

Systems engineering — Guidelines for the application of ISO 9001 to system life cycle processes

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National foreword

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**Systems engineering —
Guidelines for the application of ISO 9001
to system life cycle processes**

*Ingénierie des systèmes — Lignes directrices pour l'application
de l'ISO 9001 aux processus de cycle de vie des systèmes*



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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

In exceptional circumstances, the joint technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard (“state of the art”, for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC TR 90005, which is a Technical Report of type 3, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*.

Introduction

This Technical Report has been prepared based on a number of concepts.

1. **Enterprise versus Project** – ISO/IEC 15288 uses the term **Enterprise** to represent the organization within which **projects** are conducted using the system life cycle processes defined. It mainly considers the processes that provide support and resources to projects rather than an exhaustive set of processes that cover all aspects of the organization's business. ISO 9001:2000 does not use the term project but focuses on what an organization needs to do to satisfy customer requirements through **product realization**. It is possible to interpret a project in ISO 9001:2000 as either instantiated through the management processes or as an instance of product realization. This Technical Report therefore includes references to Clause 5 (Management in ISO 9001:2000) and Clause 7 (Product realization) in many cases as alternative ways to interpret ISO 9001:2000.
2. **Rationale & Explanation** – Each activity in ISO/IEC 15288 is discussed in terms of how it relates to sections of ISO 9001:2000. In many cases there is not a single section of ISO 9001 but a combination of sections that cover this relationship. Where possible only the sentence or sentences that deal with the relationship are stated rather than the complete section or clause from ISO 9001:2000. However, the reference to an ISO 9001:2000 clause number is normally to a complete clause unless a precise bullet or subclause covers the requirement explicitly.
3. **Outcomes** – Since for the most part ISO 9001:2000 does not cover outcomes, these are not discussed in this Technical Report and are omitted from the ISO/IEC 15288 text column. In any case the outcomes are the results of the activities specified, so this treatment does not miss any requirements.
4. **Other missing sections of ISO/IEC 15288** – The purpose of each process is included in the Rationale/explanation section rather than in the ISO/IEC 15288 text section for ease of referencing. Notes in ISO/IEC 15288 are excluded because they contain no activities (requirements). The sections describing the contents of ISO/IEC 15288 and those discussing systems are omitted since there is no similar content in ISO 9001:2000.
5. **4.1 Quality management system – General requirements** – This section in ISO 9001:2000 is not generally used as a reference relationship to ISO/IEC 15288 because it is a summary of the requirements specified in 4.2 and Clauses 5 to 8 of ISO 9001:2000. To include it would have meant many cross-references to 4.1 and duplication of the specific sections where the precise requirement is specified. However in 5.2.2.3 f) of ISO/IEC 15288:2002, 4.1 of ISO 9001:2000 is used to cover outsourced processes since this is the only part of ISO 9001:2000 that describes outsourced processes.
6. **Other items in ISO 9001:2000 not referenced** – There are a few items in ISO 9001 where no relationship to ISO/IEC 15288 could be found. These are listed in a separate table at the back of this Technical Report for completeness.
7. **Intended use of this Technical Report** – This Technical Report has been prepared to enable a reader who is interested in comparing or contrasting the different treatment of systems in ISO/IEC 15288 and ISO 9001:2000 to quickly find the relationship and understand why a particular relationship is cited by way of the rationale and explanation text. It does not try to explain why a particular requirement exists in either International Standard.

It identifies the issues that should be addressed and is independent of the technology, life cycle models, development processes, sequence of activities and organizational structure used by an organization. The guidance and identified issues are intended to be comprehensive but not exhaustive. Where the scope of an organization's activities includes areas other than system development, the relationship between the computer system elements of that organization's quality management system and the remaining aspects should be clearly documented within the quality management system as a whole.

Clauses 4, 5 and 6 and parts of Clause 8 of ISO 9001:2000 are applied mainly at the “global” level in the organization, although they do have some effect at the “project/product level”. Each project or product development may tailor the associated parts of the organization's quality management system to suit project/product-specific requirements.

Throughout ISO/IEC 15288, “shall” is used to express a provision that is binding between two or more parties, “should” to express a recommendation among possibilities and “may” to indicate a course of action permissible within the limits of ISO 9001:2000. On the other hand, ISO 9001:2000 uses only “shall” to express a provision that is binding between two or more parties. In this Technical Report, “should” and “may” have the same meaning as stated above, i.e. “should” to express a recommendation among possibilities and “may” to indicate a course of action permissible within the limits of ISO 9001:2000 and ISO/IEC 15288. Organizations with quality management systems for developing, operating or maintaining systems based on this Technical Report may choose to use processes from ISO/IEC 15288 and ISO/IEC 12207 to support or complement the ISO 9001:2000 process model.

Systems engineering — Guidelines for the application of ISO 9001 to system life cycle processes

1 Scope

This Technical Report provides guidance for organizations in the application of ISO 9001:2000 to the acquisition, supply, development, operation and maintenance of systems and related support services. It does not add to or otherwise change the requirements of ISO 9001:2000. The guidelines provided in this Technical Report are not intended to be used as assessment criteria in quality management system registration or certification.

1.1 Purpose

This Technical Report adopts ISO/IEC 15288 systems life cycle processes as a starting point for system development, operation or maintenance and identifies those equivalent requirements in ISO 9001:2000 that have a bearing on the implementation of ISO/IEC 15288.

1.2 Field of Application

The application of this Technical Report is appropriate to systems that are

- part of a commercial contract with another organization,
- a product available for a market sector,
- used to support the processes of an organization,
- embedded in a hardware product, or
- related to software services.

Some organizations may be involved in all of the above activities; others may specialize in one area. Whatever the situation, the organization's quality management system should cover all aspects (system related and non-system related) of the business.

1.3 Limitations

This Technical Report provides guidance for software intensive systems. For guidance in software development, operation and maintenance see the companion document ISO/IEC 90003.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1

system (1)

combination of interacting elements organized to achieve one or more stated purposes

NOTE 1 A system may be considered as a product or as the services it provides.

