

Revision Runway

SIPOC implemented in process for updating AS9100 standards

REVISION ACTIVITIES on AS9100—*Quality management systems—Requirements for aviation, space and defense organizations* continue. AS9100 is the flagship aviation, space and defense (ASD) quality management system (QMS) standard and the foundation standard of the International Aerospace Quality Group (IAQG). Publication of a revised standard is planned for 2016, shortly after the ISO 9001 revision is released.

Some ASD industry organizations may wonder why the standard should be updated when the transition to AS9100C:2009 was just completed. They also might wonder why it takes so long to revise a standard.

The first question is easy to answer. AS9100 is based on ISO 9001, so the revision timing is affected by the activity of the International Organization for Standardization (ISO) Technical Committee (TC) 176. ISO/TC 176 plans to publish a revised ISO 9001 in 2015. That is why the next revision of the AS9100 series is planned and scheduled for publication in early 2016.



The publication date depends on when ISO 9001 is published so that it can be integrated and coordinated with other IAQG standards. To keep IAQG standards current, IAQG also is required to review standards at least every five years.

The answer to the second question—why it takes so long to revise a standard—requires some explanation: Users will appreciate that IAQG uses a process-based approach to a standard revision. The process is demonstrated by a suppliers, inputs, process, outputs and customers (SIPOC) diagram in Online Figure 1, found on this article’s webpage at www.qualityprogress.com.

Suppliers

AS9100 provides QMS requirements applicable to the ASD industry. The revision activity will consider the new and emerging international requirements, as well as stakeholder input for changes.

Suppliers include IAQG’s external and internal stakeholders. External stakeholders are certification bodies, aerospace auditors, certified organizations, airline and aviation operators, distributors and deliverable software organizations.

Internal stakeholder groups mirror the IAQG organizational structure. This includes:

- Relationship growth teams that coordinate with key stakeholder groups to ensure the continued recognition of the standard by ASD authorities, including the Federal Aviation

Administration, NASA, the U.S. Department of Defense and trade associations in the United States.

- Improvement strategy teams include requirements for establishing, developing and maintaining IAQG standards. The product and supply chain improvement team develops how-to guidance to improve the supply chain;¹ the people capability team establishes the ASD body of knowledge and human factors; and the performance improvement team develops measures to assess industry performance and improvement.
- Other-party management teams that manage and oversee the AS9100 series ASD QMS certification program.

When AS9100 is revised, it isn’t just representative of the IAQG writing team producing the standard; it is the work of the entire ASD community coming together with a shared vision and goal to create the foundation for the AS9100 series.

Inputs

The inputs to the AS9100 series development process include:

- Stakeholder input received through external stakeholders’ survey feedback and comments templates completed by internal stakeholders. Stakeholders are engaged throughout the development process and often participate on writing teams as the voice of the customer.
- The IAQG future vision for improving on-time and on-quality performance of the ASD industry, which ensures that the key strategies of the IAQG leadership are incorporated into the standards development process.
- ISO 9001, which is a key input because the AS9100 is based on it. The IAQG

AS9100 team is closely engaged with ISO/TC 176 on the newly proposed high-level structure and common management system requirements in ISO 9001:2015 (see Table 1, p. 52). IAQG was recently granted liaison status with the ISO/TC working group revising ISO 9001 to ensure the ASD industry needs are represented.

- Risk assessment options that have been assessed for moving forward. The current approach is for AS9100 to stay aligned with ISO 9001 and ASD additional requirements.

Process

The three-phase development process for the AS9100 revision began in 2012. I covered the revision process in my last column, “Road to Revision,”² but I will also briefly address it here.

The project was approved in October 2012. Approval was based on incorporating changes made to the ISO 9001 requirements embedded within AS9100, while also considering stakeholder needs identified since the last revision and clarifications issued by IAQG.

Designing and developing the standard is the first and most rigorous phase. This includes:

Integrating the project schedule and plan. IAQG’s goal for this revision is to release all related AS9100-series standards simultaneously with deployment support materials and training.

This has never been done before, and it is quite a challenge for an international quality organization comprised of volunteer resources. An integrated schedule and project plan, therefore, is critical to ensure standards development alignment occurs to incorporate lessons learned from the 2009 revision.

Design specification. The design specification provides the logic for reviewing proposed changes. As shown in Figure 1, stakeholders from several organizations submitted 559 comments, which were evaluated by the IAQG 9100 revision team.

For changes and additions to be considered, according to the design specification, they cannot be contractual QMS requirements; they cannot contain product-specific requirements; they must enhance clarity of requirements or address stakeholder needs; they must be auditable, and define what not how; and they must offer a benefit that outweighs the impact of implementation.

Master comments review. All stakeholder comments are collected, organized,

reviewed and placed on the master comments review template used by the IAQG 9100 team. The team examines whether rewording a portion of the standard would ensure improved understanding by organizations implementing the standard and auditors assessing it. A proposed change or addition must meet all the requirements of the design specification and receive consensus approval by the entire IAQG AS9100 team.

