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MANAGEMENT

Good-bye QS-9000?

As the market grows, automakers look for unity in global standards.

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During 1994, the Big Three automakers released a harmonized set of requirements for their suppliers' quality systems, called QS-9000. The Big Three had formed the Automotive Industry Action Group (AIAG, Southfield, MI) to coordinate their efforts to improve supplier quality. Today, more than 13,000 suppliers are registered to QS-9000.

VDA, the Association of the German Automotive Industry, includes Mercedes, Volkswagen, Audi, BMW, and Porsche, as well as hundreds of automotive suppliers. This association developed and published a harmonized quality system standard for German automotive suppliers.
Photo: BMW of America

European car manufacturers developed similar standards for their suppliers, during the early 1990s. In Germany, VDA, the Association of the German Automotive Industry, released a standard called VDA 6.1. Similar standards were released by the British, French, and Italian automotive industry associations. Today, more than 20,000 suppliers are registered to these standards.

The automotive industry has since become a global market. Car manufacturers and suppliers compete internationally, and recent mergers and alliances, such as DaimlerChrysler (Auburn Hills, MI), have enhanced the internationalism of the automotive industry.

Because of these developments, many suppliers need multiple registrations to various automotive standards. Some companies maintain registration to ISO 9001, QS-9000, and VDA 6.1. Very few registrars offer combined registration services for all three standards. In the late 1990s, it became clear that there was a need for one internationally harmonized automotive standard for suppliers' quality systems.

The International Automotive Task Force (IATF) was formed in 1997. It consisted of AIAG, representing the United States, VDA representing Germany, SMMT representing the United Kingdom, CCFA for France, and ANFIA for Italy. While closely cooperating with the ISO Technical Committee TC 176, which is responsible for the international ISO 9000 series, this group developed ISO/TS 16949 as an internationally harmonized standard for automotive suppliers' quality systems. ISO/TS 16949 was released during 1999.

American car manufacturers currently accept this new standard as an alternative to QS-9000. Will it supersede QS-9000? How does ISO/TS 16949 differ from QS-9000? Can a company be registered to ISO/TS 16949? How does the revision of the ISO 9001: 2000 standard influence the automotive industry? To answer these questions, a basic understanding of automotive standards should be met.

VDA 6.1

VDA, the Association of the German Automotive Industry, includes Mercedes, Volkswagen, Audi, BMW, and Porsche, as well as hundreds of automotive suppliers. This association developed and published a harmonized quality system standard for German automotive suppliers. The first edition of VDA 6.1 was published during 1991; as of January 1999, the fourth edition was available.

Based on the ISO 9004 standard, VDA 6.1 is consistent with the QS-9000 standard, but has additional requirements referring to product safety and financial considerations. VDA 6.1 is structured in two parts: Part M, with seven management elements, and Part P, with 16 product and process elements.

Part M includes familiar QS-9000 elements, such as management responsibility, internal quality audits, and training. The seventh element, Z1 Corporate Strategy, focuses on strategic business planning, measurement and analysis of business performance data, as well as customer and employee satisfaction. QS-9000 covers these aspects also, excluding employee satisfaction. The elements Financial Considerations of Quality Systems and Product Safety are new quality system requirements to most American suppliers.

Part P, Product and Process, has similar quality system elements to the QS-9000 standard. Only two elements are new: Process Planning (Process Design), and Quality in Servicing, After Sales, and Market Feedback. However, both elements are fully addressed in QS-9000, the first in the Advanced Product Quality Planning section of QS-9000 and the second in the servicing section.

All European automotive associations have agreed on mutual recognition of each other's standards to avoid multiple registration efforts and to ease trade within Europe.

QS-9000

QS-9000 is structured according to ISO 9001: 1994 and includes its requirements verbatim. QS-9000 adds automotive-specific requirements to the general ISO requirements for a supplier's quality system. Specifically, the sections on Quality Planning and Process Control have been substantially amended.

QS-9000 includes five additional manuals, referred to as "Core Tools." These core tools include Advanced Product Quality Planning (APQP), Statistical Process Control (SPC), Failure Mode and Effect Analysis (FMEA), Measurement System Analysis (MSA), and the Production Part Approval Process (PPAP).