NOTE 2 In practice, the interpretation of its meaning is frequently clarified by the use of an associative noun, e.g. aircraft system. Alternatively the word system may be substituted simply by a context dependent synonym, e.g. aircraft, though this may then obscure a system principles perspective.

[ISO/IEC 15288:2002]

NOTE 3 This is the definition used in the ISO/IEC 15288 column of Clause 3.

2.2

system (2)

set of interrelated or interacting elements

[ISO 9000:2005]

NOTE This is the definition used in the ISO 9001 column of Clause 3.

3 System Life Cycle Guidelines

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
5 System Life Cycle Processes			
5.1 Introduction			
This clause describes the requirements for the life cycle processes. It defines their purposes and outcomes, and the activities required to achieve them. An organization conducts the life cycle processes selectively to fulfil the purpose and outcomes of life cycle stages. The life cycle processes are described in four process groups as follows: Agreement processes; Enterprise processes; Project processes; Technical processes.	No Comment	N/A	N/A
5.2 Agreement Processes			
5.2.1 Introduction			
This subclause specifies the requirements for the establishment of agreements with organizational entities external and internal to the organization. The Agreement Processes consist of the following: a) Acquisition Process – used by organizations for acquiring products or services; b) Supply Process – used by organizations for supplying products or services. These processes define the activities necessary to establish an agreement between two organizations. If the Acquisition Process is invoked, it provides the means for conducting business with a supplier of products that are supplied for use as an operational system, of services in support of an operational system, or of elements of a system being developed by a project. If the Supply Process is invoked, it provides the means for conducting a project in which the result is a product or service that is delivered to the acquirer.	No Comment	N/A	N/A

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
5.2.2 Acquisition Process			
5.2.2.1 Purpose of the Acquisition Process	The purpose of the Acquisition Process is to obtain a product or service in accordance with the acquirer's requirements.	N/A	N/A
5.2.2.3 Acquisition Process Activities			
The acquirer shall implement the following activities in accordance with applicable organizational policies and procedures with respect to the Acquisition Process.	No Comment	N/A	N/A
a) Establish a plan for how the acquisition will be conducted.	Conceptually, in ISO 9001, this requirement relates to purchasing. However, the establishment of the plan for acquisition can be recognized as a part of quality planning of a product. Once an organization has decided to acquire something from others, concerns may include the evaluation and selection of suppliers.	7.1 7.4.1	The organization shall plan and develop the processes needed for product realization. The organization shall evaluate and select suppliers based on their ability to supply product in accordance with the organization's requirements.
b) Prepare a request for the supply of a product or service.	This requirement refers to the selection of suppliers. To implement this requirement means the identification of the requirements of the product to be purchased. The requirement of purchasing may include the criteria of the approval of receipt.	7.4.1 7.4.2	The organization shall evaluate and select suppliers based on their ability to supply product in accordance with the organization's requirements. Purchasing information shall describe the product to be purchased, including where appropriate a) requirements for approval of product, procedures, processes and equipment, b) requirements for qualification of personnel, and c) quality management system requirements.

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
			The organization shall ensure the adequacy of specified purchase requirements prior to their communication to the supplier.
c) Communicate the request for the supply of a product or service to identified suppliers.	This requirement is partly equivalent to 7.4.1 of ISO 9001 This requirement is partly equivalent to 7.4.2 of ISO 9001	7.4.1 7.4.2	The organization shall ensure that purchased product conforms to specified purchase requirements. The type and extent of control applied to the supplier and the purchased product shall be dependent upon the effect of the purchased product on subsequent product realization or the final product. Purchasing information shall describe the product to be purchased, including where appropriate a) requirements for approval of product, procedures, processes and equipment, b) requirements for qualification of personnel, and c) quality management system requirements. The organization shall ensure the adequacy of specified purchase requirements prior to their communication to the supplier.
d) Select a supplier.	From the view point of ISO 9001, this requirement is covered in 7.4.1 under selection followed by evaluation.	7.4.1	The organization shall evaluate and select suppliers based on their ability to supply product in accordance with the organization's requirements.
e) Negotiate an agreement with the supplier.	The intent of this requirement may include the negotiation between organization and supplier The negotiation may include the definition of purchasing information.	7.4.1 7.4.2	The type and extent of control applied to the supplier and the purchased product shall be dependent upon the effect of the purchased product on subsequent product realization or the final product. Purchasing information shall describe the product to be purchased, including where appropriate

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
	From the perspective of ISO 9001, purchasing information is decided by the organization. Where an agreement means contract, it relate to the requirement of 7.4.2 of ISO 9001, since purchasing information is included in the contract.		a) requirements for approval of product, procedures, processes and equipment, b) requirements for qualification of personnel, and c) quality management system requirements. The organization shall ensure the adequacy of specified purchase requirements prior to their communication to the supplier.
f) Assess the execution of the agreement.	If this requirement relates to an out-sourced process, the requirement of 4.1 of ISO 9001:2000 can be considered as relevant. The assessment of the execution of the agreement can be considered as a part of the control of the supplier, by the organization. One of the execution aspects of the agreement can be receiving inspection.	4.1 7.4.1 7.4.3	Where an organization chooses to outsource any process that affects product conformity with requirements, the organization shall ensure control over such processes. Control of such outsourced processes shall be identified within the quality management system. The organization shall ensure that purchased product conforms to specified purchase requirements. The type and extent of control applied to the supplier and the purchased product shall be dependent upon the effect of the purchased product on subsequent product realization or the final product. The organization shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements. The organization shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements.
g) Confirm that the delivered product or service complies with the agreement.	Confirmation of the compliance with the agreement can be considered as receiving inspection or other actions described in 7.4.3 of ISO 9001.	7.4.3	The organization shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements.
h) Make payment or provide other agreed consideration to the supplier for the product or service rendered.	ISO 9001 does not include financial issues.	None	None

