What Should I Consider When Implementing a Competency-Based Training System

By Kevin Bogert

What should be considered when implementing a competency-based training system?

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Government regulations, directives, and guidelines are gradually catching up to ISO standards in the requirement of competency-based training. In this paper, I identify the key ISO standards that require competency-based training, a breakdown of the requirements that your electronic system should have, and what you should include in the competency -based training matrix.

For years many companies electronically tracked employee training and provided exams to determine that an employee was qualified to do the assigned job. With the implementation of ISO 9001:2015 the training requirements changed. A new requirement for the organization is to establish a process for assessing existing staff competencies under its control. Your organization must ensure that these individuals are competent based on appropriate education, training, and experience. Finally, your organization must retain appropriate documentation as evidence of competence.

Many systems on the market do an outstanding job of tracking training, providing online courses, and assessing the knowledge learned from the content through testing. What is missing is the competency component of these system in the assessment of existing staff competencies. Your organization must have evidence that all staff which work under your organization's control are competent, and that evidence of continuing competence is maintained as documented information in accordance ISO 9001:2015 Clause 7.2. Your organization must maintain documented information such as a skills matrix, training records, resumes, job descriptions, and the assessment of competence.

ISO Requirements

A review of the most widely reference ISO standards reveal the need for competent staff and assessment of their competence.

ISO 9001:2015 Clause 7.2 requires the organization must determine the necessary competence, ensure that these individuals are competent, take actions to acquire the necessary competence, evaluate the effectiveness of actions taken, and retain documentation as evidence of competence.

ISO 13485:2018 Clause 6.2 requires that the medical device organizations shall determine the necessary competence, provide training or take actions to satisfy competency gaps, evaluate the effectiveness of the actions taken, and maintain records of education, training, skills and experience.

ISO 16949 (IATF 16949) Section 6.2.2 Competence requires that automotive organizations to define the knowledge and skill needed for each employee to conduct their job and maintain updated written procedures for identifying these training needs and how personnel will achieve competence in achieving conformity to product requirements. Provide a way to prove whether the training was effective (test for understanding), and to measure how aware employees are of how relevant and important their activities are to achieving quality management goals. Keep training records and records of employee education, skills and experience.

ISO 22000:2018 Clause 7.2 requires that food and beverage organizations determine the necessary competence of person(s), that these persons are competent, that food safety team has a combination of multidisciplinary knowledge and experience, that the organization take action to acquire the necessary competence, evaluate the effectiveness of the actions taken, and retain the appropriate documented information as evidence of competence.

ISO 45001:2018 Clause 7.2 Competence requires organizations to determine the competence requirements for those workers that affect, or could affect, its OH&S performance. Once these competence requirements have been determined the organization must then ensure that those workers possess the necessary competence, including the ability to identify hazards, based on appropriate education, training or experience. means of the following mechanisms:

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If workers are deemed not to be competent, the organization is required to take action in order to acquire the necessary competence. The actions taken to raise competence to the required level need to be evaluated for effectiveness by means of the following mechanisms:

- Introduction of the workers on their understanding of their competence to perform the relevant tasks following the prescribed training,
- Assessment of competence of the workers by observing them undertake the relevant tasks following the prescribed training,
- Peer review or supervision following the required training.

AS 9100D Section 7.2 has the same requirements of ISO 9001 clause 7.2. It requires aerospace organizations to determine the necessary competence of person(s) doing work under its control that affects the performance and effectiveness of the quality management system; ensures that these persons are competent on the basis of appropriate education, training, and experience; requires organizations to take action to acquire the necessary competence, and evaluate the effectiveness of the actions taken; and that organizations must retain appropriate documentation as evidence of competence.

Competency-Based Training Programs

The competency-based programs will vary greatly and are unique to the product being manufactured or services provided. The type of product manufactured and the level of education, training, and experience of the personnel determine the elements of a competency-based training program. To establish and maintain a competency-based training program, the following steps must be taken:

1. Identify competency-based training requirements and needs,
2. Deliver training content,
3. Evaluate the effectiveness of training.

Training is provided for many reasons. Typically, a company performs training due to improving employee skills, compliance requirements, safety issues, changes to processes, quality improvements, and so on. Training alone is not enough to demonstrate competence; this must be demonstrated through tests, observations, and assessments.

Auditors need to find objective evidence in order to determine that the competency requirements have been met. An auditor may ask such questions, as:

- Are records maintained and periodically reviewed?
- How does your organization determine the necessary skills and competence of person(s) doing work under its control that affect its QMS?
- Are training matrixes periodically reviewed for updates? Is this documented?
- What type of assessments do you use to evaluate competence?
- How and when do you perform assessments?
- What actions are taken when training is deemed ineffective?
- What actions do you take when an employee is not competent to perform the tasks assigned?

Identify competency-based training requirements and needs

Organizations should establish a process for assessing existing staff competencies against changing business needs and prevailing trends. The first step is to identify which competencies are needed in line with the stated job functions. These competencies should be supported by training, education, and experience. To expand on this, the organization a matrix must be built for each position which is tied back to the approved job description. Starting with the job description the organization should identify the education level, type of education, and experience. For example, a laboratory technician may require a bachelor's degree in chemistry or biochemistry with 2 years of lab experience in the biotechnology or pharmaceutical industry. Documented proof that the individual has the education and experience must be captured and available to auditors.

The next step is to build a matrix comparing a specific job to the actual training requirements and the competence level required of each training requirement. The types of training should include:

- New Employee Orientation (Company and Department)
- Department-Specific Training
- Job-Specific Technical Training
- Work-Area-Specific Training (Safety, SOP, etc.)
- Industry-Specific ISO and Regulatory Training
- Supervisory Training

Once an organization has identified all the training requirements and the level of competency for each requirement, you assign these requirements and competency levels to individual employees. Compare these requirements and competencies against the training and competency each employee has completed. The gap between required training competence and completed training defines what additional training is required of the employee. Training alone does not determine competence. You must evaluate the effectiveness of the training and the competence of the individuals through skill checks and evaluations.

