

Purpose/Summary:

The Aerospace Industry is reliant upon a complex supply chain and a wide range of sophisticated equipment, processes, skills and competent people.

Certification to the 9100 Standard provides assurance that a Company's Management System meets specified requirements. However all Companies are always reliant upon a workforce whose skills and knowledge reflect today's needs and continually grow to meet the changes and challenges they face. It is therefore the purpose of this guidance document to describe a generic five step process for which the skills, knowledge, personal attributes and experience are managed and maintained in accordance with 9100 paragraph 6.2.2 'Competence, Training and Awareness'

Definitions:

- **Assessment** - Systematic process of collecting and analyzing data to determine the efficiency / effectiveness of an organisation, product, process, system, or a person's competence.
- **Assessment Body** - An internal / external organisation or authorised person that governs the competence of people.
- **Authentication Body** - An organisation that develops and maintains curriculums associated with their area of specialism. They offer examinations, accreditation and maintain their range of qualifications.
- **Autonomy** - The ability to work independently
- **Body of Knowledge** - Is the framework that defines the current boundaries of knowledge of a particular IAQG profession within the aerospace industry. They are set out as simple statements of knowledge that can be used and developed by user groups such as educational establishments, training establishments and organisations that need to define guidance or competencies for their aerospace professionals.
- **Competence** - Demonstrated personal attributes and demonstrated ability to apply knowledge and skills.
- **Experience** - the accumulation of knowledge or skill that results from direct participation in events or activities over a period of time.
- **Field** - A related group of professions, *e.g. Quality, Finance, Engineering, Manufacturing*
- **Knowledge** - What we have learnt and the information we possess (education, training, experience, etc.) The combination of data and information, to which is added expert opinion, skills and experience, to result in a valuable asset which can be used to aid decision making.
- **Personal Attributes** – The expected behaviours required for a particular job, role or activity.
- **Position Assessment** - The process of reviewing a standard, process or task to identify and define the skills & competencies required to accomplish the responsibilities of the defined position.
- **Profession** - General term used to describe a job or the major activity.
- **Proficiency Level** - The measurable quality of having the appropriate level of skill and capability in the command of fundamentals deriving from practice, familiarity and knowledge.
- **Resume** - A collection of personal professional information including knowledge, skills, and experience
- **Qualification (internal or external)** - documented demonstration of the ability to fulfil specified requirements.
- **Skill** - Ability to perform a particular task. The quality of being able to do something that is acquired or developed through training or experience. Synonymous with ability.
- **Strategy Stream** - Are groups that focus on a particular field within the IAQG.
- **Training** - The process to provide and develop knowledge, skills and behaviors to meet requirements. (ISO 10015:1999).

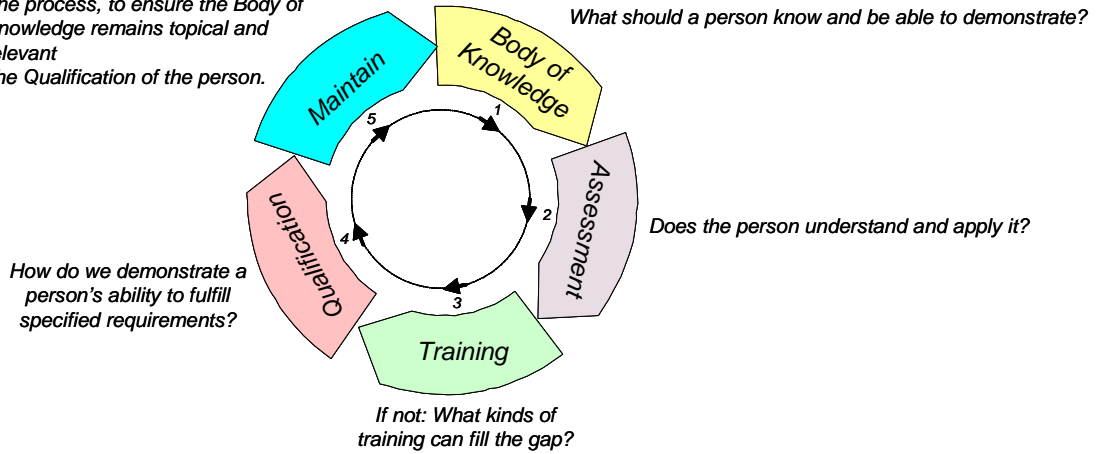
Acronyms: None

Process Flow for Competence Management:

