



Delta-Analysis

IATF 16949:2016 vs. ISO/TS 16949:2009



Chapter 4 - Context of the organization

IATF 16949:2016		ISO/TS 16949:2009
4 Context of the organization	NEW	
4.1 Understanding the organization and its context	NEW Identification of external/internal issues relevant to the strategic orientation	
4.2 Understanding the needs and expectations of interested parties	NEW Identification of interested parties and their relevant requirements	
4.3 Determining the scope of the quality management system	EXPANDED Documented information	4.2.2 Quality manual
4.3.1 Determining the scope of the quality management system — supplemental	NEW Description of supporting functions of the site	4.2.2 Quality manual
<p>IAOB REMARK The requirement relating to supporting functions was revised to ensure that supporting functions not only address the need to include support functions in the audit, but also to ensure that they are included in the scope of the QMS. In addition, any exclusion sought for design and development activities, now in Section 8.3, has to be preserved as documented information.</p>		
4.3.2 Customer specific requirements	NEW Evaluation of customer-specific requirements	

IAOB REMARK Although the need to fulfill and satisfy customer-specific requirements was already mentioned throughout the whole ISO/TS 16949 document, in IATF 16949 this requirement specifically addresses the need to evaluate the customer specific requirements and include them where applicable in the organization's quality management system.

This means that the supplier would need some sort of process to evaluate each of their customer's customer-specific requirements and determine exactly how (and where) it applies to their organization's QMS, as applicable.

IATF 16949:2016

ISO/TS 16949:2009

4.4 Quality management system and its processes

QMS structure and presentation of processes and interactions

4.1 General requirements

4.4.1.1 Conformance of products and processes

EXPANDED

Ensure product and process conformity with customer and regulatory requirements

4.1.1 General requirements — Supplemental

IAOB REMARK *It ensures two things:*

- that the supplier (organization) is responsible for the conformity of outsourced processes, and
- that all products and processes meet all applicable requirements and expectations of all interested parties

To ensure conformance of all products and processes, the organization would need to take a proactive approach to assess and address risks, and not rely only on inspection.

4.4.1.2 Product safety

NEW

Documented process for the management of product-safety related products and manufacturing processes

IAOB REMARK *New section with EXPANDED requirements that address current and emerging issues the automotive industry is facing related to product and process safety. Organizations (suppliers) are required to have documented processes to manage product-safety related products and processes.*

This section includes identification of statutory requirements; identifying and controlling product-safety-related characteristics both during design and at point of manufacture; defining responsibilities, escalation processes, reaction plans, and the necessary flow of information including top management and customers; receiving special approvals for FMEAs and Control Plans; product traceability measures; and cascading of requirements throughout the supply chain.

4.4.2 Documented information

Maintenance and archiving of documented information

4.2.4 Control of records

Chapter 5 - Leadership

IATF 16949:2016		ISO/TS 16949:2009
5 Leadership		
5.1 Leadership and commitment		5 Management responsibility
5.1.1 General	<p>EXPANDED</p> <p>Description of leadership and commitment concerning the QMS by top management</p>	5.1 Management responsibility
5.1.1.1 Corporate responsibility	<p>NEW</p> <p>Definition of policies to enable corporate responsibility</p>	
<p>IAOB REMARK ISO 9001:2015 expanded the ISO 9001:2009 concept of management responsibility into a set of leadership behaviors to ensure an effective QMS. IATF 16949 includes the requirement for an anti-bribery policy, an employee code of conduct, and an ethics escalation policy to address increasing market and governmental expectations for improved integrity in social and environmental matters in the automotive industry. This implies responsibility and empowerment at all levels and functions of the supplier/organization to follow an ethical approach and report any observed unethical behavior without fear of reprisal.</p>		
5.1.1.2 Process effectiveness and efficiency	<p>EXPANDED</p> <p>Inclusion of the process performance results in the management review</p>	5.1.1 Process efficiency

IAOB REMARK The requirement for a supplier/organization to review their processes to ensure effectiveness and efficiency was covered in ISO/TS 16949, Section 5.1.1. Based on survey feedback, the IATF strengthened the requirement to ensure that the results of process review activities will now be included in management review. Process review activities need to include evaluation methods and, as a result, implement improvements. The results of these steps would be an input to the management review process. Top management is thus performing a review of the process-specific reviews performed by the process owners.

IATF 16949:2016

ISO/TS 16949:2009

5.1.1.3 Process owners

NEW

Designation of process owners

5.5.1 Responsibility and authority

IAOB REMARK ISO/TS 16949:2009 addresses management responsibility and authority, but it does not explicitly mention that management ensure process owners understand their role and are competent.

The IATF adopted this new requirement to ensure that management understands this expectation, by specifically identifying these process owners and ensuring they can perform their assigned roles. This requirement recognizes that process owners have the authority and responsibility for activities and results for the processes they manage.

5.1.2 Customer focus

EXPANDED

Demonstration of commitment to customer-oriented leadership

5.2 Customer focus

5.2 Policy

5.2.1 Establishing the quality policy

EXPANDED

Commitment to meet relevant requirements and to ongoing improvement of the QMS

5.3 Quality policy

5.2.2 Communicating the quality policy

EXPANDED

Documented information. Must be available to interested parties.

5.3 Quality policy

5.3 Organizational roles, responsibilities and authorities

EXPANDED

Responsibility and authority specified

5.5.1 Responsibility and authority

IATF 16949:2016

ISO/TS 16949:2009

5.3.1 Organizational roles, responsibilities, and authorities — supplemental

EXPANDED

Assignments are specified and must be documented.

5.5.2.1 Customer representative

IAOB REMARK This requirement was already part of ISO/TS 16949:2009. However, based on IATF survey feedback, the IATF adopted some modifications to the requirement to address the need to document assigned personnel responsibilities and authorities.

Additionally, this clause now clarifies that the goal is not just to address customer requirements but also to meet customer requirements fully. Personnel involved in capacity analysis, logistics information, customer scorecards, and customer portals now also need to be assigned and documented, per the requirements in this section.

5.3.2 Responsibility and authority for product requirements and corrective actions

EXPANDED

Authority to stop delivery

5.5.1.1 Responsibility for quality

IAOB REMARK Based on survey feedback, the IATF adopted some enhancements to the requirement originally included in ISO/TS 16949 to explicitly make Top Management responsible for ensuring conformity to product requirements and to ensure that corrective actions are taken.

IATF 16949 clarifies that there must be a process to inform those with the authority and responsibility for corrective action in order ensure non-conforming product is identified, contained, and not shipped to the customer. This implies that the assigned personnel must always be available to take prompt action to prevent release.