Evaluate the effectiveness of training

What is important is the evaluation of training effectiveness and ongoing evaluation of how competent the employees are performing their duties. By performing such evaluations, the organization will be able to determine if additional training is required to achieve competency, the quality of the training material, or if staff should be reassigned due to inability to achieve competency.

Comparing pre-training evaluations to post-training evaluations is the easiest way to assess the effectiveness of training material, but not the capability of the employee to perform the job. The question is which type of assessment should be used. The following are standard ways to assess training:

- Take a test at the beginning and end of training
- Evaluate in a real time situation with a subject matter expert (SME)
- Prepare self-assessment
- Feedback from the team or coworkers
- Manager assessment
- Customer assessment

The above process will give you what is known as a 360-degree assessment. This will yield the most accurate results because it rates the individual as objectively as possible from every angle[1]. The 360-degree assessment begins with the employee self-assessment. This is followed with assessments completed by others, such as, team members, supervisor, subject matter experts, trainers, and even customers, as shown in figure 1. Once all assessments have been completed, the average of the scores are taken to find the competence score.

	S	Appraiser type	Employee				Appraiser			
			User ID	Name	Department	Position	User ID	Name	Department	Position
☑	⏻	Self-evaluation	1091	Mark Wilson	QA - Quality Assurance	Manager - Manager	1091	Mark Wilson	QA - Quality Assurance	Manager - Manager
☐	⏻	Peers	1091	Mark Wilson	QA - Quality Assurance	Manager - Manager	107111	Karry Oliveira	QA - Quality Assurance	Manager - Manager
☐	⏻	Peers	116107	Tetsuo Kendo	IT - Information Technology	Development - Development	kobe	Kobe Bryant	IT - Information Technology	Support - Support 2nd level
☐	⏻	Subordinates	1091	Mark Wilson	QA - Quality Assurance	Manager - Manager	097115	Ana Schneider	QA - Quality Assurance	Manager - Manager
☐	⏻	Subordinates	1091	Mark Wilson	QA - Quality Assurance	Manager - Manager	102115	1Harry B. Summers	QA - Quality Assurance	Manager - Manager
☐	⏻	Subordinates	116107	Tetsuo Kendo	IT - Information Technology	Development - Development	0001	Harry O. Summers	QA - Quality Assurance	Manager - Manager
☐	⏻	Subordinates	116107	Tetsuo Kendo	IT - Information Technology	Development - Development	Daniel.Thomas	Daniel Thomas	01 - Sales	HR - Trainee - Trainee
☐	⏻	Leader	1091	Mark Wilson	QA - Quality Assurance	Manager - Manager	kevint	Kevin Turey	Administrative - Administrative	CEO - Chief Executive Officer

Figure 1 – Results from a 360-performance review

After the assessments have been completed, the individual's competence is determined, gaps identified, and a new training path determined. What is import is to document all assessments and determinations for additional training.

A competence radar chart, shown in figure 2, is a tool that can be used to get a quick look at the strengths and weakness in the competence of an individual employee. The chart should provide a drill down capability to have a look at the actual data points.
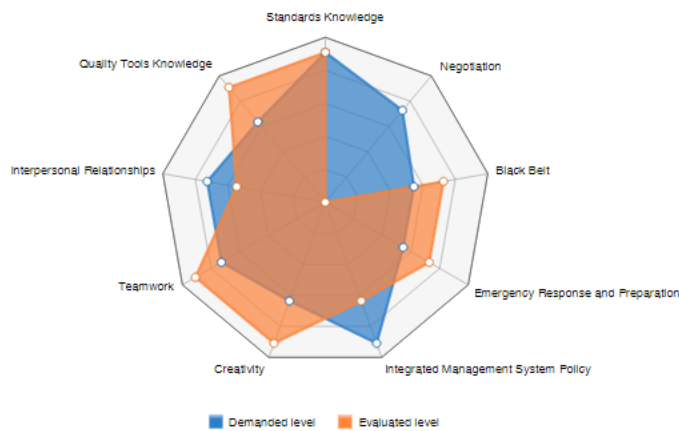
Figure 2 – Competence Radar Chart

What is missing in most electronic employee training systems?

Most electronic training systems provide the basic training documentation requirements as required by ISO standards, government regulations, and international guidelines. These systems can define training matrixes, deliver SOP based training from the document management system, provide online training content, and even provide quizzes at the end of training. What is missing is the ability to tie together the human resource piece of employment hiring, where qualifications are determined, with the employee assessments of competency to perform the job functions.

There are solutions on the market that can address the limitations outlined in this article. If your organization has this issue, you should look at the next generation of competency-based training systems that provide all the components listed in this article. These systems come with full training lifecycle management and the capability to quickly automate your process, thus eliminating most paper document needs of the current systems on the market. Finally, the systems will allow the organization to document information such as a skills matrix, training records, resumes, job descriptions, and the assessment of competence all on one QMS platform.

About the Author

Kevin Bogert is currently Managing Member of Azimuth Compliance Consulting.
He has more than 35 years of business experience, 29 of them in the life science industry, where he has been involved in global implementations of training, quality, and regulatory systems. His background includes statistics, quality and regulatory systems, computer and process validation, and automation of manufacturing processes. You can reach Kevin by e-mail at kbogert@azimuthcc.com, by phone at (215) 990-9123, or visit his company website at www.azimuthcc.com.

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[1]William J. Rothwell and Jim M. Graber, Competency-Based Training Basics (New York: ASTD, 2010)