This Guideline is a cyclic and continuous process, answering (*step by step*) the following questions:

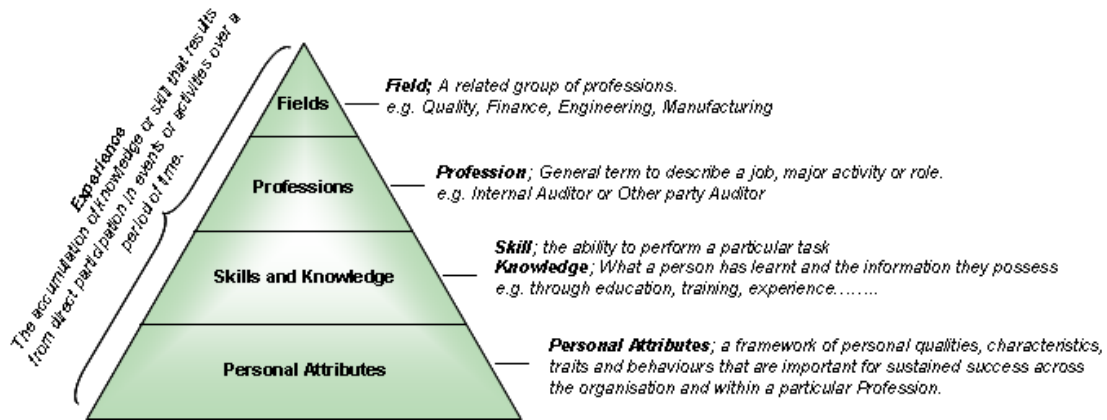
How do we maintain both:

- a. The process, to ensure the Body of Knowledge remains topical and relevant
- b. The Qualification of the person.



Requirements:

- 1. **Body of Knowledge** – The Body of Knowledge architecture is illustrated below.



Body of Knowledge Architecture

Appendix 1: shows a method of developing a Body of Knowledge and proficiency levels in up to five possible categories.

Appendix 2: shows an example of a Body of Knowledge template which could be used for an individual or a team of individuals as a management tool.

Appendix 3: shows how this template has been used to provide the example of an Auditor Body of Knowledge.

The IAQG Website contains Body of Knowledge examples that relate to our Industry.

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2. **Assessment** – The assessment shall be made against a standard set of competencies defined within the relevant Body of Knowledge. To support the assessment process the Body of knowledge template (*please refer to Appendix 2 and 3*) may be used in conjunction with the Proficiency Level as shown in Appendix 1 to describe the level of proficiency which constitutes the profession being assessed. Alternatively, the Body of Knowledge template may simply indicate which competence statements are relevant for a particular profession.
- An example Body of Knowledge for a Quality Auditor is provided within Appendix 3.
- a) The candidates Competence Records may include:
 - i. A Resume.
 - ii. A portfolio of evidence to demonstrate the level of proficiency acquired for the competences required for accreditation and/or qualification against the profession sought.
 - b) The assessment body will provide a written reply to the applicant giving the results of the assessment and identifying any required further development needed to meet shortfalls against the level of required proficiency in the competencies concerned.
3. **Training** – The type of training, (e.g. classroom, e-learning or on the job) shall be in accordance with the current Body of Knowledge, appropriate for its purpose) to achieve the knowledge required, and level of competence to be acquired.
4. **Qualification** – Awarded to persons who demonstrate the required competence.
5. **Maintain** – There are two aspects to maintain:
- a) **Maintain the Body of Knowledge**
The owner of the Body of Knowledge should review and update its relevance and effectiveness to industry and the professions to which it relates. This should be carried out when significant requirements or change occurs and/or at a prescribed periodicity.
 - b) **Maintain Qualifications**
Qualified persons should continuously update their competence in line with the requirements of the Body of Knowledge and Company requirements.