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
5.2.3 Supply Process			
5.2.3.1 Purpose of the Supply Process	The purpose of the Supply Process is to provide an acquirer with a product or service that meets agreed requirements.		
5.2.3.3 Supply Process Activities			
The supplier shall implement the following activities in accordance with applicable organizational policies and procedures with respect to the Supply Process.	No Comment	N/A	N/A
a) Determine the existence and identity of an acquirer who has, or who represents a party or parties having, a need for a product or service.	ISO 9001 does not include pre-sales activities	None	None
b) Evaluate a request for the supply of a product or service to determine feasibility and how to respond.	The intent of this requirement can be recognized as the definition of the product from an ISO 9001 point of view. Then 7.2.1 and 7.2.2 may relate to this requirement.	7.2.1	The organization shall determine a) requirements specified by the customer, including the requirements for delivery and post-delivery activities, b) requirements not stated by the customer but necessary for specified or intended use, where known, c) statutory and regulatory requirements related to the product, and d) any additional requirements determined by the organization. The organization shall review the requirements related to the product. This review shall be conducted prior to the organization's commitment to supply a product to the customer (e.g. submission of tenders, acceptance of contracts or orders, acceptance of changes to contracts or orders) and shall ensure that

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
			a) product requirements are defined, b) contract or order requirements differing from those previously expressed are resolved, and c) the organization has the ability to meet the defined requirements. Records of the results of the review and actions arising from the review shall be maintained (see 4.2.4). Where the customer provides no documented statement of requirement, the customer requirements shall be confirmed by the organization before acceptance. Where product requirements are changed, the organization shall ensure that relevant documents are amended and that relevant personnel are made aware of the changed requirements. NOTE In some situations, such as internet sales, a formal review is impractical for each order. Instead the review can cover relevant product information such as catalogues or advertising material.
c) Prepare a response that satisfies the solicitation.	The intent of the preparation of response of satisfaction may be recognized as an issue of the ability of the organization. Customer communication is in 7.2.3	7.2.2. 7.2.3	This review shall be conducted prior to the organization's commitment to supply a product to the customer and shall ensure that c) the organization has the ability to meet the defined requirements. The organization shall determine and implement effective arrangements for communicating with customers in relation to b) enquiries, contracts or order handling, including amendments, and

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
d) Negotiate an agreement with the acquirer.	The same concern as 7.2.3 b) of ISO 9001 From the view point of ISO/IEC 15288, agreement is established between supplier and organization, so this requirement relates also to 5.2.2.3 d) of ISO/IEC 15288	7.2.3 b)	The organization shall determine and implement effective arrangements for communicating with customers in relation to b) enquiries, contracts or order handling, including amendments,
e) Execute the agreement according to the Supplier's established project plans and in accordance with the agreement.	ISO 9001 takes a strong qualitative rather than project management or commercial stance.	7.1	The organization shall plan and develop the processes needed for product realization. Planning of product realization shall be consistent with the requirements of the other processes of the quality management system (see 4.1). In planning product realization, the organization shall determine the following, as appropriate: a) quality objectives and requirements for the product; b) the need to establish processes, documents, and provide resources specific to the product; c) required verification, validation, monitoring, inspection and test activities specific to the product and the criteria for product acceptance; d) records needed to provide evidence that the realization processes and resulting product meet requirements (see 4.2.4).

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
f) Assess the execution of the agreement.	ISO 9001 takes a strong qualitative rather than project management or commercial stance. From the view point of ISO 9001:2000, receiving inspection and monitoring of processes may be relevant. Further 8.2.2 of ISO 9001:2000 has a consideration on the monitoring of the effectiveness of a quality management system. Monitoring and measurement may also apply (8.2.3)	7.4.3 8.2.2 8.2.3	The organization shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements. The organization shall conduct internal audits at planned intervals to determine whether the quality management system a) conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and to the quality management system requirements established by the organization, and b) is effectively implemented and maintained. The organization shall apply suitable methods for monitoring and, where applicable, measurement of the quality management system processes. These methods shall demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, correction and corrective action shall be taken, as appropriate, to ensure conformity of the product.
g) Deliver the product or service in accordance with the agreement criteria.	The same concern is described in 7.5.1 f) of ISO 9001:2000.	7.5.1 f)	The organization shall plan and carry out production and service provision under controlled conditions. Controlled conditions shall include, as applicable f) the implementation of release, delivery and post-delivery activities.
h) Accept and acknowledge payment or other agreed consideration.	There is no direct reference on payment in ISO 9001:2000.	None	None
i) Transfer the responsibility for the product or service to the acquirer, or other party, as directed by the agreement.	"Transfer of the responsibility" can be recognized as a part of the requirement of 7.5.1 f).	7.5.1 f)	The organization shall plan and carry out production and service provision under controlled conditions. Controlled conditions shall include, as applicable f) the implementation of release, delivery and post-delivery activities.

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
5.3 Enterprise Processes			
5.3.1 Introduction			
The Enterprise Processes manage the organization's capability to acquire and supply products or services through the initiation, support and control of projects. They provide resources and infrastructure necessary to support projects and ensure the satisfaction of organizational objectives and established agreements. They are not intended to be a comprehensive set of business processes that enable strategic management of the organization's business. The Enterprise Processes consist of the following: a) Enterprise Environment Management Process; b) Investment Management Process; c) System Life Cycle Processes Management Process; d) Resource Management Process; e) Quality Management Process.	No Comment	N/A	N/A
5.3.2 Enterprise Environment Management Process			
5.3.2.1 Purpose of the Enterprise Environment Management Process	The purpose of the Enterprise Environment Management Process is to define and maintain the policies and procedures needed for the organization's business with respect to the scope of this International Standard.		
5.3.2.3 Enterprise Environment Management Process Activities			
The organization shall implement the following activities in accordance with applicable organization policies and procedures with respect to the Enterprise Environment Management Process.	No Comment	N/A	N/A