QS-9000 and VDA 6.1 are similar in their requirements with suppliers' quality systems. The different structure and modifications of individual requirements challenge those automotive suppliers that must demonstrate conformity to both standards.

ISO/TS 16949

ISO/TS 16949 was developed with close cooperation among the IATF and TC 176. This document has most requirements of the QS-9000 standard, as well as most requirements from European automotive standards, including VDA 6.1. Some of the revised requirements from the ISO 9001:

2000 draft international standard have also been included in TS 16949. Most companies will find TS 16949 to be more challenging to follow than the existing standards.
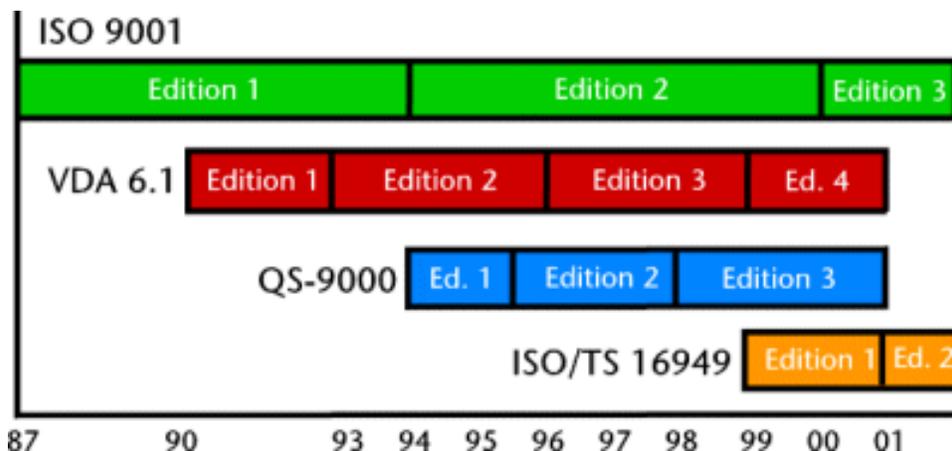
The future role of TS 16949 is to be an alternative to QS-9000 and European automotive standards, such as VDA 6.1. The development of the international ISO 9001: 2000 standard will have a major impact on these automotive standards.

The goal of this technical specification is the development of fundamental quality systems that provide for continuous improvement, emphasizing defect prevention and reduction of variation and waste in the supply chain. There may be company-specific, division-specific, commodity-specific, or part-specific requirements in addition to those defined in TS 16949. While the ISO 9001 standard is applicable to any organization, regardless of industry sector or size, TS 16949 will be applicable only to automotive suppliers. The concept of industry-specific supplements to ISO 9001 is gaining popularity: The aviation industry released AS 9100 and the telecommunications industry published TL 9000.

Individual companies will begin imposing additional supplier requirements to reflect the company's unique needs.

QS-9000 and TS 16949 both include the review of company-specific requirements as part of the general contract-review process. Finally, there will always be part-specific or service-specific requirements in individual purchase contracts.

Registrar and auditor qualification

All three standards, QS-9000, VDA 6.1, and TS 16949, mandate that registrars obtain an individual accreditation beyond general ISO 9000 accreditation. The respective accreditation procedures for registrars are similar, including documentation and record review, witness audits, and ongoing surveillance. All three standards mandate that every auditor in a third party audit team be certified to the respective standard.

The auditor certification processes differ from each other. QS-9000 mandates general auditor qualifications, such as RAB-certification, based on 36-hour training. Automotive industry experience and substantial audit experience are also required. However, VDA 6.1 requires more in-depth auditor education, mandating at least 150 hours plus automotive industry experience. VDA 6.1 emphasizes management, as well as auditing experience. Both standards mandate that auditors pass a sanctioned auditor training.

The new TS 16949 standard has merged most of these requirements. Criteria for auditor qualification include education, work experience, general ISO 9000 auditor training, and IATF sanctioned training with an exam. A university degree or equivalent is required.

Work experience is necessary for automotive auditors. Current automotive auditors must have performed at least

15 system audits with a minimum of 45 audit days during the past 3 years. New auditors must

demonstrate automotive work experience of at least 3 years, no older than 6 years. They also must have first or second party audit experience of at least eight system audits with a minimum of 24 audit days.