Chapter 6 - Planning

IATF 16949:2016		ISO/TS 16949:2009
6 Planning		
6.1 Actions to address risks and opportunities	EXPANDED Identification of opportunities and risks, including measures for dealing with them	5.4.2 Quality management system planning
6.1.2.1 Risk analysis	NEW Entries for risk analysis are specified	
<p>IAOB REMARK The need to identify, analyze, and consider actual and potential risks was covered in various areas of ISO/TS 16949. The IATF adopted additional requirements for risk analysis recognizing the continual need to analyze and respond to risk and to have suppliers/organizations consider specific risks associated with the automotive industry. Organizations would need to periodically review lessons learned from product recalls, product audits, field returns and repairs, complaints, scrap, and rework, and implement action plans in light of these lessons. The effectiveness of these actions should be evaluated, and actions integrated in to the organization's QMS.</p>		
6.1.2.2 Preventive action	EXPANDED Lessons learned are integrated	8.5.3 Preventive action

IAOB REMARK The IATF EXPANDED the requirement found in ISO/TS 16949 by integrating what is considered to be a best practice in the automotive industry. Organizations would need to implement a process to lessen the impact of negative effects of risk, appropriate to the severity of the potential issues. Such a process would include: identifying the risk of nonconformity recurrence, documenting lessons learned, identifying and reviewing similar processes where the nonconformity could occur, and applying lessons learned to prevent such potential occurrence.

IATF 16949:2016

ISO/TS 16949:2009

6.1.2.3 Contingency plans

NEW

Contingency plan, depending on the risk. Regular evaluation of the effectiveness, at least annual review. Multidisciplinary team!

6.3.2 Contingency plans

IAOB REMARK *The expanded requirement ensures the organization defines and prepares contingency plans along with a notification process to the customer or other interested parties. Organizations would first take a systematic approach to identifying and evaluating risk for all manufacturing processes, giving particular attention to external risk. Contingency plans would be developed for any of the outlined disruption conditions – interruption of externally provided products, processes, and services, recurring natural disasters, fire, or infrastructure-related disruptions. Customer notification is a mandatory step in any contingency plan, unless there is no risk of delivering nonconforming product or affect on-time delivery.*

6.2 Quality objectives and planning to achieve them

EXPANDED

Handling and planning of quality objectives specified

5.4.1 Quality objectives

6.2.1 Quality objectives and planning to achieve them

EXPANDED

Handling and planning of quality objectives specified

5.4.1 Quality objectives

6.2.2.1 Quality objectives and planning to achieve them
— supplemental

EXPANDED

Q-objectives for meeting customer requirements
Annual specification of quality objectives

5.4.1.1 Quality objectives —
Supplemental

IAOB REMARK *ISO/TS 16949 included the importance of addressing customer expectations in the NOTE to Section 5.4.1.1. The IATF EXPANDED the requirement by requiring that it be done at all levels throughout the organization. If quality objectives are to meet customer requirements, these objectives need to consider customer targets. Personnel should be aware of, and committed to achieving, results that meet customer requirements. Quality objectives and related performance targets should be periodically reviewed for adequacy (at least annually).*

6.3 Planning of changes

EXPANDED

Detailed specification of change planning

5.4.2 Quality management system planning

Chapter 7 - Support

IATF 16949:2016		ISO/TS 16949:2009
7.1 Resources		6 Resource management
7.1.1 General	CHANGE Consideration of existing internal and any required external resources	6.1 Provision of resources
7.1.2 People	NEW Designation and provision of people	6.2 Human resources
7.1.3 Infrastructure	No change in content	6.3 Infrastructure
7.1.3.1 Plant, facility, and equipment planning	EXPANDED Consideration of the risk-based approach	6.3.1 Plant, facility and equipment planning
<p>IAOB REMARK This updated section includes an increased focus on risk identification and risk mitigation, evaluating manufacturing feasibility, re-evaluation of changes in processes, and inclusion of on-site supplier activities. Many operational risks can be avoided by applying risk-based thinking during planning activities, which also extends to optimization of material flow and use of floor space to control non-conforming product. Capacity planning evaluation during manufacturing feasibility assessments must consider customer-contracted production rates and volumes, not only current order levels.</p>		
7.1.4 Environment for the operation of processes	Consideration of social, psychological and physical factors	6.4 Work environment
7.1.4.1 Environment for the operation of processes — supplemental	No change in content	8.2.3 Monitoring and measurement of processes

IAOB REMARK This requirement for an organization to “maintain its premises in a state of order, cleanliness, and repair” was preserved from ISO/TS 16949 and transferred to IATF 16949.

IATF 16949:2016

ISO/TS 16949:2009

7.1.5 Monitoring and measuring resources

7.1.5.1 General

CHANGE

Specification of requirements

8.2.3 Monitoring and measurement of processes

7.1.5.1.1 Measurement systems analysis

EXPANDED

Storage of records detailing customer acceptance of alternative methods

7.6.1 Measurement system analysis

IAOB REMARK Records are now required for customer acceptance of alternative methods. The previous requirement to analyze variation in measurement results is now extended specifically to inspection equipment. IATF 16949 also clarifies that records of customer acceptance need to be retained along with results from alternative measurement system analysis.

7.1.5.2 Measurement traceability

CHANGE

Proof of suitability of computer software for monitoring and measuring no longer required

7.6 Control of monitoring and measuring equipment

7.1.5.2.1 Calibration/verification records

EXPANDED

Required documented process, documentation for product and process management of specified software

7.6.2 Calibration/verification records

IAOB REMARK This updated section helps ensure that customer requirements are met through EXPANDED calibration/verification record retention requirements, including software installed on employee-owned or customer-owned equipment. IATF 16949 clarifies that a documented process is required to manage calibration/verification records in order to provide evidence of conformity, and this includes any on-site supplier owned equipment. Inspection, measurement, and test equipment calibration/verification activities need to consider applicable internal, customer, legislative, and regulatory requirements in order to establish approval criteria.

7.1.5.3 Laboratory requirements

7.6.3 Laboratory requirements

7.1.5.3.1 Internal laboratory

EXPANDED

Definition of own process if no standard is available, recording of customer requirements

7.6.3.1 Internal laboratory

IATF 16949:2016

ISO/TS 16949:2009

7.1.5.3.2 External laboratory

EXPANDED

Inclusion of accreditation mark on external calibration certificate. If necessary, confirmation from national supervisory body if laboratory is not accredited or approved by the customer.

7.6.3.2 External laboratory

IAOB REMARK This updated section allows the organization to conduct second party assessments of laboratory facilities, but requires customer-approval of the assessment method. The clause also clarifies that internal laboratory requirements apply even when calibration is performed by the equipment manufacturer, and that use of calibration services may be subject to government regulatory confirmation.

7.1.6 Organizational knowledge

NEW

Identification, maintenance and provision of knowledge in order to achieve conformity of products and services.

7.2. Competence

CHANGE

Clearer focus on competence

6.2.2 Competence, training and awareness

7.2.1 Competence — supplemental

CHANGE

Intention unchanged. Reference to 7.3.1

6.2.2.2 Training

IAOB REMARK This section adds a requirement of “awareness”, which includes knowledge of an organization’s (supplier’s) quality policy, quality objectives, personnel contribution to the QMS, benefits of improved performance, and implications of not conforming with QMS requirements. It also further emphasizes the customer requirements for OJT (on-the-job training), not just quality requirements. Note that the use of the term “process” rather than “procedure” implies that these activities need to be managed (via the plan- do-check-act cycle), and not merely performed.

IATF 16949:2016

ISO/TS 16949:2009

7.2.2 Competence — on-the-job training

EXPANDED

Focus on areas of responsibility. Inclusion of legal and official requirements. Consideration of educational level of employees.