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
a) Establish plans for each business area.	ISO 9001:2000 does not differentiate between short term and strategic objectives. However, the establishment of "quality" objectives is a requirement of ISO 9001:2000 (5.4.1). The intent of this requirement may be equivalent to the description of 5.4.1 and 5.4.2 a) of ISO 9001:2000. Since 5.4.1 of ISO 9001 focuses on the requirements of the QMS of the organization including the statement of policy and objectives and the requirement of 5.4.2 a) of ISO 9001, describe the requirement for planning to establish the QMS, then the establishment of a business plan may be equivalent to the overall concept of ISO 9001:2000.	5.4.1 5.4.2	Top management shall ensure that quality objectives, including those needed to meet requirements for product [see 7.1 a)], are established at relevant functions and levels within the organization. The quality objectives shall be measurable and consistent with the quality policy. Top management shall ensure that a) the planning of the quality management system is carried out in order to meet the requirements given in 4.1, as well as the quality objectives, and b) the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented.
b) Prepare system life cycle policies and procedures that implement the requirements of this International Standard and are consistent with enterprise strategic and business area plans.	In ISO 9001:2000 the requirement for "quality" policy is defined in 5.3 a) to c)	5.3	Top management shall ensure that the quality policy a) is appropriate to the purpose of the organization, b) includes a commitment to comply with requirements and continually improve the effectiveness of the quality management system, c) provides a framework for establishing and reviewing quality objectives,

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
	Also 5.4.1 where Objectives are established.	5.4.1	Top management shall ensure that quality objectives, including those needed to meet requirements for product [see 7.1 a)], are established at relevant functions and levels within the organization. The quality objectives shall be measurable and consistent with the quality policy.
c) Define, integrate, and communicate the roles, responsibilities and authorities to facilitate implementation of system life cycle processes and the strategic management of system life cycles.	Responsibility and authority are treated in 5.5.1 of ISO 9001:2000	5.5.1	Top management shall ensure that responsibilities and authorities are defined and communicated within the organization
d) Define business criteria that control progression through the system life cycle.	From the view point of ISO 9001, business criteria are defined before the implementation of a QMS. The decision making of the scope of QMS is not discussed in ISO 9001:2000	None	None
e) Conduct periodic reviews of the system life cycle model used by a project.	This concept may be considered equivalent to the top management review of ISO 9001:2000. Also reviews in this context may be expressed as internal audit.	5.6.1 8.2.2 a)	Top management shall review the organization's quality management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives. Records from management reviews shall be maintained (see 4.2.4). The organization shall conduct internal audits at planned intervals to determine whether the quality management system a) conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and to the quality management system requirements established by the organization, and

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
f) Communicate to projects the policies and procedures adopted by the enterprise in order to implement the requirements of this standard.	The concern included in this requirement is expressed in several parts of ISO 9001:2000. The most relevant part for policy is 5.3 d). As for procedures there is a basic concept in ISO 9001:2000 that the necessary documentation has to be established as a part of the QMS (5.4.1).	5.3 d) 5.4.1	Top management shall ensure that the quality policy d) is communicated and understood within the organization, and Top management shall ensure that quality objectives, including those needed to meet requirements for product [see 7.1a)], are established at relevant functions and levels within the organization. The quality objectives shall be measurable and consistent with the quality policy
5.3.3 Investment Management Process			
5.3.3.1 Purpose of the Investment Management Process	The purpose of the Investment Management Process is to initiate and sustain sufficient and suitable projects in order to meet the objectives of the organization.		
This process commits the investment of adequate organization funding and resources, and sanctions the authorities needed to establish selected projects. It performs continued qualification of projects to confirm they justify, or can be redirected to justify, continued investment.	No Comment	N/A	N/A
5.3.3.3 Investment Management Process Activities			
The organization shall implement the following activities in accordance with applicable organization policies and procedures with respect to the Investment Management Process.	No Comment	N/A	N/A

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
a) Establish new business opportunities, ventures or undertakings consistent with the business strategy and action plans of the organization.	The basic concepts of ISO 9001:2000 do not address financial/investment issues. ISO 9001 covers control of established strategies rather than development of strategies, new business lines, etc. However, planning and conduct of projects is covered in clause 7.1 of ISO 9001	None	None
b) Define projects, accountabilities and authorities.	There is no direct reference of this requirement in ISO 9001 – from an investment viewpoint. However, design and development planning responsibilities is covered in clause 7.3.1 c) of ISO 9001	None	None
c) Identify the expected outcomes of the projects.	There is no direct reference of this requirement in ISO 9001 – from an investment viewpoint. However, planning and conduct of projects is covered in clause 7.1 a) and c) of ISO 9001	None	None
d) Allocate resources for the achievement of project objectives.	There is no direct reference of this requirement in ISO 9001 – from an investment viewpoint. However, planning and conduct of projects is covered in clause 7.1 of ISO 9001, and resources are provisioned in 6.1	None	None
e) Identify any multi-project interfaces that must be managed or supported by the project. This includes the use of enabling systems used by more than one project and the use of common system elements by more than one project.	There is no direct reference of this requirement in ISO 9001 – However, planning and conduct of projects is covered in clause 7.1 of ISO 9001	None	None

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
f) Specify the project reporting requirements and review milestones that will govern the execution of the project.	There is no direct reference of this requirement in ISO 9001 – However, design and development planning is covered in clause 7.3.1 of ISO 9001	None	None
g) Authorize the project to commence execution of approved project plans, including the technical plans.	There is no direct reference of this requirement in ISO 9001 – However, design and development planning is covered in clause 7.3.1 of ISO 9001	None	None
h) Evaluate ongoing projects to confirm that: 1) projects are making progress towards achieving established goals; 2) projects are complying with project directives; 3) projects are being conducted according to system life cycle plans and procedures; 4) projects remain viable, as indicated by, for example, continuing need for the service, practicable product implementation, acceptable investment benefits.	There is no direct reference of this requirement in ISO 9001 – However, design and development planning is covered in clause 7.3.1 of ISO 9001. Also h) 1) may be part of Management Review (5.6) and h) 2) to 8.2.2 Internal audit.	None	None
i) Act to continue or redirect projects that are satisfactorily progressing or can be expected to progress satisfactorily by appropriate redirection.	There is no direct reference of this requirement in ISO 9001 – However, planning and conduct of projects is covered in clause 7.1 of ISO 9001.	None	None
j) Act to cancel or suspend projects whose disadvantages or risks to the organization outweigh the benefits of continued investments, where agreements permit this.	There is no direct reference of this requirement in ISO 9001 – However, planning and conduct of projects is covered in clause 7.1 of ISO 9001	None	None