In addition to quality auditor training based on the international ISO 10011 standard, "Guidelines for Auditing Quality Systems," auditors must be competent in audit management, teamwork techniques, and interviewing techniques. Only qualified registrars and accreditation bodies are allowed to send auditors to IATF-sanctioned training. Auditors must pass the training and its exam, which includes theoretical and practical parts. An auditor certification is valid for 3 years.

IATF-sanctioned training seminars for auditors began in Europe during the fourth quarter of 1999 and in the United Stated during January 2000.
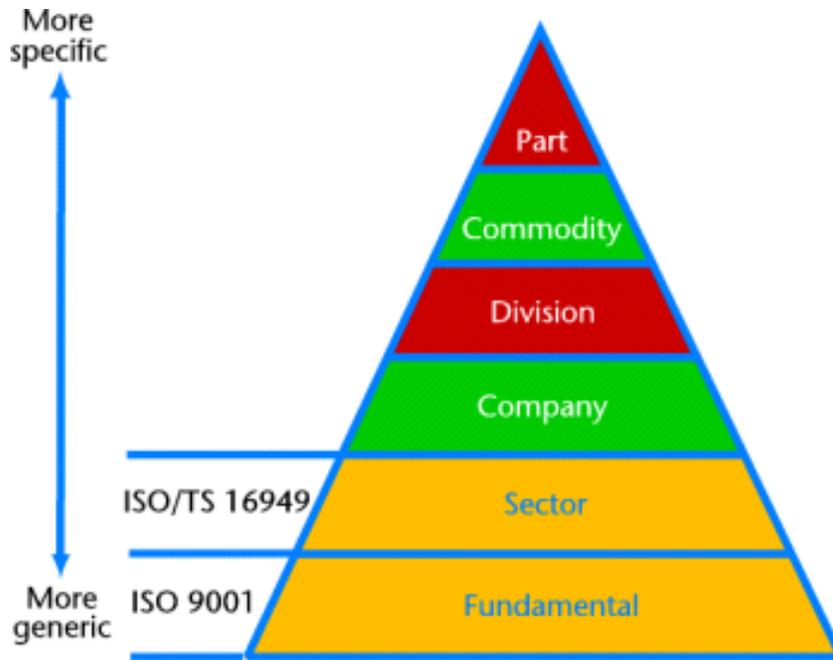
There may be company-specific, division-specific, commodity-specific, and part-specific requirements in addition to those defined in TS 16949.

Future development

The number of automotive suppliers registered to quality standards is rapidly increasing. The demand for registration spread from Tier One suppliers to Tier Two and Tier Three suppliers. Many automotive suppliers are challenged with demonstrating conformity to different standards and obtaining multiple registrations.

An economic way to obtain multiple registrations is to select a registrar who maintains multiple accreditations. With highly qualified auditors, some registrars offer combined audits. The audit team can verify conformity to different standards during one audit, saving time and cost.

The future role of TS 16949 is to be an alternative to QS-9000 and European automotive standards, such as VDA 6.1. The development of the international ISO 9001: 2000 standard will have a major impact on these automotive standards. Currently, IATF plans to release a second edition of

TS 16949 after ISO 9001: 2000 is officially released. TS 16949 will then take over as the only automotive standard consistent with the new ISO 9001: 2000 standard.

Effective quality systems deliver more than product-related quality mandated by customers. An effective quality management system will also deliver internal benefits that improve an organization's bottom line. Profits can increase through meaningful internal quality improvements relating to processes and systems. However, there is only one way to obtain such benefits:

The organization's management must have an in-depth understanding of quality management systems and be actively involved in them.■

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The Latest Numbers			
	QS-9000	**VDA 6.1**	**ISO/TS 16949**
Number of registered companies worldwide	13,128	7,000	0
Number of certified auditors	3,200	500	30
Number of accredited registrars	115	32	0
Year of first publication	1994	1991	1999
Current edition	Third Edition	Fourth Edition	First Edition
OEMs mandating conformity	Ford GM DC	Volkswagen Audi DC MAN	Accepted by nearly all OEMs
Who is using QS-9000, VDA 6.1, and ISO/TS 16949? The data in this table is based on January 2000 figures. While QS-9000 can boast the highest numbers across the board, ISO/TS 16949 has almost universal acceptance as the car business continues to grow globally.			

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