Beyond ISO 9001 – Some of Those Other Standards

About one year ago we posted an e-blasts containing a group of articles about the most popular quality management system standards in industry. We were privileged to receive contributions from some of the most prominent individuals in the standards development world. Included in that e-blast from July 2014 were articles covering the revisions to ISO 9000, ISO 9001, ISO 14001 and the Quality Management Principles.

This month we are excited to bring you articles about some of the other relevant standards currently in revision. Two of the documents relate to quality management system standards based on ISO 9001 – AS9100 for aerospace and TL9000 for telecommunications. The other two articles deal with standards that address occupational health and safety (ISO 45001) and energy management (ISO 50001). While the first two encompass additional requirements for specific industries, the latter focus on unique elements of an organization and have requirements that can have relevance across a broad spectrum of organizations, regardless of industry.

The technical experts who have generously given of their time to provide us with these articles are key individuals in the development processes for their various standards.

I am deeply grateful for their contribution to this e-blast.

Denise Robitaille,
Chair QMD Technical Committee on Standards and Compliance
IAQG Aerospace Standards: 9100 Series Revision

The International Aerospace Quality Group (IAQG) 9100 series of standards are nearing completion of revision activities and will soon be available to member companies for review. The primary reason for the revision is that the 9100 “Quality Management System: Requirements for aviation, space and defense organizations” is based on ISO 9001 and is thus affected by the ISO TC176 revision activity. The IAQG 9100:2016 is scheduled to be released for publication in April 2016 with a similar transition period to the ISO 9001 for those companies currently certified.

Because the ISO 9001 revision is fairly extensive the 9100 Series revision strategy was to be conservative and focus on opportunities to add clarity, enhance ease of use, while addressing emergent industry and stakeholder needs. One of the biggest challenges was to merge the aviation, space and defense requirements with the new ISO 9001 clause structure and text. I believe the users will be pleased with the results.

The goal of the IAQG is to improve product quality and on-time delivery of products. They do this through the cooperative implementation of initiatives intended to make significant improvements in quality, on time delivery and reductions in cost throughout the supply stream. The term “9100-series standards” includes the following IAQG standards, with 9100 being the IAQG Series Baseline Standard:

- **IAQG 9100**: QMS - Requirements for Aviation, Space and Defense Organizations
- **IAQG 9110**: QMS - Requirements for Aviation Maintenance Organizations
- **IAQG 9115**: QMS - Requirements for Aviation, Space and Defense Organizations - Deliverable Software
- **IAQG 9120**: QMS - Requirements for Aviation, Space and Defense Distributors

There have been several areas of improvement in the 9100:2016 series. A preview of the new and changed areas specific to aviation space and defense in IAQG 9100 include, but are not limited to:

- **Product Safety** - Added in carefully selected areas with consideration of leveraging current 9110 safety requirements. Product safety is an integral part of aviation, space and defense products and services. The high risk, high cost and highly regulated products require additional emphasis in this important area.
- **Human Factors** - Added as a consideration in the Nonconformity/ Corrective Action clause. ISO 9001:2015 will be introducing human and physical factors in a note.
- **Risk** – The concept of risk management was introduced in the 9100:2009 and limited to the product realization clause. The strategy at that time was to introduce the concept and to expand risk to the entire QMS in the next revision. ISO 9001 has largely done this for us with the addition of risk based thinking. Our challenge was to merge the two and make them work seamlessly together. Fortunately, the two approaches turned out to complement each other well.
- **Counterfeit Product** – The addition of counterfeit product to 9100:2016 was the result of stakeholder feedback and emergent industry needs. Additional emphasis has been added to address the concern by enhancing existing requirements in carefully select areas while successfully limiting new requirements.
• **Project Management** - Combined with Operation Planning clause to address user interpretation issues usually associated with taking project management to a lower level than intended.

• **Configuration Management** – This clause has been clarified and improved considerably to address stakeholder needs. Previously the requirements were too high of a level and resulted in inconsistent implementation.

• **Post Delivery Support** – The 9100:2009 requirements on post delivery support merged very nicely with the new higher level ISO requirements.

Changes to the ISO baseline will continue to be incorporated until the final draft of ISO 9001 is made available in July 2015.

The schedule for release of IAQG 9100 includes the following major milestones:

- July 2015 - Coordination Draft where the stakeholder community can provide feedback and the first time the standard is circulated outside of the 9100 Writing Team.
- Dec 2015 – IAQG ballot of 9100 Series of standards
- Apr 2016 - IAQG 9100 Series release for publication by sector publishers

Additional information on the IAQG 9100:2016 Series Revision process is available on the [www.iaqg.org](http://www.iaqg.org) website homepage. Currently available are a Revision Overview, Key Changes presentation, Correlation Matrix/Comparison and 9100:2009 Clarifications.