6.2.2.3 Training on the job

IAOB REMARK IATF 16949 enhances the emphasis of on-the-job training and its importance in meeting customer requirements, including other interested parties.

The process would consider any relevant interested party requirements as an input in determining the need for on-the-job training, and then consider the level of education and complexity of the tasks in determining the method used. This training must also include contract or agency personnel, and convey the consequences of nonconformity to customer requirements to all persons whose work affects quality.

7.2.3 Second-party auditor competency

EXPANDED

Definition of competence requirements for internal auditors.

8.2.2.5 Internal auditor qualification

IAOB REMARK This section features greatly-EXPANDED requirements to the organization's internal auditor competency to ensure a more robust internal audit process. Organizations need to establish a documented process that considers the competencies required by this clause, take actions to address any deficiencies, assess the effectiveness of actions taken, and record a list of the approved auditors. The clause differentiates between quality management system auditors, manufacturing process auditors, and product auditors, and clarifies the competence requirements for each type of audit.

7.2.4 Second-party auditor competency

NEW

Definition of competence requirements for „second party“ auditors.

IAOB REMARK This new section outlines requirements for second-party auditors ensuring they are properly qualified to conduct those types of audits, with customer specific requirements being a main focus. The same core competencies that apply to internal auditors should, at a minimum, also apply to second-party auditors.

7.3. Awareness

NEW

Staff awareness of Q-policy, relevant Q-objectives, contribution to the effectiveness of the QMS, consequences of non-compliance with QMS.

IATF 16949:2016

ISO/TS 16949:2009

7.3.1 Awareness — supplemental

NEW

Documented information on staff awareness regarding their influence on product quality, quality improvement, customer requirements and risks from non-conforming products.

IAOB REMARK Includes additional requirements to ensure all employees are aware of their impact on the organization's (supplier's) product quality output, customer specific requirements, and risks involved for the customer with non-conforming product.

7.3.2 Employee motivation and empowerment

CHANGE

Must be presented as documented process.

6.2.2.4 Employee motivation and empowerment

IAOB REMARK This section did not substantially change, but now requires "maintain[ing] a documented process(es)" for employee motivation and empowerment, instead of simply "having a process".

7.4 Communication

EXPANDED

Specification of requirements

5.5.3 Internal communication

7.5 Documented information

4.2 Documentation requirements

7.5.1 General

CHANGE

Quality policy, quality objectives and QMM should not contain more than required information.

4.2.1 General

7.5.1.1 Quality management system documentation

EXPANDED

Documented QMM Incorporation of CSR and code requirements in the processes.

4.2.2 Quality manual

IAOB REMARK The IATF retained the quality manual requirement that was removed in ISO 9001:2015; however, the quality manual can be one main document or a series of multiple documents (hard copy or electronic). This section also requires that the organization's processes and interactions are documented as part of their QMS. The quality manual needs to document where in the organization's QMS customer-specific requirements are addressed.

IATF 16949:2016

ISO/TS 16949:2009

7.5.2 Creating and updating

CHANGE

Electronic documentation described.

4.2.3 Control of documents

7.5.3 Control of documented information

EXPANDED

Specification of requirements

4.2.4 Control of records

7.5.3.2.1 Record retention

Recording of retention periods and of which records must be kept.

4.2.4.1 Record retention

IAOB REMARK *This section now requires a record retention process that is defined and documented, and that includes the organization's record retention requirements. It specifically calls out production part approvals, tooling records, product and process design records, purchase orders, and contracts/amendments. If there is no customer or regulatory agency retention period requirements for these types of records, „the length of time that the product is active for production and service requirements, plus one calendar year“ applies.*

7.5.3.2.2 Engineering specifications

CHANGE

Must be presented as documented process.

4.2.3.1 Engineering specifications

Chapter 8 - Operation

IATF 16949:2016		ISO/TS 16949:2009
8 Operation		7 Product realization
8.1 Operational planning and control	EXPANDED Completely revised Further details on requirements	7.1 Planning of product realization
8.1.1 Operational planning and control - supplemental	EXPANDED Further details on requirements	7.1.1 Planning of product realization - Supplemental
<p>IAOB REMARK This section features <i>EXPANDED</i> detail to ensure key processes are included and considered when planning for product realization. The required topics include customer product requirements and technical specifications, logistics requirements, manufacturing feasibility, project planning, and acceptance criteria.</p> <p>The section also clarifies the “resources needed to achieve conformity” and encompasses all aspects of the development process, not just the manufacturing process requirements. Ensures key processes are included and considered when planning for product realization.</p>		
8.1.2 Confidentiality	No change in content	7.1.3 Confidentiality
<p>IAOB REMARK Only a minor edit to clarify that confidentiality “includes” related product information, instead of using the word „and“. There is no change in intent.</p>		
8.2 Requirements for products and services		
8.2.1 Customer communication	EXPANDED Recording of handling or control of customer property, and specific requirements for emergency measures.	7.2.3 Customer communication

IATF 16949:2016

ISO/TS 16949:2009

8.2.1.1 Customer communication — supplemental

CHANGE

No change in content

7.2.3.1 Customer communication — Supplemental

IAOB REMARK Added a requirement that the communication language (written or verbal) must be agreed with the customer. This should be considered when determining the necessary competence for roles that require customer communication. Added requirement for written and verbal communication, clarified computer language.

8.2.2 Determining the requirements for products and services

CHANGE

No post-delivery activities

7.2.1 Determination of requirements related to the product

8.2.2.1 Determining the requirements for products and services — supplemental

No change in content

7.2.1 Determination of requirements related to the product

IAOB REMARK The IATF strengthened the standard by elevating Notes 2 and 3 of the former clause into requirements. This suggests current organizational knowledge regarding recycling, environmental impact, and product and manufacturing process characteristics should be standardized. This knowledge would be systematically reviewed and used when determining the requirements for the products and services to be offered to customers.

8.2.3 Review of the requirements for products and services

EXPANDED

Ensure that the organization has the capacity to meet offered requirements

7.2.2 Review of requirements related to the product

8.2.3.1.1 Check of requirements for products and services - Addition
No change in content

7.2.2.1 Review of requirements related to the product — Supplemental

IAOB REMARK IATF 16949 strengthens this requirement by requiring the organization to retain a documented customer authorization for waivers of formal reviews for products and services.

8.2.3.1.2 Customer-designated special characteristics

No change in content

7.2.1.1 Customer-designated special characteristics

IAOB REMARK This section changes the action from „demonstrate conformity“ to „conform“, and clarifies that it refers to „approval documentation,“ rather than just „documentation.“ There is no change in intent.

IATF 16949:2016

ISO/TS 16949:2009

8.2.3.1.3 Organization manufacturing feasibility

EXPANDED

Multi-disciplinary approach
Recording of capacity analysis
Every change must be re-evaluated

7.2.2.2 Organization manufacturing feasibility

IAOB REMARK *EXPANDED requirements for manufacturing feasibility analysis through the following changes: Requiring a multidisciplinary approach to analyze feasibility, considering all engineering and capacity requirements. Requiring this analysis for any new manufacturing or product technology, and for any changed manufacturing process or product design. The organization should validate their ability to make product specifications at the required rate. These should consider customer-specific requirements.*

8.2.4 Changes to requirements for products and services

CHANGE

Documented information must be adapted and persons responsible be made aware of changes.

