IMPORTANT STANDARD ISO 16949 QUALITY MANAGEMENT APPLIED IN AUTOMOBILE INDUSTRY

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Abstract:
While ISO 9000 addressed quality management issues and standards in general, vehicle manufacturers felt it did not meet the unique requirements of the automotive industry. Globally automakers have indicated their individual requirements and their positioning on ISO/TS 16949:2002. ISO/TS 16949:2002 is an ISO Technical Specification aligning existing automotive quality system requirements developed by IATF, JAMA and supported by ISO technical committee (ISO/TC 176). ISO/TS 16949:2002 combines QS-9000, AVSQ, EAQF, and VDA, is aligned with ISO 9001:2000 and replaces QS-9000.

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JEL classification: *L15, L62*

Existence of quality grades for some categories of products or services constitute a significant element that can influence customer perception of product quality and to implicitly buying decision.

In the automotive industry standards have proliferated like the three big automobile manufacturers - General Motors, Chrysler and Ford and other large customers. It contains many different requirements, which was to make increasingly felt pressure to suppliers. The main issues raised by them were:

- proliferation of similar standards;
- different requirements for documentation
- various independent audits
- lack of standardized terminology
- more terms for the same concept
- the same term with different meanings
- different classification schemes

Following the emergence of the need for specific regulatory requirements, they have established a Task Force. Previously, each company has established what are the expectations from the suppliers quality system and appropriate documentation for evaluation. Common approaches have been established then, harmonized, which took into account several issues considered key issues, which were well developed and verified for the three companies. They are:

- Quality System Requirements (QS 9000)
- Background Statistical Process Control (SPC)
- Analysis of failure modes and effects (FMEA - FMEA)
- Plan in advance of product quality and Quality Plan (APQP)
- Approval Process for production of parts (PPAP)
- Manual measurement system analysis (MSA)
- Quality System Assessment (QSA)

To develop the application of the new standard was needed to build on arrangements for mutual recognition principle. In this regard the Task Force was formed called the IATF (International Automotive Task Force). It is also established that the

applicability of these requirements and which groups of providers must meet. These are producers of raw materials, components, parts, and other finishing services directly to vehicle manufacturers. Simultaneously, Europe have launched proposals to ISO / TC 176, and harmonization of existing rules and regulations at that time, the QS-9000. Among these should be mentioned:

- Germany: VDA-6.1 - The regulation of companies BMW, VDAlBosch GME Opel, Mercedes Benz, Volkswagen
- France:. EAQF. regulation of firms Peugeot / Citroen, Renault Automobiles, FIEV
- Italia_A VSQ - ANFIA firms regulations, Fiat, Magneti Marelli.

Providing links returned ISO Technical Committee TC 176, which began to harmonize existing national standards for the automotive industry with ISO 9000 family of standards. With this support, the International Automotive Task Force (IATF) and Japan Automobile Manufacturers Association, Inc.. (JAMA) in 1999 developed the first edition of ISO / TS 16949, and in 2002, after taking the 2000 edition of ISO 9001, current edition.

Important factors requirements and ISO 16949 standard in the automotive industry

Standards of ISO 9000 and ISO 16949 series stresses the importance of audits as a management tool for monitoring and verification of effective implementation of policy relating to the quality organization. Also, the quality system certification, involves conducting audits of quality systems with international standards in this field. Viewed as a necessity to implement these standards are required of foreign business partners of local firms, most relevant example is how the company as a member of Dacia Renault claims all suppliers to be certified as a system governed by standards ISO 9000 and even the implementation and certification according to ISO / TS 16949 entitled "QUALITY MANAGEMENT SYSTEMS - PARTICULAR REQUIREMENTS FOR APPLICATION FOR PRODUCTION OF ISO 9001 SERIES AND PARTS IN AUTOMOBILE INDUSTRY.

ISO / TS 16949 is intended to avoid multiple certification audits and provides a common approach on a quality management system for manufacturers in the automotive industry. With ISO/TS16949:2002 global quality standard set to replace QS 9000, the automotive industry is poised for change. While QS 9000 is based on requirements from the Big three automakers, ISO/TS16949:2002 not only combines ISO 9001:2000, but includes automotive requirements from national and international quality standards (QS 9000, VDA 6.1, EAQF and AVSQ) along with contributions from British and Japanese automakers. The International Automotive Task Force (IATF) and the International Standard Organization (ISO) mandated ISO/TS16949:2002 primarily for recognition by all auto manufacturers around the globe with the focus on quality management system requirements that guarantee quality products to automotive customers worldwide. Compliance to different quality system requirements, the complex nature of requirements and multiplicity of specifications placed a significant burden on suppliers, adding to their cost of compliance. ISO/TS16949:2002 represents the auto industry's efforts in forging a common quality language to harmonize and standardize the quality standards for the global automotive industry.

With a vision to synchronize national and international automotive quality system requirements and provide improved quality products to automotive customers worldwide, representatives from European and North American vehicle manufacturers, suppliers and automotive trade associations established the International Automotive Task Force (IATF). In 1999, the IATF members jointly developed a common

automotive quality system requirements catalog based on ISO 9001:2000, AVSQ (Italian), EAQF (French), QS-9000 (U.S.) and VDA6.1 (German) automotive catalogs and submitted to the International Organization for Standardization (ISO) for approval and publication. The new technical specification and an associated third party certification scheme for automotive supplier quality systems came to be known as ISO/TS16949:1999.