Appendix 1 – Developing a Body of Knowledge

Before creating a Body of Knowledge for a particular IAQG profession within the aerospace industry, it is recommended that the creator will have carried out research to ensure there is not one currently available or in development, e.g. there are Body's of Knowledge in existence for Project Management, Legal and Medical Professions and also within the IAQG community.

When developing a Body of Knowledge the creator, who will have been nominated by the relevant IAQG People Capability Strategy Stream, is advised to take into consideration a range of factors. These factors will include and involve knowledge or subject experts, leading practitioners, those carrying out the particular activity, standards, specifications, legal and regulatory requirements.

When interviewing people to gather data the creator is also advised to use a range of approaches to ensure consistency and accuracy of data. These approaches may be in the form of one to one interviews, co-counselling, facilitation of group sessions and, where beneficial, through direct observation of a particular activity. Once complete it is recommended that the Body of Knowledge is reviewed periodically for improvements.

The diagrams below provide a simple approach to capture the key data which is then transferred onto a table similar to the example shown within Appendices 2 and 3.

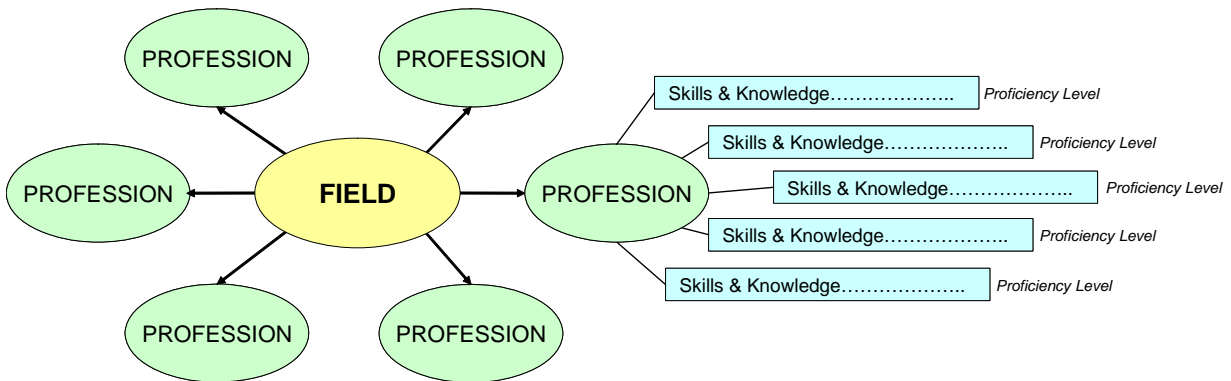


Diagram A – Breakdown of simple approach to capture a Body of Knowledge

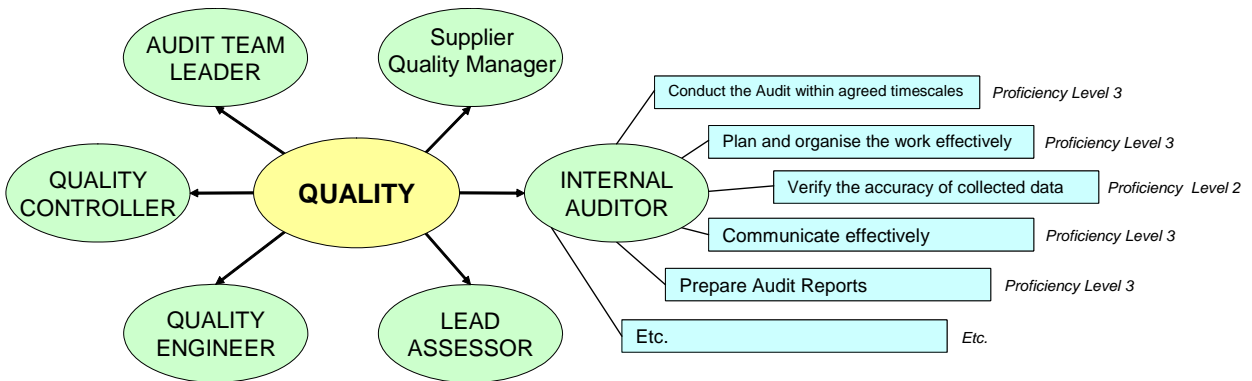


Diagram B – How the approach may be applied to the Internal Auditor role

Appendix 1 – Developing a Body of Knowledge (continued)