7.1.4 Change control

8.3 Design and development of products and services

7.3 Design and development

8.3.1 General

NEW

Elaboration of a development process

8.3.1.1 Design and development of products and services — supplemental

EXPANDED

Also applied to process development

7.3 Design and development

IAOB REMARK *Strengthened the standard by elevating the NOTE in the former section to a requirement, and added a requirement for documentation of the design and development process. As the concept of the design and development process in the automotive industry includes manufacturing design and development, the requirements from other parts in Section 8 should be considered complimentary in the context of manufacturing and product design and development.*

8.3.2 Design and development planning

Discontinuation of development phases. Further details on requirements

7.3.1 Design and development planning

8.3.2.1 Design and development planning - supplemental
Clearer focus on project management

7.3.1.1 Multidisciplinary approach

IAOB REMARK *Clarifies when the multidisciplinary approach is to be used and who should be involved. Specifically, it must include all affected stakeholders within the organization and, as appropriate, its supply chain. Additional examples are provided of areas where such an approach may be used during design and development planning (including project management), and the note further clarifies that purchasing, supplier, and maintenance functions might be included as stakeholders.*

8.3.2.2 Product design skills

No change in content

6.2.2.1 Product design skills

IAOB REMARK This section adds a NOTE as an example of a product design skillset. There is no change in intent.

8.3.2.3 Development of products with embedded software

NEW

Apply software development evaluation methods.

IAOB REMARK This new clause adds requirements for organization-responsible embedded software development and software development capability self-assessments. Organizations must use a process for quality assurance of products with internally developed embedded software, and have an appropriate assessment methodology to assess their software development process. The software development process must also be included within the scope of the internal audit programme; the internal auditor should be able to understand and assess the effectiveness of the software development assessment methodology chosen by the organization.

8.3.3 Design and development inputs

EXPANDED

Analysis of the consequences of errors.

7.3.2 Design and development inputs

8.3.3.1 Product design input

EXPANDED

Software requirements expanded to include system limits, development alternatives, risk assessment, statutory and regulatory requirements.

7.3.2.1 Product design input

IAOB REMARK This section expanded the minimum set of product design input requirements, emphasizing regulatory and software requirements. New and broadened requirements include: product specifications; boundary and interface requirements; consideration of design alternatives; assessment of risks and the organization's ability to mitigate/manage those risks; conformity targets for preservation, serviceability, health, safety, environmental, and development timing; statutory and regulatory requirements for the country of destination; and embedded software requirements.

8.3.3.2 Manufacturing process design input

EXPANDED

Expanded to include production times and costs, new materials, handling and ergonomic requirements and production-oriented development.

7.3.2.2 Manufacturing process design input

IAOB REMARK Expanded the list of manufacturing process design inputs including: product design output data including special characteristics, targets for timing; manufacturing technology alternatives; new materials; product handling and ergonomic requirements, and; design for manufacturing and design for assembly. This could include consideration of alternatives from innovation and benchmarking results, and new materials in the supply chain that could be used to improve the manufacturing process capacity. This section also further strengthened the requirements by transforming the former NOTE regarding error-proofing methods into a requirement.

IATF 16949:2016

ISO/TS 16949:2009

8.3.3.3 Special characteristics

EXPANDED

Multidisciplinary approach, consistent labelling with special symbols, strategy for steering and monitoring, equivalent symbols allowed.

7.3.2.3 Special characteristics

IAOB REMARK Identify the source of special characteristics including risk analysis to be performed by the customer or the organization. Expands the list of sources used to identify special characteristics, along with the requirements related to those special characteristics. Special characteristics need to be marked in all applicable cascaded quality planning documents; monitoring strategies should focus on reducing variation, which is typically done using statistical techniques. The organization must also consider customer-specific requirements for approvals and use of certain definitions and symbols, including submission of the symbol conversion table, if applicable and required.

8.3.4 Design and development controls

EXPANDED

Measures for controlling the development process specified

7.3.4 Design and development review

8.3.4.1 Monitoring

EXPANDED

If necessary, report on key performance indicators of the development stages to the customer.

7.3.4.1 Monitoring

IAOB REMARK These changes align the IATF 16949 standard with IATF OEM advanced quality activities and aim to reduce the number of customer-specific requirements. The requirement clarifies that measurements apply at specified stages during the design and development of both products and services, and that reporting must occur as required by the customer. This could include, for example, the periodic update of customer APQP schedule milestones, gate reviews, and open issues lists related to development activities.

8.3.4.2 Design and development validation

EXPANDED

Requirements of national supervisory bodies, published industry standards, interaction with integrated software supplemented.

7.3.6.1 Design and development validation — Supplemental

IAOB REMARK This section features a strengthening of the requirements for design and development validation, and also added embedded software. Customer specific requirements (CSRs), industry, and governmental agency-issued regulatory standards need to be considered when planning and performing design and development activities.

IATF 16949:2016

ISO/TS 16949:2009

8.3.4.3 Prototype programme

CHANGE

Clarification of responsibility for outsourced services.

7.3.6.2 Prototype programme

IAOB REMARK The changes in this section strengthen the standard by focusing the organization on the quality management system for managing outsourced products and services. Regardless of whether the work is performed by the organization or by an outsourced process, the prototype programme and control plan are part of the scope of the QMS. This type of control should be considered a support process and be integrated into the design and development process.

8.3.4.4 Product approval process

No change in content

7.3.6.3 Product approval process

IAOB REMARK These changes clarify approval requirements, with an emphasis on outsourced products and/or services and record retention required. The activities should be managed (with an effectiveness review and improvement actions applied) and not just performed. A part approval process for externally provided products and services needs to be performed prior to final product submission to customers. Product approval must be obtained when the customer requires it, and records retained.

8.3.5 Design and development outputs

Documented results of developmental outcomes must be retained.

7.3.3 Design and development outputs

8.3.5.1 Design and development outputs — supplemental

Clearer focus on risk analysis. Requirements for spare parts, labelling and packaging added.

7.3.1.1 Product design outputs — Supplemental

IAOB REMARK Product design output additions include a recognition of the use of 3D models, and inclusion of service parts and packaging. IATF 16949 clarifies that it requires product design error-proofing methods, such as DFSS, DFMA, and FTA. The application of GD&T tolerancing and positioning systems allows organizations to specify dimensions and related tolerances based on functionality relationships. Outputs include repair and serviceability instructions and service parts requirements that will be used by approved maintenance organizations

8.3.5.2 Manufacturing process design output

EXPANDED

Supplemented by: special characteristics, determination of process parameters, capability studies for production facilities, capacity analyses.

7.3.3.1 Manufacturing process design output

IAOB REMARK Changes in this section strengthened verification requirements, process input variables, capacity analysis, maintenance plans and correction of process nonconformities. Clarifies that the process approach methodology of verifying outputs against inputs applies to the manufacturing design process. The list of manufacturing design outputs is also expanded.