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**Alan Daniels**

Alan Daniels currently works for Boeing Commercial Airplanes in the Regulatory and Quality Systems Organization (RQSO) with the responsibility of the Boeing enterprise QMS Strategy, Integration and Industry Standards Management.

His international standards activities include:

- Leader/Chairman of the International Aerospace Quality Group (IAQG) “Requirements Strategy Stream” (26 standards)
- Leader/Chairman of the IAQG Standard (AS) “9100 Team”
- Convener/Chairman ISO Technical Committee 176 Sub Committee 2 - Working Group 23 – “Product Support and Communications”
- Represent the IAQG as “Liaison to ISO Technical Committee 176”
- Vice Chairman of the “US ISO Technical Advisory Group (TAG) 176”
TL 9000 – It’s Changing! What it will mean to you!

"The Announcement"

QuEST Forum, the global industry organization aimed at improving the quality of products and services delivered for the information communication technologies (ICT) industry and the developer of the TL 9000 Standard was one of the first industry organizations to announce that its standard will continue to align with ISO 9001. This May 27, 2014 announcement was signed by the QuEST Forum CEO, Fraser Pajak, and is publically available at the QuEST Forum website.

This announcement is important, not simply because QuEST Forum was one of the first industry organizations to endorse ISO 9001:2015, but also because a certification to TL 9000 includes, by default, certification to ISO 9001. QuEST Forum emphasizes this relationship between TL 9000 and ISO 9001 through a TL 9000 Informational Alert, which was issued last year. Informational Alerts provide up-to-date clarifications on the usage and interpretation of the TL 9000 Standard. Informational Alert #14-002A states, “The TL 9000 Quality Management System is based on ISO 9001. The TL 9000 Quality Management System Requirements Handbooks...contain all of the auditable clauses of ISO 9001…”

TL 9000 Certifications have been steadily increasing almost every year since the standard was first created in 1999. Many large, internationally recognized organizations maintain TL 9000
Certification including AT&T, Cisco Systems, Alcatel-Lucent, Ericsson, Nokia, Huawei and others.

TL 9000 is a two-part quality management system standard aimed at meeting the supply chain quality requirements of the worldwide ICT industry. The standard consists of the TL 9000 Requirements Handbook, currently at version or Release 5.5, which contains all of the auditable requirements of ISO 9001:2008 and additional requirements that address requirements specific to the ICT sector such as:

- Service Availability (24/7)
- Program, product, project, and service planning
- Continuity of supply
- Maintenance, including long-term & end of life
- Product security
- Disaster recovery

The TL 9000 Measurements Handbook defines comparable performance measurements differentiating organizations based on: Problem Report handling; On-Time Delivery; System Performance (Outages); Quality of Hardware, Software, and Services. The TL 9000 Measurements Handbook is the only industry model that provides regular performance data for analysis against industry benchmarks and objective product or supplier evaluations.

QuEST Forum has already begun to update the TL 9000 Requirements Handbook, version 6.0 to align with ISO 9001:2015. As a part of this process, QuEST Forum has been actively involved in the update of ISO 9001:2015 having reviewed the Committee Draft (CD) version and Draft International Standard (DIS) version and provided feedback from QuEST Forum members which include organizations such as AT&T, Verizon, BT, Bharti Airtel, China Mobile, Adtran, Cisco Systems, Ericsson, Fujitsu, and Huawei.

Additionally, QuEST Forum Academy, a QuEST Forum initiative providing educational opportunities consistent with the intent of TL 9000 and ICT best practices, hosted one of the first public webinars on the DIS version of ISO 9001:2015. Dr. Nigel Croft, chair of the ISO
Technical Committee 176, Subcommittee 2, which is responsible for the maintenance and update of the ISO 9001 standard, conducted the webinar.

Dr. Croft has already agreed to present a follow-up webinar for QuEST Forum Academy in August 2015, upon the release of the Final Draft International Standard (FDIS) version of ISO 9001:2015. In the meantime, there was a recent webinar comparing the DIS version of ISO 9001:2015 with the current version of the TL 9000 Requirements Handbook to demonstrate areas where ISO 9001 is approaching parity with TL 9000.