Typical examples of Proficiency Levels that may be used in conjunction with the above approach are shown below.

The number of levels may depend upon the complexity of the process or an existing Company approach.

Descriptors	Levels				
	1 Basic	2 Capable	3 Proficient	4 Specialist	5 Expert
Knowledge	Adequate education.	Limited knowledge of the subject, its main processes, methods and tools.	Good level of knowledge in all aspects of the subject, all its processes, methods and tools. Capable of explaining the application of the processes.	High level of knowledge in all aspects of the subject, all its processes, methods and tools to assess and validate improvements. Ability to coach others on contents and methods in the context of their work place.	Extensive knowledge of the subject, both internal to their company and external. Contributes to set externally recognised standards. Ability to define contents and methods for using knowledge effectively in influencing and developing international processes. Ability to influence the process with ones knowledge.
Experience	No appropriate experience in this subject.	Sufficient experience to deal with recurrent activity.	Has enough experience on the subject to also deal with unforeseen issues.	Wide proven experience of the subject. Is recognised specialist within the field of expertise	Demonstrates world class expertise, in recognised international organisations.
Autonomy	Ability to perform basic routines under permanent supervision.	Is capable to perform standard tasks under punctual supervision.	Is able to perform tasks autonomously within a predefined framework.	Capable of performing tasks in complex situations and leading changes or reengineering.	Capable of performing tasks in complex situations and leading changes industry-wide.

The descriptors under the categories Experience and Autonomy take into consideration Skills and Personal Attributes.

In terms of Personal Attributes an organisation may wish to take into considerations its Values and Ethics and other behavioural characteristics such as those below:

- Team working, Communication, Direction & Purpose, Innovation & Problem Solving, Mutual Trust and Respect, Confidentiality, and Trustworthiness, etc.

The IAQG Website contains Body of Knowledge examples that relate to our Industry.

Appendix 2 – Example of How to Illustrate a Body of Knowledge

		FIELD - e.g. Quality, Engineering or Procurement?		PROFESSION - Describe here a general term that describes a job, e.g. Auditor or Inspector		ROLES		
		Description						
KNOWLEDGE	Understands:	<p>KNOWLEDGE - Within these Rows enter text in the form of knowledge questions from the Body of Knowledge.</p>						<p>Use these Columns to identify the types of roles, activities or jobs that may be applicable to a particular profession.</p>
SKILLS	Is able to:	<p>SKILLS - Within these Rows enter text that describes the range of skills specified in the Body of Knowledge</p>						
PERSONAL ATTRIBUTES	Demonstrates:	<p>Define within the following rows statements from the Body of Knowledge or statements from Company sources that will enable judgment of the person's personal attributes.</p>						
EXPERIENCE		<p>Describe here how often, over what time period and to what level of standard a person is expected to demonstrate their competence.</p>						

Where the Horizontal axis intersects with the Role types, you may wish to indicate whether this Knowledge, Skill, Personal Attribute or Experience is applicable with an X or similar.

Alternatively you may wish to apply a number to indicate a particular proficiency level as shown with Appendix 1.