IATF 16949:2016

ISO/TS 16949:2009

8.3.6 Design and development changes

EXPANDED

Required documented information on development changes defined.

7.3.7 Control of design and development changes

8.3.6.1 Design and development changes — supplemental

NEW

Analysis of development changes Checks against customer requirements before implementation in manufacturing. If required, documented approval by customer.

IAOB REMARK This section strengthens the requirement for change validation and approval prior to implementation, and also adds embedded software. Design changes after initial product approval implies that products, components, and materials need to be evaluated and validated prior to production implementation. This validation needs to be done by the organization and the customer, when there is a customer-specific requirement. For products with embedded software, the change record needs to document the revision level of the software and hardware to help assure that product configuration is managed appropriately.

8.4 Control of externally provided processes, products and services

7.4 Purchasing

8.4.1 General

CHANGE

Determination of control mechanisms for externally provided processes, products and services.

7.4.1 Purchasing process

8.4.1.1 General — supplemental

NEW

Recording of all externally provided processes, products and services including, including determining the exact scope.

IAOB REMARK The former NOTE about purchased products was broadened and elevated into a requirement. It now clarifies that all the requirements of section 8.4 apply to sub-assembly, sequencing, sorting, rework, and calibration services.

IATF 16949:2016

ISO/TS 16949:2009

8.4.1.2 Supplier selection process

Fixed minimum criteria for supplier selection.

7.4.1 Purchasing process

IAOB REMARK While ISO/TS 16949:2009 did address supplier selection in the ISO 9001:2008 boxed text via the Purchasing Process (see Section 7.4.1), the supplier selection process was not as detailed. This section now specifically calls out supplier selection process criteria, in addition to clarifying that it is a full process. The assessment used to select suppliers needs to be extended beyond typical QMS audits and include aspects such as: risk to product conformity and uninterrupted supply of the organization's product to their customers, etc.

8.4.1.3 Customer-directed sources (also known as „Directed—Buy)

Determination of the requirements in relation to preferred suppliers.

7.4.1.3 Customer-approved sources

IAOB REMARK This section features a clarification of the organization's responsibilities for customer directed sources, even for customer directed-buy suppliers. Unless otherwise defined by contract, all requirements of IATF 16949 Section 8.4 apply in this situation, except requirements related to the selection of the supplier itself.

8.4.2 Type and extent of control

NEW

Criteria defined for management of externally provided processes, products and services.

8.4.2.1 Type and extent of control — supplemental

NEW

Documented process for identifying, monitoring and evaluating outsourced processes. Introduction of risk-based supplier development.

IAOB REMARK The changes in this section further strengthened the requirement for control of outsourced processes, including the assessment of risk. Internal and customer requirements are inputs that need to be considered during the development of methods to control externally provided products, processes, and services. Type and control needs to be consistent with supplier performance and an assessment of product, material, or service risk. This implies a constant monitoring of performance and assessment of risk based on the established criteria, triggering the actions to escalate (increase) or reduce the types and extent of control.

8.4.2.2 Statutory and regulatory requirements

EXPANDED

Statutory and regulatory requirements must meet the requirements of the exporting country, the importing country and the country of destination.

7.4.1.1 Statutory and regulatory conformity

IAOB REMARK The updates clarify the applicability of statutory and regulatory requirements (homologation) and strengthen the requirements. Identification of applicable statutory and regulatory requirements needs to consider the country of receipt, shipment, and delivery. When special controls are required, the organization must implement these requirements and cascade those requirements down to their suppliers.

IATF 16949:2016

ISO/TS 16949:2009

8.4.2.3 Supplier quality management system development

EXPANDED

Completely revised Description of the requirements for suppliers' quality management systems and the handling of these including new requirements.

7.4.1.2 Supplier quality management system development

IAOB REMARK This section provides a method to strengthen ISO 9001 certification, aligns with customer-specific requirements, and clarifies the acceptable third-party certification bodies (which shall be recognized by the IATF). Instead of requiring organizations to simply „develop“ the supplier QMS, this section outlines a progressive approach that goes from compliance to ISO 9001 via second-party audits all the way through certification to IATF 16949 through third-party certification.

8.4.2.3.1 Automotive product-related software or automotive products

NEW

Description of handling suppliers of product-related software.

IAOB REMARK This new section adds requirements for software development assessment methodology. These requirements align to those presented within Section 8.3, but are now cascaded down to suppliers.

8.4.2.4 Supplier monitoring

EXPANDED

Additional description of returns by dealers, warranty cases, field and recall measures - if info available from customer.

7.4.3.2 Supplier monitoring

IAOB REMARK Organizations should continuously review inputs and introduce improvement actions regarding supplier monitoring data, as needed. Documented and non-documented yard holds and stop ships should be considered customer disruptions, and the number of premium freight occurrences need to be monitored. Performance indicators provided by the customer and from service need to be included within the organization's supplier monitoring process.

IATF 16949:2016

ISO/TS 16949:2009

8.4.2.4.1 Second-party audits

NEW

„Second party audits“ must be included in supplier management. Criteria for determining demand must be documented.

IAOB REMARK This new section aligns customer-specific requirements into the IATF 16949 standard. Second-party audits should consider issues relevant to the organization beyond simply the maturity of their QMS development. Examples of situations that could trigger a second-party audit include: input from supplier performance indicators; risk assessment results and follow-up of open issues from process and product audits; and new development launch readiness. The organization’s criteria for determining the need, type, frequency, and scope of second-party audits must be based on a risk analysis.

8.4.2.5 Supplier development

NEW

Priorities of the type, scope and timing of supplier development must be established for active suppliers.

IAOB REMARK This section adds an emphasis on performance-based supplier development activities. Supplier monitoring process should be considered an input to the supplier development activities. These development activities should consider both short term and long term goals. Short term efforts would generally focus on supplier products, and would require defining suitable methods to assure the quality of purchased product from each supplier. Long term efforts would generally focus on supplier QMS and manufacturing processes on the whole, and consider audits, training, and enhancement efforts that implement and enhance quality assurance agreements between suppliers and the organization, and further reduce risk.

8.4.3 Information for external providers

EXPANDED

Expansion of information for external providers.

7.4.2 Purchasing information

8.4.3.1 Information for external providers — supplemental

NEW

Provision of applicable statutory and regulatory requirements as well as all product- and process-related special characteristics.

IAOB REMARK The organization is required to provide key information to their supply chain through this new requirement. This information includes all applicable statutory and regulatory requirements and special product and process characteristics.

IATF 16949:2016

ISO/TS 16949:2009

8.5 Production and service provision

7.5 Production and service provision

8.5.1 Control of production and service provision

EXPANDED

Expansion and specification of requirements for the control and production of performance.

7.5.1 Control of production and service provision

8.5.1.1 Control plan

EXPANDED

Application of PCP to bulk material. First/last part comparison included. Concrete criteria specified for review or revision of the PCP.

7.5.1.1 Control plan

IAOB REMARK This section strengthens the control plan requirements and aligned IATF OEM customer-specific requirements into the IATF 16949 standard. It also elevates a NOTE regarding customer approval to a requirement, and strengthens the control plan review and update criteria and linked to the PFMEA updates. Control plans are needed for the relevant manufacturing site and all product supplied, and not just for the final product or final assembly line, as an example. Although family control plans are acceptable for bulk material and similar parts using a common manufacturing process, care should be taken to identify the degree of difference that is acceptable to apply this common control.