"Transitioning to the New"

QuEST Forum’s Integrated Global Quality (IGQ) Working Group is responsible for updating version 6.0 of the TL 9000 Requirements Handbook to incorporate ISO 9001:2015. The initial step was a mapping of the version 5.5 TL 9000 Requirements to the new structure of the DIS version of ISO 9001:2015, since the number of ISO 9001 clauses increased from 8 to 10. This mapping was completed in late 2014.

Next Sub-Team leaders for each of the clauses of ISO 9001:2015 were identified. The teams reviewed the initial mappings to ensure that the return on investment for each of the additional requirements of the TL 9000 Requirements was justified in whether it should remain within the TL 9000 Requirements Handbook, keeping in mind that the additional requirements are intended to be more prescriptive in the areas needed for the ICT industry. In some cases, a few TL 9000 additional requirements were deemed no longer relevant or necessary due to shifts within the ICT industry. In other cases, some TL 9000 additional requirements were addressed by the text or intent of the DIS version of ISO 9001:2015 and were no longer needed. Additionally, new TL 9000 additional requirements supporting strategic focus areas such as security, supply chain management, corporate social responsibility and enhancements related to TL 9000 Measurements and other QuEST Forum initiatives were proposed and evaluated by the teams.

Currently the teams are providing their feedback to IGQ for review. Upon release of the FDIS version of ISO 9001:2015, any changes from the DIS version will be incorporated and reviewed for their impact on the TL 9000 Requirements and another mapping will be performed, followed by another review by the Sub-Teams. Comments from QuEST Forum members will be
solicited with the expectation that a DRAFT of the version 6.0 of the TL 9000 Requirements Handbook will be available for review by all QuEST Forum members by Q1 2016 and the version 6.0 TL 9000 Requirements Handbook available by Q3 2016.

Upon publication of the updated TL 9000 Requirements Handbook, a new TL 9000 Informational Alert will be issued providing information on the rules for implementation of the requirements in the new Requirements Handbook. For example, there may be a difference between the TL 9000 Requirements Handbook publication date and effective date to ensure adequate time for TL 9000 Certified organizations to complete delta training from version 5.5 to version 6.0 of the TL 9000 Requirements and seamlessly upgrade to the new version 6.0. For the previous version of the TL 9000 Requirements Handbook, version 5.5, although the Handbook was available July 2013, the effective date was December 31, 2013.

Also, according to the International Accreditation Forum or the IAF, ISO 9001 Certified organizations will be allowed 3 years to transition to ISO 9001:2015. Normally for TL 9000 updates, organizations seeking to achieve or maintain certification may continue to use the previous release of the handbook for 12 months after the date of publication of the new release. At that point, the old release becomes obsolete and may no longer be used for any certification or surveillance activities.”

However, for alignment with the ISO 9001:2015 3-year transition period, QuEST Forum has agreed upon a 2-year transition for TL 9000 Certified organizations. This will also be covered in the TL 9000 Informational Alert providing information on the rules for implementation of the new version 6.0 TL 9000 Requirements Handbook.

“Continuing to Improve”

Because QuEST Forum continues to improve the effectiveness of the 3rd party TL 9000 Certification process, other changes impacting TL 9000 Certification are in progress. For example, the “Qualification and Experience Requirements for TL 9000 Certification Body Auditors” was updated in 2014 and the recently updated “Code of Practice for TL 9000 Certification Bodies” must be used effective July 1, 2015. Some of the changes for both of these documents were made in response to the results of the Validation Audits conducted by QuEST Forum.
The Validation Audits were undertaken by QuEST Forum to gather data to assess the effectiveness of the TL 9000 Certification process by confirming there are no Major nonconformities in the requirements to be included in every audit, according to the “Code of Practice for TL 9000 Certification Bodies”. Organizations evaluated were chosen at random, while ensuring a representative regional distribution. Based upon the results, QuEST Forum continues working towards improvements in the 3rd party TL 9000 Certification process so expect more enhancements in the future.

To learn more about the TL 9000 Requirements Handbook update to version 6.0 and the TL 9000 Certification process, or QuEST Forum, simply visit www.tl9000.org or www.questforum.org and submit your QuESTions to http://www.questforum.org/contact-us/.

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Sheronda Jeffries

Sheronda Jeffries is a QuEST Forum Fellow, a Certified TL 9000 Expert, a key developer of the QuEST Forum sanctioned TL 9000 training courses, and a QuEST Forum Supervisory Master Trainer.

