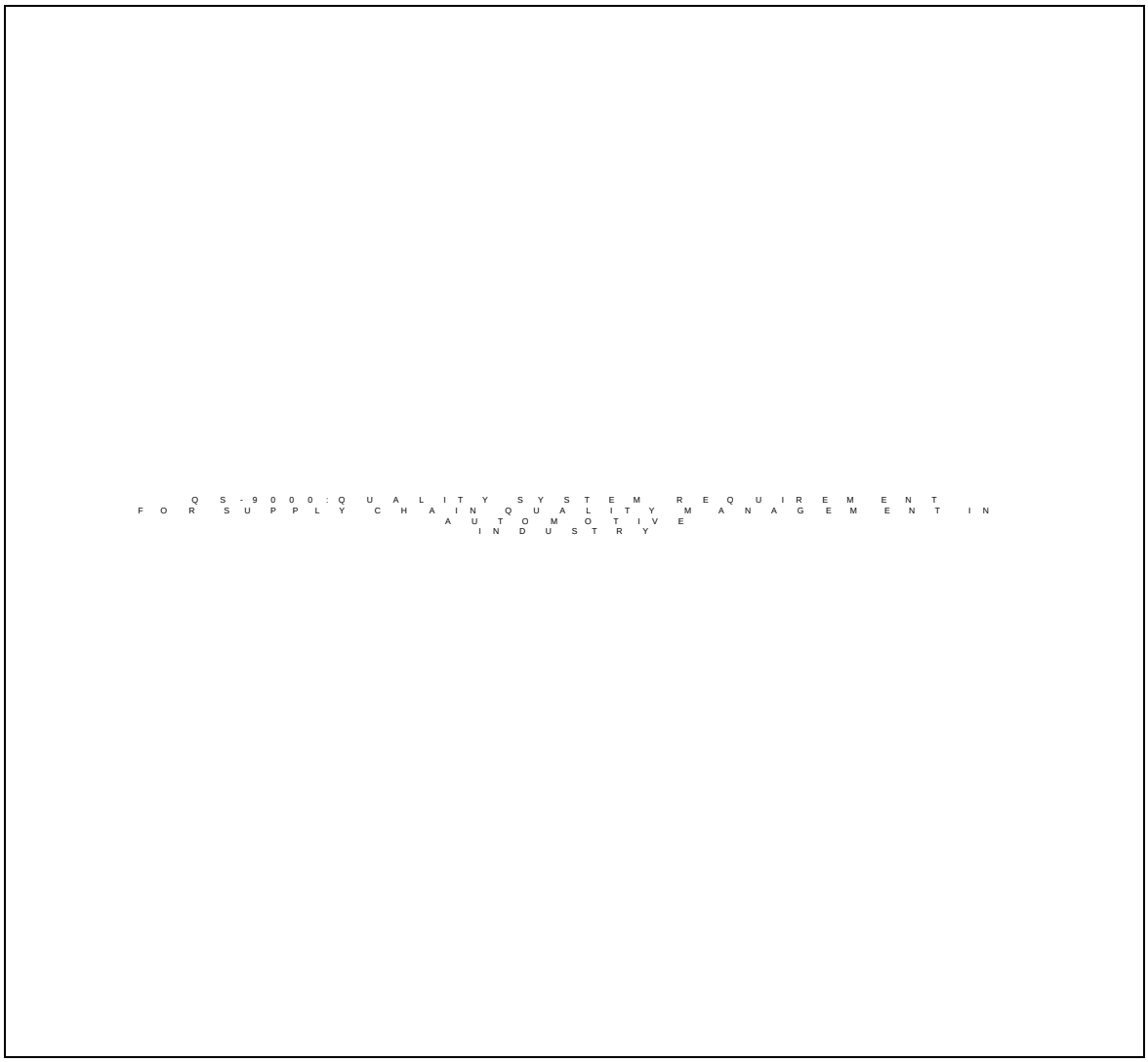
Dr. Jayanta K. Bandyopadhyay, is a Full Professor at Central Michigan University since 1979. He is Certified at Fellows level by APICS. He is also Certified as Quality Auditor by ASQC, as International Quality Auditor by The Institute of Quality Assurance of London, U.K., and Quality Systems Auditor by RAB of ASQC. He is the author of *QS-900 Handbook*, publishrd by St. Lucie Press, Del Ray Beach , Florida, *CPIM Exam Review With Model Test Questions* published by Manufacturing Systems Consultants, and *ISO 9000 Practitioners Handbook* published by Quality & Productivity International. He has also published many research papers in *International Journal of Management, Production & Inventory Management Journal, The Clinical Engineering Journal,* and *Interface* of The Institute of Management Science.



By

Jayanta K. Bandyopadhyay, Ph. D. in I.E., CFPIM, CQA, IQA
Professor of Production and Operations Management
Central Michigan University
Mt. Pleasant, MI 48858
Phone 517-631-8273

QUALITY SYSTEM REQUIREMENTS QS-9000: THE NEW AUTOMOTIVE INDUSTRY STANDARDS

ABSTRACT

In an effort toward continuously elevating the product quality, the three big automakers have developed numerous standards and specifications unique to their own use, which not only confuse many of their suppliers but also place tremendous burden on their suppliers for compliance. In the past decade, this situation has resulted in severe strain in supplier-customer relationship in the automotive industry. Finally, all three big automakers and some truck manufacturers have realized the need for harmonization and internationalization of their standards, specifications and requirements. This led to the formulation of the QS-9000 quality system requirements. This paper attempts to describe the evolution of the QS-9000 quality standards, the third party registration process to the QS-9000 standards, and the current move by the tier one (direct) suppliers of the big three automakers and truck manufacturers in achieving the QS-9000 registration as a survival strategy.