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
5.3.4 System Life Cycle Processes Management Process			
5.3.4.1 System Life Cycle Processes Management Process Purpose	The purpose of the System Life Cycle Processes Management Process is to assure that effective system life cycle processes are available for use by the organization.		
This process provides system life cycle processes that are consistent with the organization's goals and policies, that are defined, adapted and maintained in a consistent way in order to meet the nature of individual projects, and that are capable of being applied using effective, proven methods and tools.	No Comment	N/A	N/A
5.3.4.3 System Life Cycle Processes Management Process Activities			
The organization shall implement the following activities in accordance with applicable organization policies and procedures with respect to the System Life Cycle Processes Management Process.	No Comment	N/A	N/A
a) Establish standard sets of system life cycle processes for applicable system life cycle stages.	The establishment of a QMS is expressed in 2 stages in ISO 9001:2000, i.e., definition in 4.1 a) and implementation in 5.4.2 a).	5.4.2 a)	Top management shall ensure that a) the planning of the quality management system is carried out in order to meet the requirements given in 4.1, as well as the quality objectives,
b) Establish acceptable tailoring and application policies and procedures, with approval requirements.	The establishment of a QMS is expressed in 2 stages in ISO 9001:2000, i.e., definition in 4.1 a) and implementation in 5.4.2 a).	5.4.2 a)	Top management shall ensure that a) the planning of the quality management system is carried out in order to meet the requirements given in 4.1, as well as the quality objectives,
c) Identify methods and tools that support system life cycle process execution.	The establishment of a QMS is expressed in 2 stages in ISO 9001:2000, i.e., definition in 4.1 a) and implementation in 5.4.2 a).	5.4.2 a)	Top management shall ensure that a) the planning of the quality management system is carried out in order to meet the requirements given in 4.1, as well as the quality objectives,

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
d) Establish measures wherever possible that determine performance of the implemented standard processes.	The monitoring of the QMS is directly expressed in 8.2.2 and 8.2.3 of ISO 9001:20000	8.2.3	The organization shall apply suitable methods for monitoring and, where applicable, measurement of the quality management system processes. These methods shall demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, correction and corrective action shall be taken, as appropriate, to ensure conformity of the product
e) Monitor process execution, store and analyze process measures, and identify trends with respect to enterprise criteria.	ISO 9001:2000 includes the requirement of monitoring of the QMS in 8.2.3 The analysis of data is included in 8.4 in ISO 9001:2000.	8.2.3 8.4	The organization shall apply suitable methods for monitoring and, where applicable, measurement of the quality management system processes. These methods shall demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, correction and corrective action shall be taken, as appropriate, to ensure conformity of the product The organization shall determine, collect and analyse appropriate data to demonstrate the suitability and effectiveness of the quality management system and to evaluate where continual improvement of the effectiveness of the quality management system can be made. This shall include data generated as a result of monitoring and measurement and from other relevant sources. The analysis of data shall provide information relating to a) customer satisfaction (see 8.2.1), b) conformity to product requirements (see 7.2.1), c) characteristics and trends of processes and products including opportunities for preventive action, and d) suppliers.

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
f) Identify opportunities for improvement of standard system life cycle process implementation.	ISO 9001:2000 expresses the opportunity for improvement in the management review section.	5.6.1	Top management shall review the organization's quality management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives.
g) Improve processes, methods and tools as determined.	Improvement is included in 8.5.1 of ISO 9001:2000.	8.5.1	The organization shall continually improve the effectiveness of the quality management system through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review
5.3.5 Resource Management Process			
5.3.5.1 Purpose of the Resource Management Process	The purpose of the Resource Management Process is to provide resources to projects.		
This process provides resources, materials and services to projects to support organization and project objectives throughout the life cycle. This includes a supply of educated, skilled and experienced personnel qualified to perform life cycle processes. This process assures that there is effective co-ordination and sharing of resources, information and technologies.	No Comment	N/A	N/A
5.3.5.3 Resource Management Process Activities			
The organization shall implement the following activities in accordance with applicable organization policies and procedures with respect to the Resource Management Process:	No Comment	N/A	N/A
a) Determine and provide the resource infrastructure support needed to implement the requirements of this International Standard within the organization and provide project support.	The concern of this activity may relate to the contents of the planning expressed in 5.4.2 b)	5.4.2 b)	Top management shall ensure that b) the integrity of the quality management system is maintained when changes to the quality management system are planned and implemented.

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	This requirement is mostly expressed in 6.3	6.3	The organization shall determine, provide and maintain the infrastructure needed to achieve conformity to product requirements. Infrastructure includes, as applicable a) buildings, workspace and associated utilities, b) process equipment (both hardware and software), and c) supporting services (such as transport or communication).
	and 6.4 of ISO 9001:2000.	6.4	The organization shall determine and manage the work environment needed to achieve conformity to product requirements
b) Obtain resources other than personnel that are needed to implement and support projects.	This requirement is expressed in 6.3 and 6.4 of ISO 9001:2000.	6.3	The organization shall determine, provide and maintain the infrastructure needed to achieve conformity to product requirements. Infrastructure includes, as applicable a) buildings, workspace and associated utilities, b) process equipment (both hardware and software), and c) supporting services (such as transport or communication).
		6.4	The organization shall determine and manage the work environment needed to achieve conformity to product requirements
c) Maintain and manage the pool of personnel necessary to staff ongoing projects.	ISO 9001:2000 includes the issue of human resource in 6.1,	6.1	The organization shall determine and provide the resources needed a) to implement and maintain the quality management system and continually improve its effectiveness, and b) to enhance customer satisfaction by meeting customer requirements