Equally an organisation may wish to use the template to indicate competence requirements and the current situation using a locally devised indicator.

e.g. Need identified Training Arranged Trained Gaining experience Competent



Appendix 3 – Example of Body of Knowledge

FIELD – Quality
PROFESSION – Auditor

Note: The columns a and b within the Other Party roles relate to:
a = Auditors who meet the requirements for auditing against iso9001:2000 within the Aerospace Industry
b = Auditors who audit within 3 possible ASCS scopes; 9100, 9110 or 9120

		Description	ROLES						
			Internal			Other Party			
COMPETENCE	KNOWLEDGE	Understands:	Internal Auditor	Independent Auditor	Independent Lead Auditor	Aerospace Industry Auditor	Aerospace Industry Lead Auditor		
			a	b	a	b			
KNOWLEDGE	KNOWLEDGE	The application of Management Systems to different organisations							
		The Interaction between components of the Management System							
		Quality management system standards, applicable procedures / other Management System documents used as audit criteria							
		Organisational size, structure, functions and relationships							
		General business processes and related terminology							
		Cultural and social customs of the auditee							
		Local, regional and national codes, laws and regulations							
		Contracts and agreements							
		Appropriate International treaties and conventions							
		Other requirements to which the organisation subscribes							
		The infrastructure that develops and governs Auditor roles and competence within their NAIA							
		Quality terminology (ref. IAQG Glossary of Quality - Terms International Dictionary)							
		Quality management principles and their application							
		Quality management tools and their application (e.g. SPC, FMEA, etc.)							
		Aeronautical sector-specific terminology							
		Technical characteristics of processes and products, including services							
		Aeronautical sector-specific processes and practices							
		SKILLS	SKILLS	Is able to:					
				Apply audit principles, procedures, techniques and tools					
				Plan and organize the work effectively					
Conduct the audit within the agreed time schedule									
Prioritise and focus on matters of significance									
Collect information through effective interviewing, listening, observing and reviewing documents, records and data									
Use and understand the appropriateness and consequences of using sampling techniques for auditing									
Verify and validate the accuracy of collected information									
Confirm the sufficiency and appropriateness of audit evidence to support audit findings and conclusions									
Assess those factors that can affect the reliability of the audit findings and conclusions									
Use work documents to record audit activities									
Prepare audit reports									
Maintain the confidentiality and security of information									
Communicate effectively (written and oral techniques)									
Recognise the differences between and priority of the reference documents in order to comprehend the scope of the audit and apply audit criteria									
Apply reference documents to different audit situations									
Use and interpret information systems and technology to comprehend the scope of an audit in terms of authorisation, security, distribution and control of documents data and records									
Plan the audit and make effective use of resources during the audit									
Represent the audit team in communication with the audit and auditee									
PERSONAL ATTRIBUTES	PERSONAL ATTRIBUTES			Demonstrates:					
		Ethical Behavior – Fair, truthful, sincere, honest, discreet and understands/accommodates different cultures							
		Open Mindedness – willing to consider alternative ideas or points of view, is impartial							
		Diplomacy – tactful in dealing with people at all levels in an organisation							
		Observance – actively aware of physical surroundings and activities							
		Perceptiveness – instinctively aware of and able to understand situations							
		Versatility – adjusts readily to different situations							
		Tenacity – persistent, focused on achieving objectives							
		Punctuality – Audits, reports, meetings and responses to questions are dealt with promptly							
		Decisiveness – reach timely objective conclusions based on logical reasoning and analysis							
EXPERIENCE	EXPERIENCE	Self Reliance – acts and functions independently while interacting effectively with others							
		Conflict Management – applies negotiation techniques to resolve problems							
		Trustworthiness – displays integrity and thus provides the basis for reliance on judgments							
		Confidentiality – demonstrates value and ownership of information and do not disclose without authority unless there are legal or professional obligations							
		Leadership – Influences, coaches, provides direction and motivates others to achieve a recognised objective.							
EXPERIENCE	EXPERIENCE	Undertakes a minimum of two internal audits per year within their immediate area within their Department/Function							
		Participates in a minimum of two audits per year within another Department or Function as part of an Audit Team							
		Leads an Audit Team on a minimum of two audits per year within another Department or Function							
		Complies with IRCA Training, Work experience and Audit experience requirements as defined in the latest issue of IRCA/C5							
		Actively maintains Continuous Professional Development (CPD)							