KEY WORDS: QUALITY SYSTEMS REQUIREMENTS QS-9000, AUTOMOTIVE QUALITY STANDARDS, ISO 9000 SERIES OF QUALITY STANDARDS, TOTAL QUALITY MANAGEMENT

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A QUESTIONNAIRE SURVEY

1. Name of the
Company_____
2.Address of the Company_____
3.Phone Number:_____Fax No. _____
4. Do you want a copy of the result of this survey Yes _____ No_____
5. Your Name _____Your Position _____
6. Are you a direct supplier to the _____big three automakers _____a direct supplier of the big three automakers _____second + level supplier to big three auto makers.
7.Please name some of yours main products _____
_____
8. Are you aware of the QS-9000 requirements yes_____, No_____, vaguely
_____
9. Are you aware of the QS-9000 mandates yes_____No_____, vaguely _____
10.Does your customers require you to get QS9000 registration Yes _____, No_____
11, If yes when is the deadline _____, If no, Any other quality std
_____

such as Ford;s quality of excellence or other standards _____
12. Are you planning to go for registration? Yes _____, If so when_____No__
13. Are Thinking of going for registration?Yes _____If so when _____No___
14. Have you already started QS-9000 awareness training? , Yes _____, N___,
Planning _____

15, Have you started writing your Qualitymanuals _____,
Procedures_____
Work instructions_____?
16.have you already selected a QS-9000 registrar? Yes
_____No__planning_____
17Have you already started QS-9000 pre-assessment audit yes___ no___planning
_____
18. Have you already appointed a QS-9000 coordinator yes___ no___planning _____

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PAPER TITLE: QS-9000: THE NEW QUALITY SYSTEM REQUIREMENTS FOR SUPPLY CHAIN QUALITY MANAGEMENT IN AUTOMOTIVE INDUSTRY

Suggested track: Total Quality Management or Supply chain management

Name of the authors: Purna Bandyo and Dr. Jayanta K. Bandyopadhyay,
Professor of Production Management

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Central Michigan University,Mt. Pleasant, MI 48859
Fax: 517-774-2372, e-mail: Jayanta Bandyopadhyay @cmich.edu

ABSTRACT

In an effort toward continuously elevating the product quality, the three big automakers developed, over decades, numerous standards and specifications unique to their own use, which not only had confused many of their suppliers but also placed tremendous burden on their suppliers for compliance. In the past decade, this situation has resulted in severe strain in supplier-customer relationship in the automotive industry. Finally, all three big automakers and some truck manufacturers have realized the need for harmonization and internationalization of their standards, specifications and requirements. This led to the formulation of the QS-9000 Quality System Requirements.

The objective of this presentation is: to describe the model and architecture of the QS-9000 standards and the process of implementation of QS-9000 for supply chain quality management in automotive industry.

Materials to be covered (using Power point color transparencies) are:

Traditional supply chain quality management in automotive industry

Evolution of QS-9000 Quality Systems Requirements as uniform quality standards in automotive industry

The registration mandates for enforcement of QS-9000 in auto industry

The QS-9000 registration/implementation process

The current status of QS-9000 implementation by automotive parts suppliers in Michigan

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To: August 25,1999

Dr. Sushil K. Gupta, Professor
Dept. of Decion Sciences & Information Systems
Florida International University
Miami, FL33199,
U.S.A

Dear Dr. Gupta,
Please refer to your e-mail to me regarding the acceptance of the abstract of my paper at the POMS-INDIA conference. As per our correspondence through e-mail and your request, I an enclosing a copy of my proposed paper paper/presentation at the POMS-INDIA Conference, to be held on December 21-24, 1999 at New Delhi, India, for your review.If you accept this paper, please send me a formal letter of acceptance **specifically mentioning "This paper has been accepted through a blind review process".** I need this letter for applying to my University Committee for some travel fund.My University committee funds only those conference presentations where papers are accepted though blind review process.

Thank you for your patience, and for your support.

Sincerely,

J. Bandyopadhyay, Ph.D. in I.E., CQA, CFPIM
Professor of Production Management

Copy to:
Professor Kanda, Professor
IndustrialEngineering Dept.
Indian Institute of Technology
New Delhi-110016, India

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QS-9000 QUALITY SYSTEMS EQUIREMENTS FOR SUPPLY CHAIN QUALITY MANAGEMENT IN AUTOMOTIVE INDUSTRY

ABSTRACT

In an effort toward continuously elevating the product quality, the three big automakers developed, over decades, numerous standards and specifications unique to their own use, which not only had confused many of their suppliers but also placed tremendous burden on their suppliers for compliance. In the past decade, this situation has resulted in severe strain in supplier-customer relationship in the automotive industry. Finally, all three big automakers and some truck manufacturers have realized the need for harmonization and internationalization of their standards, specifications and requirements. This led to the formulation of the QS-9000 Quality System Requirements.

The objective of this paper is: to describe the model and architecture of the QS-9000 standards and the process of implementation of QS-9000 for supply chain quality management in automotive industry.

Materials to be covered (using Power point color transparencies) are:

Traditional supply chain quality management in automotive industry

Evolution of QS-9000 Quality Systems Requirements as uniform quality standards in automotive industry

The registration mandates for enforcement of QS-9000 in auto industry

The QS-9000 registration/implementation process

The current status of QS-9000 implementation by automotive parts suppliers in Michigan.