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
	6.2.1 and 6.2.2 a) to c)	6.2.1 6.2.2 a) to c)	Personnel performing work affecting product quality shall be competent on the basis of appropriate education, training, skills and experience. The organization shall a) determine the necessary competence for personnel performing work affecting product quality, b) provide training or take other actions to satisfy these needs, c) evaluate the effectiveness of the actions taken,
d) Motivate staff, e.g. through career development and reward mechanisms.	ISO 9001:2000 does not have a direct reference to this requirement, but the concern may be relevant to awareness issue described in 6.2.2 d).	6.2.2 d)	The organization shall d) ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives, and
e) Control multi-project management interfaces to resolve schedule conflicts:	ISO 9001:2000 does not have a direct reference to this requirement, but the concern may be relevant to the resource requirements described in 6.1 and 6.3.	6.1 6.3	The organization shall determine and provide the resources needed a) to implement and maintain the quality management system and continually improve its effectiveness, and b) to enhance customer satisfaction by meeting customer requirements The organization shall determine, provide and maintain the infrastructure needed to achieve conformity to product requirements.
1) of capacity in organizational infrastructure and supporting services and resources among ongoing projects,	Especially for design and development, ISO 9001:2000 expresses a related concern in 7.3.1	7.3.1	The organization shall manage the interfaces between different groups involved in design and development to ensure effective communication and clear assignment of responsibility.
2) from project personnel being over-committed.	No direct reference	None	None

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
5.3.6 Quality Management Process			
5.3.6.1 Quality Management Process Purpose	The purpose of the Quality Management Process is to assure that products, services and implementations of life cycle processes meet enterprise quality goals and achieve customer satisfaction.		
5.3.6.3 Quality Management Process Activities			
The organization shall implement the following activities in accordance with applicable organization policies and procedures with respect to the Quality Management Process.	No Comment	N/A	N/A
a) Establish quality management policies, standards and procedures.	ISO 9001 specifically documents the quality policy, objectives and references to procedures in a quality manual (4.2.2).	4.2.2	The organization shall establish and maintain a quality manual that includes a) the scope of the quality management system, including details of and justification for any exclusions (see 1.2), b) the documented procedures established for the quality management system, or reference to them, and c) a description of the interaction between the processes of the quality management system.
	ISO 9001:2000 includes a similar requirement in 5.1 b) : Policy	5.1 b)	Top management shall provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by b) establishing the quality policy,
	and 5.4.2 a) : establishment of QMS.	5.4.2 a)	Top management shall ensure that a) the planning of the quality management system is carried out in order to meet the requirements given in 4.1, as well as the quality objectives

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
b) Establish organization quality management goals and objectives based on business strategy for customer satisfaction.	No direct reference can be seen in ISO 9001:2000 but the concern is expressed as these requirements for top management (5.1	5.1	Top management shall provide evidence of its commitment to the development and implementation of the quality management system and continually improving its effectiveness by a) communicating to the organization the importance of meeting customer as well as statutory and regulatory requirements, b) establishing the quality policy, c) ensuring that quality objectives are established, d) conducting management reviews, and e) ensuring the availability of resources. Top management shall ensure that quality objectives, including those needed to meet requirements for product [see 7.1 a)], are established at relevant functions and levels within the organization. The quality objectives shall be measurable and consistent with the quality policy.
c) Define responsibilities and authority for implementation of quality management.	Direct reference is in 5.5.1 of ISO 9001:2000,	5.5.1	Top management shall ensure that responsibilities and authorities are defined and communicated within the organization.
d) Assess customer satisfaction and report.	ISO/IEC 15288 requires assessment of customer satisfaction but does not require to improve it. ISO 9001:2000 describes customer satisfaction issues in several relevant sections such as 5.5.2 c), 5.5.3,	5.5.2 c) 5.5.3	Top management shall appoint a member of management who, irrespective of other responsibilities, shall have responsibility and authority that includes c) ensuring the promotion of awareness of customer requirements throughout the organization. Top management shall ensure that appropriate communication processes are established within the organization and that communication takes place regarding the effectiveness of the quality management system.

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
	5.6.2 b), 5.6.3 and 8.2.1.	5.6.2 b) 5.6.3 8.2.1	The input to management review shall include information on b) customer feedback The output from the management review shall include any decisions and actions related to a) improvement of the effectiveness of the quality management system and its processes, b) improvement of product related to customer requirements, and c) resource needs. As one of the measurements of the performance of the quality management system, the organization shall monitor information relating to customer perception as to whether the organization has met customer requirements. The methods for obtaining and using this information shall be determined.
e) Conduct periodic reviews of project quality plans.	ISO 9001:2000 requires top management review as a wider concept than just quality plans so 5.6.1 is partly relevant, however, if the project is recognized as a product level of ISO 9001, periodic review is not specifically mentioned.	5.6.1	Top management shall review the organization's quality management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives. Records from management reviews shall be maintained (see 4.2.4).
f) Monitor the status of quality improvements on products and services.	There is no direct reference to quality improvement of product in ISO 9001:2000, but it is expressed the relating concern in 8.4.	8.4	The organization shall determine, collect and analyse appropriate data to demonstrate the suitability and effectiveness of the quality management system and to evaluate where continual improvement of the effectiveness of the quality management system can be made. This shall include data generated as a result of monitoring and measurement and from other relevant sources.