As a long-time member of the QuEST Forum Leadership Council, Sheronda is an Integrated Global Quality Work Group Co-Chair and co-leads a number of QuEST Forum Sub-Teams including Strategic Relationships and TL 9000 Barriers. She is a former QuEST Forum Member Representative and a multi-year recipient of the QuEST Forum COO/CEO Award.

Sheronda is an ASQ Audit Division Regional Councilor, a Certified Quality Auditor and a Senior Member of ASQ. She is also a member of the CQA Exam Development Committee and a charter member of ASQ’s Quality Audit Division.

She holds a BSEE and is a TL 9000 Program Manager at Cisco Systems, Inc.
Development of ISO OHSMS Standard Moves Forward

In 2013, ISO approved the development of an occupational health and safety management system (OHSMS) standard. The intent of this standard development effort is to develop a harmonized standard to replace the numerous OHSMS standards that have been developed in countries across the globe — including OHSAS 18001. This standard has been designated ISO 45001 with the title — Occupational health and safety management systems — Requirements with guidance for use. Like ISO 9001 and ISO 14001, this standard is intended for use in third-party certification.

So far, three international meeting have been held by the ISO Working Group (PC 283) developing this standard – one in London in October 2013, one in Casa Blanca Morocco in April 2014 and one in Port of Spain Trinidad in January 2015. As of May 2015, the standard is at the Second Committee Draft (CD2) stage with a vote due in June 2015 whether the standard should advance to the Draft International Standard (DIS) stage.

The initial schedule for this standard development effort called for the publication of ISO 45001 in October 2016. Given the delay caused by the cancellation of a meeting in Rwanda in December of 2014 and the failure of the initial DIS vote, the publication of the standard will likely be delayed.

Overview of the Structure and Content of ISO 45001

Like other ISO management system standards, ISO 45001 is being developed using the common terms and high-level structure set out in Annex SL of Part 1 of the ISO directives. This means it will have the same core management system requirements as ISO 9001:2015 and ISO 14001:2015.

There will be differences between ISO 9001, ISO 14001 and ISO 45001. The current CD of ISO 45001 has additional provisions that are specific to occupational health and safety dealing with the following –

- Worker Participation
- Hazard Identification and Assessment of OH&S Risks
- Use of Hierarchy of Control in Selecting Operational Controls
- Interactions with Contractors
- Emergency Preparedness and Response

Some of these may be similar to requirements in ISO 14001 – but not all. ISO 14001:2015 will use terminology and contain requirements that are not in ISO 45001. In particular, the requirements in ISO 14001 related to the environmental aspects of products and services. On the other hand, ISO 45001 will use terminology and contain requirements that are different from those in ISO 14001:2015. In particular, requirements focused on the worker participation in the OHS management system. This may create challenges for organizations who want to develop, or maintain, integrated environment, health and safety management systems.

It is also likely that there will be significant differences between ISO 45001 and OHSAS 18001. Although the initial concept draft of the ISO 45001 standard was heavily based on OHSAS
The current draft (CD2) has diverged significantly from what was initially proposed. These differences may create challenges for organizations that are currently registered to OHSAS 18001:2007.

Challenges in Drafting ISO 45001
ISO 45001 is currently “a work in progress” with some parts of the standard still the subject of intense discussions. Some of the key issues include –

- The challenge of defining and addressing risks and opportunities in the context of an OHSMS;
- Requirements related to establishing roles, responsibilities, authorities and accountabilities for a range of individuals within an organization – from top management to individual workers and their representatives;
- Establishing management system requirements related to the selection of appropriate operational controls and the use of hierarchy of control; and
- Dealing with non-traditional workplaces and working arrangements, such as contract workers.

A challenge faced by those drafting ISO 45001 is the wide disparity in the safety practices in use across the globe. There are significant cultural differences when it comes to the approaches to be used for addressing occupational health and safety concerns. There are also differences in the legal and regulatory frameworks in place in different countries for ensuring worker protection. This makes it difficult to draft a standard that is useful and relevant to a wide range of organizations – from small manufacturing companies in developing countries to global enterprises providing services across the globe.