8.5.1.2 Standardised work — operator instructions and visual standards

EXPANDED

Requirements for work instruction comprehensibility defined by the employees.

7.5.1.2 Work instructions

IAOB REMARK Through this section, IATF 16949 strengthens the requirements for standardized work, including the requirement to address specific language needs. Standardized work documents need to be clearly understood by the organization's operators and should include all applicable quality, safety, and other aspects necessary to consistently perform each manufacturing operation.

8.5.1.3 Verification of job set-ups

EXPANDED

Requirements specified for the verification of setup procedures.

7.5.1.3 Verification of job set-ups

IAOB REMARK The changes in this section elevate a NOTE to a requirement, and clarify record retention. Clarify that the organization shall verify job changes that require a new setup; maintain documented information for set-up personnel; perform first-off/last-off part validation, as applicable, including retention and comparison; and retain records of process and product approval following these validation actions.

IATF 16949:2016

ISO/TS 16949:2009

8.5.1.4 Verification after shutdown

NEW

Introduction of defined measures following planned/unplanned production downtime to ensure compliance with product requirements.

IAOB REMARK Defines a new requirement for verification after shutdown, integrating industry lessons learned and/or best practices. The necessary actions after the shutdown period should be anticipated in the PFMEA, control plans, and maintenance instructions, as appropriate. A multidisciplinary approach should be used to identify any additional actions needed to address unexpected shutdown events.

8.5.1.5 total productive maintenance (TMP)

Development of a documented TPM system.
Documented maintenance objectives (e.g. OEE, MTBF, MTTR)

7.5.1.4 Preventive and predictive maintenance

IAOB REMARK Strengthens the requirement for equipment maintenance and overall proactive management of the Total Productive Maintenance (TPM). TPM is a system for maintaining and improving the integrity of production and quality systems through machines, equipment, processes, and employees that add value to the manufacturing process. TPM should be fully integrated within the manufacturing processes and any necessary support processes.

8.5.1.6 Management of production tooling and manufacturing, test, inspection tooling and equipment

EXPANDED

Labelling of customer property including in the labelling requirements for tools.

7.5.1.5 Management of production tooling

IAOB REMARK IATF 16949 features strengthened tooling and equipment marking and tracking requirements. This requirement extends the scope to production and service materials and for bulk materials, as applicable, and clarifies that requirements apply whether tooling is owned by the organization or by the customer. The updates clarify that the system for production tooling management must include tool design modification documentation and tool identification information. Customer-owned tools and equipment need to be permanently marked in a visible location.

8.5.1.7 Production scheduling

EXPANDED

Consideration of relevant planning information

7.5.1.6 Production scheduling

IAOB REMARK This section emphasized the importance of planning information and integrated IATF OEM customer lessons learned. Ensure that customer orders/demands are achieved. This suggests the organization needs a robust feasibility review process regarding production scheduling. The production scheduling activities also need to include all relevant planning information as inputs to their feasibility review and make any necessary adjustments.

IATF 16949:2016

ISO/TS 16949:2009

8.5.2 Identification and traceability

CHANGE

Labelling and traceability requirements specified as mandatory requirement.

7.5.3 Identification and traceability

8.5.2.1 Identification and traceability — supplemental

EXPANDED

Risk analysis on the basis of the risk with specified criteria regarding traceability and necessary applicable methods.

7.5.3.1 Identification and traceability — supplemental

IAOB REMARK Strengthens the requirements for traceability to support industry lessons learned related to field issues. Requirement of clear start and stop points for product received by the customer is aligned with the definition of traceability in ISO 9000:2015.

8.5.3 Property belonging to customers or external providers

EXPANDED

Handling of third party property also extended to external providers.

7.5.4 Customer property

8.5.4 Preservation

No change in content

7.5.5 Preservation of product

8.5.4.1 Preservation — supplemental

EXPANDED

Applied to goods receipt and goods issue. Compliance with customer's packaging requirements.

7.5.5.1 Storage and inventory

IAOB REMARK Adds specificity to preservation controls and includes application to internal and/or external providers. Preservation activities are expanded in two ways: first, activities that are considered preservation controls, and second, locations where preservation controls apply. Preservation controls include the preservation of identification during the product shelf life; a contamination control program appropriate to identified risks; design and development of robust packaging and storage areas; adequate transmission and transportation considerations; and measures to protect product integrity.

8.5.5 Post-delivery activities

NEW

Fulfilment of requirement after delivery

IATF 16949:2016

ISO/TS 16949:2009

8.5.5.1 Feedback of information from service

EXPANDED

Expanded to include material handling and logistics

7.5.1.7 Feedback of information from service

IAOB REMARK Requirements for this section feature an expanded scope to include material handling and logistics. The new second NOTE also clarifies that „service concerns“ should include the results of field failure test analysis where applicable. The intent of this addition is to ensure that the organization is aware of nonconformities that occur outside of its organization.

8.5.5.2 Service agreement with customer

No change in content

7.5.1.8 Service agreement with customer

IAOB REMARK This section clarifies that service centers need to comply with all applicable requirements when there is a service agreement with the customer.

8.5.6 Control of changes

CHANGE

7.1.4 Change control

8.5.6.1 Control of changes — supplemental

NEW

Documented process for managing and responding to changes

IAOB REMARK IATF 16949 strengthens the control of changes requirements in the standard to align with existing IATF OEM requirements. The changes clarify that „any change“ includes those caused by the organization and/or the customer, in addition to those by any supplier. The process to control and react to changes needs to include risk analysis and to retain records of verification and validation. FMEAs should be reviewed for any manufacturing or product changes, prior to implementation. Production trial run activities should be planned based on the risk and complexity of the changes.

8.6 Release of products and services

CHANGE

Content completely revised Documented information providing proof of conformity with the acceptance criteria and traceability to persons who have authorized the release.

7.5.2 Validation of processes for production and service provision

IATF 16949:2016

ISO/TS 16949:2009

8.6.1 Release of products and services — supplemental **CHANGE**

Consideration of the PCP in the release of products and services.

7.5.2.1 Layout inspection and functional testing

IAOB REMARK While ISO/TS 16949:2009 did mention product and delivery of service in the ISO 9001:2008 boxed text via the Monitoring and Measurement of Product section (see Section 7.4.1), the product and delivery of service process is further detailed in IATF 16949. These updates strengthen the standard to ensure process controls align with the control plan. To achieve coherence between the control plan and the planned arrangements to verify product and service conformity, the organization should conduct a regular control plan audit that compares the current approval status of the product and process with the actual controls applied in the manufacturing process.

8.6.2 Layout inspection and functional testing

EXPANDED

Frequency of requalification added

8.2.4.1 Layout inspection and functional testing

IAOB REMARK An added note clarifies that frequency of layout inspections is determined by the customer.