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
			The analysis of data shall provide information relating to b) conformity to product requirements (see 7.2.1), c) characteristics and trends of processes and products including opportunities for preventive action,
5.4 Project Processes			
5.4.1 Introduction			
The Project Processes are used to establish and evolve project plans, to assess actual achievement and progress against the plans and to control execution of the project through to fulfilment. Individual Project Processes may be invoked at any time in the life cycle and at any level in a hierarchy of projects, as required by project plans or unforeseen events. The Project Processes are applied with a level of rigour and formality that depends on the risk and complexity of the project. The Project Processes consist of the following processes: a) Project Planning Process; b) Project Assessment Process; c) Project Control Process; d) Decision-making Process; e) Risk Management Process; f) Configuration Management Process; g) Information Management Process.	No Comment	N/A	N/A

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
5.4.2 Project Planning Process			
5.4.2.1 Purpose of the Project Planning Process	The purpose of the Project Planning Process is to produce and communicate effective and workable project plans.		
This process determines the scope of the project management and technical activities, identifies process outputs, project tasks and deliverables, establishes schedules for project task conduct, including achievement criteria, and required resources to accomplish project tasks.	No Comment	N/A	N/A
5.4.2.3 Project Planning Process Activities			
The project shall implement the following activities in accordance with applicable organization policies and procedures with respect to the Planning Process.	No Comment	N/A	N/A
a) Identify the project objectives and constraints.	The term "Project" used in ISO/IEC 15288 is equivalent to the term "System" used in ISO 9001. In this sense, the relevant requirement of ISO 9001:2000 to this requirement is 5.4.1. If a project is recognized as part of product realization, then 7.1 is applicable. In this situation where design and development are conducted, 7.3.1 is considered to be included.	5.4.1 7.1	Top management shall ensure that quality objectives, including those needed to meet requirements for product [see 7.1 a)], are established at relevant functions and levels within the organization. The quality objectives shall be measurable and consistent with the quality policy. The organization shall plan and develop the processes needed for product realization. Planning of product realization shall be consistent with the requirements of the other processes of the quality management system (see 4.1). In planning product realization, the organization shall determine the following, as appropriate:

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
			a) quality objectives and requirements for the product; b) the need to establish processes, documents, and provide resources specific to the product; c) required verification, validation, monitoring, inspection and test activities specific to the product and the criteria for product acceptance; d) records needed to provide evidence that the realization processes and resulting product meet requirements(see 4.2.4). The output of this planning shall be in a form suitable for the organization's method of operations.
b) Define the project scope as established in the agreement.	From the viewpoint of ISO 9001:2000 the project scope has been defined at the time of establishing the QMS. There is no specific requirement for the establishment of scope in ISO 9001:2000. However the requirement may be implemented in the requirement of 5.4.2 a). If a project is recognized as part of product realization, then 7.1a) is applicable.	5.4.2 a) 7.1 a)	Top management shall ensure that a) the planning of the quality management system is carried out in order to meet the requirements given in 4.1. The organization shall plan and develop the processes needed for product realization. Planning of product realization shall be consistent with the requirements of the other processes of the quality management system (see 4.1). In planning product realization, the organization shall determine the following, as appropriate: a) quality objectives and requirements for the product;

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
c) Establish a work breakdown structure based on the evolving system architecture.	This requirement can be considered as an issue for Project Management. ISO 9001:2000 does not explicitly present a similar issue. However ISO 9001:2000 requires planning of product realization that is similar (7.1).	7.1	The organization shall plan and develop the processes needed for product realization. Planning of product realization shall be consistent with the requirements of the other processes of the quality management system (see 4.1). In planning product realization, the organization shall determine the following, as appropriate: b) the need to establish processes, documents, and provide resources specific to the product; c) required verification, validation, monitoring, inspection and test activities specific to the product and the criteria for product acceptance; The output of this planning shall be in a form suitable for the organization's method of operations.
d) Define and maintain a project schedule based on project objectives and work estimates.	This requirement can be considered as an issue for Project Management. ISO 9001:2000 does not explicitly present a similar issue. If a project is recognized as part of product realization, then 7.1 a), b) and c) is applicable.	7.1 b) and c)	The organization shall plan and develop the processes needed for product realization. Planning of product realization shall be consistent with the requirements of the other processes of the quality management system (see 4.1). In planning product realization, the organization shall determine the following, as appropriate: a) quality objectives and requirements for the product; b) the need to establish processes, documents, and provide resources specific to the product; c) required verification, validation, monitoring, inspection and test activities specific to the product and the criteria for product acceptance;

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
e) Define project achievement criteria for the life cycle stage decision gates, delivery dates and major dependencies on external inputs or outputs.	This requirement can be considered as an issue for Project Management. ISO 9001:2000 does not explicitly present a similar issue. However ISO 9001:2000 require the establishment of requirements for a product, this can be recognized as similar to it (7.2.1). If a project is recognized as part of product realization, then 7.1b) and c) is applicable	7.2.1 7.1 b) and c)	The organization shall determine b) requirements not stated by the customer but necessary for specified or intended use, where known, c) statutory and regulatory requirements related to the product, and d) any additional requirements determined by the organization. The organization shall plan and develop the processes needed for product realization. Planning of product realization shall be consistent with the requirements of the other processes of the quality management system (see 4.1). In planning product realization, the organization shall determine the following, as appropriate: b) the need to establish processes, documents, and provide resources specific to the product; c) required verification, validation, monitoring, inspection and test activities specific to the product and the criteria for product acceptance;
f) Define the project costs and plan a budget.	ISO 9001:2000 does not include financial issues as a requirement.	None	None
g) Establish the structure of authorities and responsibilities for project work.	In ISO 9001:2000 Top management set responsibilities and authorities within the organisation (5.5.1) and at a project level.	5.5.1	Top management shall ensure that responsibilities and authorities are defined and communicated within the organization.
	If a project is recognized as part of product realization, then 7.1b) and c) is applicable and	7.1 b) and c)	The organization shall plan and develop the processes needed for product realization. Planning of product realization shall be