Want More Information?
For more information about ISO PC 283 and its work, check out the ISO website at http://www.iso.org/iso/home/standards_development/list_of_iso_technical_committees/iso_technical_committee.htm?commid=4857129

For additional information about some of the challenges and issues associated with the development of this standard, go to http://www.managementsystemexpert.com/iso-45001/

Thea Dunmire

Thea Dunmire is an environmental attorney who specializes in helping organizations stay in compliance with environmental and OHS legal requirements through the implementation and use of management systems. She is a recognized expert in consensus standard development and has participated internationally in the development of multiple ISO standards. She is currently the chair of ANSI Z1-Auditing subcommittee and former secretary of the U.S. TAG to TC 207. Before starting ENLAR Compliance Services, she was an attorney with U.S. EPA Region 5 and with Dickinson Wright in Chicago.
Energy Management

Energy is necessary for all organizations and can be a major cost to organizations. In addition to the economic costs, energy can impose environmental and operational costs. Energy performance improvement can provide benefits for an organization by maximizing the use of its energy sources and energy-related assets. ISO 50001:2011 provides a framework for industrial facilities, commercial facilities, services and other organizations to manage energy, make data-based decisions and to improve energy performance. An energy management system allows organizations to develop and implement strategies that cut energy costs, greenhouse gas emissions and sustain those savings over time. Since global energy consumption represents the largest contributor to greenhouse gas emissions, effective and robust implementation of ISO 50001 has the potential to be a significant driver in efforts to reduce these emissions. The systematic approach also provides for a proactive means to achieve efficiency and reduce energy costs.

The data driven approach of ISO 50001 has the energy team review and look at factors that can affect energy as well as the current and historical use of energy. This means that the projects chosen as objectives have opportunities for improvement that will provide bottom line results. Experience has shown that energy performance gains from various energy efficiency projects implemented occasionally, without data-based decisions do not deliver sustained energy performance improvements if they are not monitored and adjusted in a continuous manner (Jeli et al. 2010, Ates and Durakbasa 2012). In many cases, objectives provide operational, environmental and other related benefits.

The initial reports from organizations provide examples of significant improvements within two years or less. Examples include:

- **HARbec, Inc.** improved the energy performance of its specialty plastics manufacturing plant in upstate New York by 16.5%, primarily by managing its combined heat and power unit more efficiently.
- **IBM** implemented an EnMS at its manufacturing facility in Bromont, Quebec, which helped it to reduce energy consumption by 9.2% and save CAD$550,000 in 2013.
- **TATA Global Beverages** was able to use the energy planning process to show that 96% of the energy used at the factory was electricity. The detailed analysis of that usage enabled TATA to identify potential cost savings across both the base and variable loads. The company achieved an overall savings of £56,000 in the first year, and an additional £28,000 in the second year.

The results achieved from the variety of organizations who have implemented ISO 50001:2011 clearly demonstrates the value of energy management. Let’s take a closer look at the key elements that provide for these results.

**Key Elements**

The ISO 50001 standard follows the Plan-Do-Check-Act process for continual improvement. This helps to ensure that if the organization has other management systems in place, ISO 50001 can be easily integrated. This framework provides for a policy which sets the direction for implementing, maintaining and improving the management system and energy performance. The policy is supported by the energy planning process. The planning process helps the organization analyze the energy data, and other energy information that informs decisions and actions as well as focus resources. The energy review provides the energy data on the various
sources and uses of energy within the organization and determines the significant energy uses. The energy objectives and targets is the means of transforming policy into action through planned energy performance improvements. Energy performance indicators (EnPIs) and related baselines ensure effective management of the objectives and operational controls and demonstrate energy performance.

The implementation and operation section is where the organization manages the significant energy uses by linking the business process of the organization (competency, training, communication, operation and maintenance controls) to energy performance. Monitoring and measurement processes determine if energy performance is improving, by how much, if the operational controls are working, and if the objectives are effectively achieved. The management review process allows management to review the status of the program and make any necessary adjustments.

By implementing a rigorous business system that proactively manages its energy resources, organizations will sustain improvements and continue to strengthen their energy performance. The energy management system can also be used to help plant personnel recognize how their own actions affect energy use helping to shift the culture within the organization.

If you or your organization would like information on participating in the US TAG activities related to energy management please contact Deann at deann.desai@gatech.edu.

Deann Desai

Deann works for the Georgia Institute of Technology as a Project Manager for Energy and Sustainability Services. Ms Desai currently serves as the administrator and secretary and as an expert for the U.S. Technical Advisory Group for Technical Committee 242 on energy management which developed the standard ISO 50001 Energy management system with guidance for use. She also serves as the Convenor for Working Group one responsible for the development of ISO 50001, ISO 50004 (Implementation Guidance) and ISO 50003 (Conformity Assessment Auditing for ISO 50001), as well as the secretary for joint working group three on Measurement and Verification Guidance and Principles for Organizations (ISO 500015). For TC 242 on energy management Ms Desai serves as an expert to the JTCG on management systems regarding the development of the High Level Structure for use in Management Systems.