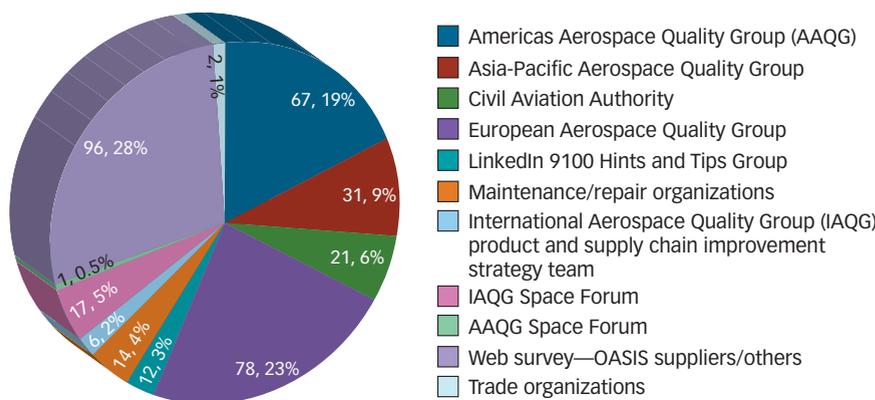
The review and disposition process for comments occurs in a tiered process, whereby each sector (such as the Americas Aerospace Quality Group, European Aerospace Quality Group or Asia-Pacific Aerospace Quality Group) first reaches a consolidated position for their sector, after which a final disposition of each comment is reached at the international team level. Each sector, in establishing its position, involves any interested party of the respective sector companies, thus achieving a true consensus position on each comment.

Priority focus teams. These groups are established when stakeholder comments require further concept development. The teams develop proposals for a change and present it to the IAQG AS9100 team for discussion and acceptance. All accepted proposals were added to the master comment review template. For the AS9100 revision, priority focus teams and their proposals included:

- Product and flight safety—evaluate enhancement.
- Human factors—consider inclusion.
- Risk—balance ISO 9001 additions.
- Preventive action—assess ISO 9001 approach.
- Counterfeit parts—consider inclusion.
- Configuration management—consider enhancement.
- Product realization planning—consider link to AS9102, the First Article Inspection (FAI) standard, and Advanced Product Quality Planning/Production Parts Approval Process (APQP/PPAP).

AS9100 revision comments / FIGURE 1

559 comments received
(responses, percentage)



OASIS = online aerospace supplier information system

New ISO 9001 clause structure / TABLE 1

| | | |
|-------|-----|--|
| | 1. | Scope |
| | 2. | Normative references |
| | 3. | Terms and definitions |
| Plan | 4. | Context of the organization <ul style="list-style-type: none"> Organization and its context Needs and expectations Quality management system (QMS) scope QMS and processes |
| | 5. | Leadership <ul style="list-style-type: none"> Leadership and commitment Policy Roles, responsibility and authority |
| | 6. | Planning <ul style="list-style-type: none"> Actions to address risks and opportunities Objectives and plans to achieve them Planning of changes |
| | 7. | Support <ul style="list-style-type: none"> Resources Competence Awareness Communication Documented information |
| Do | 8. | Operation <ul style="list-style-type: none"> Operational planning and control Determination of requirements Design and development Control of externally provided products and services Production and service provision Release of products and services Nonconforming process outputs, products and services |
| Check | 9. | Performance evaluation <ul style="list-style-type: none"> Monitoring, measurement, analysis and evaluation Internal audit Management review |
| Act | 10. | Improvement <ul style="list-style-type: none"> Nonconformity and corrective action Continual improvement |

- Post-delivery support—consider content from AS9110, which covers maintenance organization links.
- Sub-tier management—consider enhancement.

Coordination draft. A writing draft will be developed this summer. The draft will incorporate stakeholder feedback regarding the ISO 9001:2015 draft international standard (DIS). The DIS will be reviewed by the writing team and provided to the IAQG AS9100 team for comments. After it's accepted by the team, the standard will be sent to sector stakeholders for an informal coordination draft review. Comments will be reviewed and reconciled for the formal sector review in phase two.

Phase two involves a formal review that is conducted across the three IAQG sectors—the Americas, Europe and Asia-Pacific via review ballots. The team will analyze comments submitted, and if content is changed, subsequent review ballots will be submitted to the sectors until the standard is approved.

In phase three, after a ballot is approved, the standard will be published within each sector, with translations performed for the various language versions.

Outputs

The AS9100 series outputs include:

- AS9100 series standards, which include *AS9100—Quality management systems—Requirements for aviation, space and defense organizations*; *AS9110—Quality maintenance systems—Aerospace—Requirements for maintenance organizations*; *AS9120—Quality management systems—Aerospace—Requirements for stockist distributors*; *AS9115—Quality management systems—Requirements for aviation, space and defense organizations—Deliverable software*; and *ARP9137—Guidance for the application of AQAP 2110*

within a 9100 QMS.

- Deployment support materials, including communications, presentations, frequently asked questions, articles, auditor guidance materials and clarifications.³
- Training, which will be developed in close coordination with ISO/TC 176 for certified organizations and auditors.

Customers

The customers of AS9100 are the entire ASD industry, including the various publishing sectors of the Americas, Asia-Pacific and Europe.

Revising AS9100 takes time because it requires aligning a worldwide audience and building multiple consensus-based international standards with plenty of behind-the-scenes coordination.

Using a SIPOC diagram demonstrates how all the elements are coordinated into the process to reach a successful end result. This extra effort and time to involve stakeholders will help IAQG produce a standard that is what the users want and need to improve their QMSs, thus raising the bar for the ASD industry as a whole. **QP**

REFERENCES

1. International Aerospace Quality Group, *Supply Chain Management Handbook*, www.iaqg.org/scmh.
2. L.L. "Buddy" Cressionnie, "Road to Revision," *Quality Progress*, July 2013, pp. 47-49.
3. International Aerospace Quality Group, www.iaqg.org.

NOTE

A presentation of the topics discussed in this article is available on the IAQG website, www.iaqg.org.



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