Since then, there has been a revision to ISO/TS16949, with the new structure being formulated by the IATF along with participation from the Japanese Automobile Manufacturers Association (JAMA). The revised specification, ISO/TS16949 second edition, was issued in March 2002 as ISO/TS16949:2002 and is published and available from the Automotive Industry Action Group (AIAG). In August 2002, Daimler Chrysler, Ford and General Motors issued statements fully adopting the new ISO/TS16949:2002 standard, as well as other vehicle manufacturers from around the globe accepting ISO/TS16949 as equivalent to their own national requirements. In order to implement, manage and ensure global consistency as well as develop and maintain a central database of strategic information of the ISO/TS 16949 registration scheme oversight activities on behalf of the IATF, the International Automotive Oversight Bureau (IAOB) was established.

Requirements of the Quality Standard - ISO/TS 16949:2002

ISO/TS 16949 applies to all internal and external suppliers of products or production material, or services such as heat treatment, painting, plating, varnishing, galvanizing or other surface treatments and products specified by original equipment manufacturer (OEM) customers.

The standard reflects the automotive sector's interpretation and additions to ISO 9001:2000 in comparison to ISO/TS 16949:1999 which is based on ISO 9001:1994 and does not have contributions or recognition from JAMA. ISO/TS 16949:2002 is organized along the same structure as ISO 9001:2000 and has 8 clauses in comparison to the 20 of the previous version. The eight clauses are titled: "Scope", "Application", "Terms and Definitions", "Quality management system", "Management responsibility", "Resource management", "Product realization" and "Monitoring and Measurement" with the last five dedicated to system requirements. ISO/TS 16949:2002 highlights the importance of cross-functional activities as can be seen from the requirements:

- A process-oriented quality system
- Control plan for processes producing bulk materials
- Analysis of field failures
- Continual improvement
- Emphasizing defect prevention, reduction of variation & waste in the supply chain
- Customer satisfaction requirements
- Preventive action process
- Improved employee training requirements
- Communication with suppliers and customers to assure quality
- Improve employee quality responsibility
- Employee competence
- Awareness and training
- Design and development
- Production and service provisions
- Control of monitoring and measuring devices

Factors that affect the success of an Automotive QMS implementation
It is important for suppliers to implement an effective QMS system that complies with

customer-specific requirements, and does not jeopardize their relationship with clients. There are many factors as mentioned below that can affect the success of an automotive QMS implementation. These factors are more then crucial to the business environment, since failure to comply with requirements can not only result in the loss of future business, but deteriorating supplier/client relationships too.

Lack of top management support: One of the biggest implementation pitfalls, is not having commitment and support from top management, who feel that systems (QS, TS or ISO) are a waste of time, paperwork, escalation in cost and expenditure to consultants and registrars;

Lack of understanding about the existing processes: Lack of understanding about how existing processes/procedures currently meet the regulatory requirements and the gaps involved in the processes;

Lack of clear communication: Not communicating the objectives/rationale behind the EQM efforts and how it impacts the business;

Failure to involve everyone in the process: Not involving all employees/teams that will be affected by the implementation;

Lack of follow-up /Review: Not monitoring the progress of the implementation schedule and working towards a deadline, thereby increasing the amount of time /costs;

Lack of validation: Failing to conduct internal audits in an atmosphere of freedom to tell the truth and with an effort to understand why the procedures may not have been implemented ;

Premature implementation efforts: Jumping into implementation before being ready for it. Not conducting proper gap analysis/requirements analysis thereby incurring additional time/resources and missing out on key issues.

Organizations should approach the implementation positively and consider the potential of a QMS system that can provide substantial benefits while maintaining consistent compliance with legislative and regulatory requirements. Economics being a key factor, the entire cost of implementation can be recovered in less than three years as evinced by the length of time that ISO 9000 and QS-9000 have been in place.

Transitioning to ISO/TS 16949:2002 like any other quality management systems transition effort, requires top management commitment including establishing and implementing a business plan, availability of required resources, proper training, extensive documentation and record keeping, implementation of quality metrics and audit to track compliance.

The benefits of transitioning to ISO/TS 16949:2002 are many, for one it provides automakers with a single global uniformly recognized automobile specific regulation. It pushes for a comprehensive management approach and the integration of company processes. A systematic approach for targeting, company code system and a continuous improvement process with regular proof management of all company and process related codes. The emphasis is on regular detection of customer satisfaction levels, benchmarking and strong emphasis on prevention and planning. Consistent error detection that consequently relates to increased client trust, stronger concentration on internal and external customers and targeted display of strengths, weaknesses and improvement potential. The standard has a better understanding of the automobile and supplier industry issues that gives it an advantage over its predecessors.

REFERENCES

1. Boroiu, A. – *A proposal for implementing a quality manual based on ISO 9000 quality systems for VIMEPP S.A. Patras*, according to european directives, Project under Socrates – Erasmus Program, Technological Educational Institut of Patras, Greece, 1999.

2. Crivac Gh., Vieru I., Oprea M.., *Auditarea sistemului de mangement al calităţii în industria de automobile,* Ed. Universităţii din Piteşti 2007
3. Jay Schlickman ISO 9001:2000 Quality Management System Design Artech House Boston • London www.artechhouse.com
4. Enterprise quality management - *Automotive issues and perspectives* – automotive: issues, perspectives & powerful enterprise solution
http://www.metricstream.com/whitepapers/html/automotive.htm
5. ISO 16949