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
	by inference 7.3.1 where design and development is carried out.		consistent with the requirements of the other processes of the quality management system (see 4.1). In planning product realization, the organization shall determine the following, as appropriate: b) the need to establish processes, documents, and provide resources specific to the product; c) required verification, validation, monitoring, inspection and test activities specific to the product and the criteria for product acceptance;
h) Define the infrastructure and services required by the project.	The same concern is expressed in 6.3 and 6.4 of ISO 9001:2000 If a project is recognized as part of product realization, then 7.1b) is also applicable	6.3 6.4 7.1 b)	The organization shall determine, provide and maintain the infrastructure needed to achieve conformity to product requirements. Infrastructure includes, as applicable a) buildings, workspace and associated utilities, b) process equipment (both hardware and software), and c) supporting services (such as transport or communication). The organization shall determine and manage the work environment needed to achieve conformity to product requirements The organization shall plan and develop the processes needed for product realization. Planning of product realization shall be consistent with the requirements of the other processes of the quality management system (see 4.1). In planning product realization, the organization shall determine the following, as appropriate: b) the need to establish processes, documents, and provide resources specific to the product;

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
i) Plan the acquisition of materials, goods and enabling system services supplied from outside the project.	Acquisition issues are handled in several parts of ISO 9001:2000. One is in 7.1 as outsourced processes. and in 7.4.1.	7.1 7.4.1	The organization shall plan and develop the processes needed for product realization. Planning of product realization shall be consistent with the requirements of the other processes of the quality management system (see 4.1). In planning product realization, the organization shall determine the following, as appropriate: a) quality objectives and requirements for the product; b) the need to establish processes, documents, and provide resources specific to the product; c) required verification, validation, monitoring, inspection and test activities specific to the product and the criteria for product acceptance; d) records needed to provide evidence that the realization processes and resulting product meet requirements(see 4.2.4). The output of this planning shall be in a form suitable for the organization's method of operations. The organization shall ensure that purchased product conforms to specified purchase requirements. The type and extent of control applied to the supplier and the purchased product shall be dependent upon the effect of the purchased product on subsequent product realization or the final product. The organization shall evaluate and select suppliers based on their ability to supply product in accordance with the organization's requirements. Criteria for selection, evaluation and re-evaluation shall be established. Records of the results of evaluations and any necessary

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ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
5.4.3 Project Assessment Process			
5.4.3.1 Purpose of the Project Assessment Process	The purpose of the Project Assessment Process is to determine the status of the project.		
This process evaluates, periodically and at major events, the progress and achievements against requirements, plans and overall business objectives. Information is communicated for management action when significant variances are detected.	No Comment	N/A	N/A
5.4.3.3 Project Assessment Process Activities			
The project shall implement the following activities in accordance with applicable organization policies and procedures with respect to the Project Assessment Process.	No Comment	N/A	N/A
a) Assess project status against appropriate project plans to determine actual and projected cost, schedule and quality variations.	ISO 9001:2000 does not have an equivalent concept of assessment of QMS other than internal audit.	8.2.2	The organization shall conduct internal audits at planned intervals to determine whether the quality management system a) conforms to the planned arrangements (see 7.1), to the requirements of this International Standard and to the quality management system requirements established by the organization, and b) is effectively implemented and maintained. An audit programme shall be planned, taking into consideration the status and importance of the processes and areas to be audited, as well as the results of previous audits. The audit criteria, scope, frequency and methods shall be defined. Selection of auditors and conduct of audits shall ensure objectivity and impartiality of the audit process. Auditors shall not audit their own work.

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
			The responsibilities and requirements for planning and conducting audits, and for reporting results and maintaining records (see 4.2.4) shall be defined in a documented procedure. The management responsible for the area being audited shall ensure that actions are taken without undue delay to eliminate detected nonconformities and their causes. Follow-up activities shall include the verification of the actions taken and the reporting of verification results (see 8.5.2). The organization shall apply suitable methods for monitoring and, where applicable, measurement of the quality management system processes. These methods shall demonstrate the ability of the processes to achieve planned results. When planned results are not achieved, correction and corrective action shall be taken, as appropriate, to ensure conformity of the product
b) Perform quality assurance in accordance with project plans.	However, the statement of this requirement can be considered as equivalent to the monitoring of processes, as in 8.2.3 of ISO 9001:2000. Quality assurance is the base concept of ISO 9001:2000, so there is no explicit explanation of performance of quality assurance requirements. However, Quality assurance in ISO/IEC 15288 is closer in concept to quality review, verification and validation in ISO 9001:2000. Some of the requirements of ISO 9001:2000 may be found as relevant such as 7.3,	8.2.3	At suitable stages, systematic reviews of design and development shall be performed in accordance with planned arrangements (see 7.3.1) a) to evaluate the ability of the results of design and development to meet requirements, and b) to identify any problems and propose necessary actions. Participants in such reviews shall include representatives of functions concerned with the design and development stage(s) being reviewed. Records of the results of the reviews and any necessary actions shall be maintained (see 4.2.4).

ISO/IEC 15288 text	Rationale / Explanation	ISO 9001 para.	ISO 9001 text
		7.3.5	Verification shall be performed in accordance with planned arrangements (see 7.3.1) to ensure that the design and development outputs have met the design and development input requirements. Records of the results of the verification and any necessary actions shall be maintained (see 4.2.4).
		7.3.6	Design and development validation shall be performed in accordance with planned arrangements (see 7.3.1) to ensure that the resulting product is capable of meeting the requirements for the specified application or intended use, where known. Wherever practicable, validation shall be completed prior to the delivery or implementation of the product. Records of the results of validation and any necessary actions shall be maintained (see 4.2.4).
	7.4,	7.4.3	The organization shall establish and implement the inspection or other activities necessary for ensuring that purchased product meets specified purchase requirements. Where the organization or its customer intends to perform verification at the supplier's premises, the organization shall state the intended verification arrangements and method of product release in the purchasing information
		7.5.1	The organization shall plan and carry out production and service provision under controlled conditions.
	7.5,	7.5.2	The organization shall validate any processes for production and service provision where the resulting output cannot be verified by subsequent monitoring or measurement. This includes any processes where deficiencies become apparent only after the product is in use or the service has been delivered.