8.6.3 Appearance items

No change in content

8.2.4.2 Appearance items

IAOB REMARK This section requires organizations to provide masters for haptic technology, as appropriate. Haptic technology recreates the sense of touch by applying forces, vibrations, or motions to the user.

8.6.4 Verification and acceptance of conformity of externally provided products and services

CHANGE

Statistical data can also be provided by provider.

7.4.3.1 Incoming product conformity to requirements

IAOB REMARK Changes in this section align with ISO 9001:2015 terminology and clarify the source of statistical data as that provided by the supplier to the organization.

8.6.5 Statutory and regulatory conformity

NEW

Confirmation and documentation stating that externally provided processes, products and services meet the statutory and regulatory requirements of the country of manufacture and the country of destination.

IAOB REMARK Strengthens the standard for statutory and regulatory conformity to require evidence of compliance. „Prior to release“ means that the organization should implement a process and/or agreements with its suppliers requiring sufficient prevention and detection controls to ensure that products meet all applicable statutory, regulatory, and other requirements. These requirements must consider both the countries where products are manufactured and the destination countries.

8.6.6 Acceptance criteria

No change in content

7.1.2 Acceptance criteria

IAOB REMARK This section clarifies „where required“ to be „where appropriate or required,“ and updates the clause reference to align with the new structure. There is no major change in the intent of this section.

8.7 Control of nonconforming outputs

CHANGE

Specification of handling details and management in event of non-compliant results.

8.3 Control of nonconforming outputs

8.7.1.1 Customer authorization for concession

EXPANDED

Communication of use of reworked products to customers incl. release by customer. Recording of date and quantity of special release.

8.3.4 Customer waiver

IAOB REMARK Changes in this section are for the alignment of terminology, and the clarification of concessions applied to rework of nonconforming product and sub-component reuse. The changes clarify that the organization must obtain customer authorization prior to further processing for „use as is“ and rework disposition of nonconforming products, and sub-component reuse must be clearly communicated to the customer. Appropriate internal verification and validation activities of any rework or reuse of sub-components should be approved prior to customer submission.

8.7.1.2 Control of nonconforming product — customer-specified process

NEW

Compliance with and application of customer-specified requirements for the management of faulty products.

IAOB REMARK This section ensures customer controlled shipping requirements are followed, and that these customer-specific requirements are integrated into the organization’s internal activities for the control of nonconforming product.

IATF 16949:2016

ISO/TS 16949:2009

8.7.1.3 Control of suspect product

EXPANDED

Staff training for the management of suspected defect products

8.3.1 Control of nonconforming product — Supplemental

IAOB REMARK The updates in this section augment the requirements for control of suspect product by ensuring containment training is implemented. Appropriate training should consider, for example, awareness about special characteristics, customer-specific requirements related to nonconforming product control, product safety, escalation processes, storage areas, and related roles.

8.7.1.4 Control of reworked product

EXPANDED

Assessment of risks (such as FMEA) in the rework process. Documented process.

8.3.2 Control of reworked product

IAOB REMARK This update increases the scope of control of reworked product requirements to include: customer approval, risk assessment, rework confirmation, traceability, and retention of documented information. The risk analysis and customer approval requirements are interrelated; FMEAs should identify and address risks related to each possible rework of the characteristics stated in the control plan.

8.7.1.5 Control of repaired product

NEW

Assessment of risks (such as FMEA) in the repair process. Documented process.

IAOB REMARK The changes in this section clarify the requirement and the need for follow-up with detailed information for reworked product.

8.7.1.6 Customer notification

EXPANDED

Detailed documentation of the event.

8.3.3 Customer notification

IAOB REMARK This new section features a new automotive requirement to address modifications in ISO 9001 requirements and address customer issues for IATF OEM concerns. While customer notification is mentioned twice in ISO/TS 16949:2009 (see section 7.4.3.2 and section 8.2.1.1), it did not address customer notification in a standalone section. The organization is required to immediately notify the customer if they ship nonconforming product, and follow up with detailed documentation.

IATF 16949:2016

ISO/TS 16949:2009

8.7.1.7 Nonconforming product disposition

NEW

Products must be deactivated before being scrapped

IAOB REMARK Strengthen the requirement of disposition of nonconforming product by clarifying that organizations must also have a documented process for disposition of nonconforming product not subject to rework or repair. Planned activities need to be managed and the results considered to improve this process. Contamination control practices should be applied to avoid any risk of unintended use of this type of nonconforming products. Customer approval is required before nonconforming products in this category can be diverted for service or any other use.

8.7.2 Documented Information

NEW

Storage of documented information

Chapter 9 - Performance evaluation

IATF 16949:2016		ISO/TS 16949:2009
9 Performance evaluation		8 Measurement, analysis and improvement
9.1 Monitoring, measurement, analysis and evaluation		8 Measurement, analysis and improvement
9.1.1 General	CHANGE Documented information as evidence of the results of the specified requirements.	8.1 General
9.1.1.1 Monitoring and measurement of manufacturing processes	Sharper focus on special features, PCP, FMEA. Clarification of handling of production processes in which compliance cannot be demonstrated by means of process capability.	8.2.3.1 Monitoring and measurement of manufacturing processes
<p>IAOB REMARK Clarification of the requirement for targeting process effectiveness and efficiency (not just "having" a process, but monitoring it). Further ensures that organizations support the manufacturing process through defined roles, responsibilities, and effective escalation processes to drive process capability and stability. The NOTE clarifies that it may not be possible or feasible to measure product or manufacturing process characteristics through process capability assessments. In such cases, a rate or index of lot conformity may be acceptable.</p>		
9.1.1.2 Identification of statistical tools	CHANGE Ensuring the application of statistical methods	8.1.1 Identification of statistical tools
<p>IAOB REMARK Requirements for the identification of statistical tools feature clarifications regarding the documented deployment of the use of statistical tools from DFMEA, PFMEA, and the APQP (or equivalent) process. The tool chosen in the APQP (or equivalent) process must be included in design/process risk analysis and the control plan.</p>		
9.1.1.3 Application of statistical concepts	No change in content	8.1.2 Knowledge of basic statistical concepts
<p>IAOB REMARK This section features a clarification regarding requirements for those involved in capturing and analyzing data; previously, this was applied to all employees regardless of relevance. These concepts should be included in the competencies required for „employees involved in the collection, analysis, and management of statistical data“.</p>		

IATF 16949:2016

ISO/TS 16949:2009

9.1.2 Customer satisfaction

No change in content

8.2.1 Customer satisfaction

9.1.2.1 Customer satisfaction — supplemental

CHANGE

Specified through use of internal and external performance indicators

8.2.1.1 Customer satisfaction — supplemental

IAOB REMARK Clarification customer satisfaction monitoring criteria and introduction of additional focus on warranty management. Additional focus to ensure all customer performance measures are regularly reviewed to reduce the risk of failure to achieving customer satisfaction. The organization has a responsibility to access, review, and take appropriate action about information published in customer portals. When identifying the need for correction or improvement actions, customer scorecard deficiencies should be given priority.

9.1.3 Analysis and evaluation

EXPANDED

Criteria for the analysis and evaluation of data specified and extended.

8.1 General

9.1.3.1 Prioritization

NEW

Monitoring of trends incl. derivation of measures

IAOB REMARK The emphasis of the requirement changed from the ISO/TS 16949 standard's "Analysis of data" to the prioritization of actions based on performance and risk management. Actions to improve customer satisfaction need to take precedence as the organization considers trends and drives towards improvement.

9.2 Internal audit

EXPANDED

Prioritization of audit program based on the importance of the processes

8.2.2 Internal audit

IATF 16949:2016

ISO/TS 16949:2009

9.2.2.1 Internal audit programme

EXPANDED

Consideration of internal/external risks, robustness, significance and influence of the processes. Inclusion of Software Development Assessments

8.2.2.4 Internal audit plans

IAOB REMARK Strengthens the need to drive a risk-based approach to the development and deployment of an organization-wide internal audit programme. Internal audit activities are considered a process, which require a clear definition of expected inputs, planned activities, intended outputs, and monitored performance. The process needs to identify and evaluate the level of risk related to each QMS process, internal and external performance trends, and process criticality. Then, the process would need to continuously monitor this information to trigger special internal audits and/or to plan periodic internal audits.

9.2.2.2 Quality management system audit

CHANGE

Auditing of all processes within three calendar years. Consideration of CSR

8.2.2.1 Quality management system audit

IAOB REMARK Strengthens the quality management system audit and the use of process approach, which further drives process improvements organization-wide. The audit programme is continuously monitoring information that could trigger the need for an unplanned internal audit. The use of the automotive process approach, including risk-based thinking, needs to be applied during the audit. The internal audit must also sample customer-specific QMS requirements for effective implementation.

9.2.2.3 Manufacturing process audit

CHANGE

Auditing of all production processes within three calendar years. Auditing of shift handover. FMEA and PCP must be included.

8.2.2.2 Manufacturing process audit

IAOB REMARK Strengthens the formal approaches to ensure organizations achieve the benefits of effective manufacturing process audits. Shift handover should be considered a significant process event; internal auditors should look for objective evidence of an effective process to communicate and address relevant information. The audit must also evaluate the effective implementation of the process risk analysis, control plan, and associated documents.

9.2.2.4 Product audit

CHANGE

Performed in conformance with CSR. If not defined, then own definitions.

8.2.2.3 Product audit

IAOB REMARK The strengthened product audit requirements now require the use of customer-specified approaches, when applicable. If not applicable, the organization shall define their process.

IATF 16949:2016

ISO/TS 16949:2009

9.3 Management review		5.6 Management review
9.3.1 General	No change in content	5.6.1 General
9.3.1.1 Management review — supplemental	Frequency of management review	
<p>IAOB REMARK Strengthens management review requirements to include an assessment of risk and compliance with customer requirements. The one-year frequency is a minimum, as the process is driven by the continuous assessment of the risks related to internal and external changes and performance-related issues. As changes and issues increase, the frequency of management review activities should increase in turn, preserving the minimum of at least an annual review.</p>		
9.3.2 Management review inputs	EXPANDED Criteria for entries expanded	5.6.2 Management review inputs
9.3.2.1 Management review inputs — supplemental	EXPANDED Significant increase in number of criteria for entries	5.6.2.1 Review input — Supplemental
<p>IAOB REMARK Enhanced details for management review input requirements, including those related to cost of poor quality, effectiveness, efficiency, conformance, feasibility assessments, customer satisfaction, performance against maintenance objectives, warranty performance, review of customer scorecards, and the identification of potential field failures through risk analysis. The above should be considered the minimum information that should be covered during management review; a monitoring system should be in place, with criteria that trigger special unplanned management review activities.</p> <p>8.3.4.1 “[formerly 7.3.4.1] Monitoring Measurements at specified stages during the design and development of products and processes shall be defined, analysed, and reported with summary results as an input to management review”.</p>		
9.3.3 Management review outputs	Proof must be provided as documented information. No content changes.	5.6.3 Review output
9.3.3.1 Management review outputs — supplemental	NEW Documented action plan if customer’s performance indicator targets not reached	

IAOB REMARK Enhanced section ensures action is taken where customer requirements are not achieved, and supports the continual analysis of process performance and risk. Even though process owners should address customer performance issues related to the processes they manage, this requirement gives top management the clear and ultimate responsibility to address customer performance issues and ensure the effectiveness of corrective actions.

Chapter 10 - Improvement

IATF 16949:2016		ISO/TS 16949:2009
10 Improvement		8.5 Improvement
10.1 General	CHANGE Description of improvement criteria	8.5.1 Continual improvement
10.2 Nonconformity and corrective action	Proof must be retained as documented information	8.5.2 Corrective action
10.2.3 Problem solving	EXPANDED Specific requirements regarding procedure	8.5.2.1 Problem solving
10.2.4 Error-proofing	NEW Defining the use of fail-safes. Methods must be defined and documented in the process-related risk analysis	

IAOB REMARK Updates to this section are to facilitate the consolidation of IATF OEM customer specific minimum requirements.

The organization's defined process(es) for problem solving must consider: various types and scales of problems; control of nonconforming output; systemic corrective action and verification of effectiveness; and review/updates to documented information. In addition, CSRs related to nonconformity and corrective action need to be used and integrated within the internal corrective action process.

IAOB REMARK This section, which previously only mentioned the use of error-proofing methods in corrective action, includes new requirements to strengthen the approach to error proofing and consolidate customer-specific requirements.

The organization needs a process that both identifies the need or opportunity for an error-proofing device/method, and designs and implements the device/method. The FMEA would document whether the method impacts occurrence (a prevention control) or impacts detection (a detection control). The control plan needs to include the test frequency of the error-proofing devices, and records must be maintained for the performance of these tests.

IATF 16949:2016

ISO/TS 16949:2009

10.2.5 Warranty management systems

NEW

Failure analysis method incl. NTF (No Trouble Found)

IAOB REMARK This is a new requirement based on the increasing importance of warranty management and consolidates IATF OEM customer specific requirements. The warranty management process should address and integrate all applicable customer-specific requirements, and warranty party analysis procedures to validate No Trouble Found (NTF) decisions should be agreed by the customer, when applicable.

10.2.6 Customer complaints and field failure test analysis **EXPANDED**

Analysis of interactions with the products manufactured by the organization, including integrated software. Communication of results to customer.

8.5.2.4 Rejected product test/analysis

IAOB REMARK Includes a new requirement regarding embedded software and identification of preferred approaches. The organization's analysis is extended beyond parts to the customer complaints and field failures themselves, and the results must be communicated to the customer and also within the organization.

10.3 Continual improvement

NEW

Determination of requirements or opportunities

8.5.1 Continual improvement

10.3.1 Continual improvement — supplemental

EXPANDED

Determination of the applied procedure, action plan for the improvement of manufacturing processes, risk analyses

8.5.1.1 Continual improvement of the organization

8.5.1.2 Manufacturing process improvement

IAOB REMARK Changes in this section clarify the minimum process requirements for continual improvement: identification of methods, information and data; an improvement action plan that reduces variation and waste; and risk analysis (such as FMEA). Use of TPM, Lean, Six Sigma, and other manufacturing excellence programs or methodologies should follow a structured approach that continuously identifies and addresses opportunities for improvement.