INTERNATIONAL WORKSHOP AGREEMENT

IWA 30-1

First edition
2019-10

Competence of standards professionals —

Part 1:
In companies

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IWA 30-1:2019
https://standards.iteh.ai/catalog/standards/iso/245a768e-a86e-4429-9a82-104c925a69c5/iwa-30-1-2019

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso .org/iso/foreword.html.

International Workshop Agreement IWA/30-1 was approved at a workshop hosted by KATS (Korean Agency for Technology and Standards) and KSA (Korean Standards Association), held in Jeju, Korea, in May 2019.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Competence development and education for people performing a job or tasks related to standardization activities is naturally one of the key interests of national standards bodies, standards-developing organizations and industries involved in standardization activities, as well as for education providers such as universities, professional associations and consultancy firms. Effective competence development should be based on the competence requirements of these companies and standards-developing organizations.

This rationale is why efforts have been made to develop knowledge or skill sets and qualification programmes for standards professionals at the international, regional and national levels. At the international level, ISO created a task force team under the Technical Management Board (TMB) to develop capability requirements for chairs, secretaries and project editors. At the regional level, relevant projects and activities have been carried out with published results, such as APEC's Education Guideline 5[25] and a research project undertaken by the European Commission (EC). At the national or organizational level, several countries or organizations have already tried to define a knowledge system, required skill sets and a qualification programme for standards professionals, including China, Japan, Korea and the United States.

These efforts have presented a need for competence requirements for standards professionals. To deliver objectivity in this document, a global survey was carried out to identify the common and specific competences required and then recommended for standards professionals in companies and standards-related organizations. This document is based on APEC's Education Guideline 6[26], the responses to the global survey and an analysis of the responses. It presents the tasks and the related competences for standards professionals in two separate parts: in companies (this document) and in standards-related organizations (ISO/IWA 30-2).

This document includes the following topics:

— the structure of tasks and sub-tasks of standards professionals in companies;

— the common competences for standards professionals in companies;

— the competences by task for standards professionals in companies;

— a career roadmap for standards professionals in companies.

This document does not cover the certification of persons or qualifications for personnel issues. Also, this document in principle does not focus on competence for conformity assessment tasks because this aspect is defined in other existing ISO and IEC documents, e.g. ISO/IEC 17025.

This document is also the result of collecting the practices of different interested parties and common competence requirements. It is a voluntary guidance document intended for global use. This document, in its present or revised form, is intended to serve as a stepping stone for competence development and education programmes for both ISO and its members.

Competence of standards professionals —

Part 1:
In companies

1 Scope

This document specifies the competence, consisting of knowledge, skills and attributes, needed to perform the tasks of standards professionals.

This document is applicable to all personnel involved in some aspect of standardization in companies.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
attribute
inherent characteristic of a person

EXAMPLE   Visual acuity; sensitivity to others; openness.

[SOURCE: ISO/IEC TS 17027:2014, 2.10]

3.2
competence
ability to apply *knowledge* (3.3), *skills* (3.5) and *attributes* (3.1) to achieve intended results

Note 1 to entry: "Competence" can also be referred to as "competency".

[SOURCE: ISO 9000:2015, 3.10.4, modified — "attributes" and Note 1 to entry have been added.]

3.3
knowledge
facts, information, truths, principles or understanding acquired through experience or education

[SOURCE: ISO/IEC TS 17027:2014, 2.56]

3.4
responsibility
obligation to act and take decisions to achieve required outcomes

[SOURCE: ISO/IEC 38500:2015, 2.22]

3.5
skill
ability acquired through education, training, experience or other means to perform a *task* (3.8) or an activity with a specific intended outcome

[SOURCE: ISO/IEC TS 17027:2014, 2.74, modified — The wording in the definition has been reordered.]

3.6
standards professional
person who has the *competence* (3.2) to perform a job or *tasks* (3.8) related to standardization activities in a company or an organization performing standardization activities

3.7
standards-related organization
organization that carries out standardization activities such as planning and evaluation, development, adoption, publication and/or dissemination of standards

Note 1 to entry: A standards-related organization is defined as a broader term than a standards-developing organization. Standards-related organizations include organizations involved in any part of the life cycle of standards, including planning, developing, publishing, disseminating, applying and evaluating. They include industry, national, regional and international organizations, both governmental and non-governmental organizations, and both formal and less formal organizations including consortia or fora.

Note 2 to entry: Some of the primary activities and staff of standards-related organizations are related to standards, but other activities of standards-related organizations may apply. The number of staff involved in standards in regulatory agencies or trade associations is limited, but their *tasks* (3.8) are described in this document. In that context, standards-related organizations may include governmental agencies and non-governmental organizations that have and undertake any standards-related function or division.

3.8
task
set of activities undertaken in order to achieve a specific goal

Note 1 to entry: These activities can be physical, perceptual and/or cognitive.

Note 2 to entry: While goals are independent of the means used to achieve them, tasks describe particular means of achieving goals.

[SOURCE: ISO 9241-11:2018, 3.1.11]

3.9
company standard
standard that is adopted by a company and made available within the company

Note 1 to entry: Company standard can be established in a subdivision of a company, e.g. an individual factory, workshop or office.

4   Tasks and competences

4.1   Tasks

The tasks of standards professionals in companies generally include, but are not limited to, five tasks that can be repeated or expanded throughout planning, developing and applying the standards.

The five tasks of standards professionals in companies are:

a)   T1: Standardization planning and evaluation;

b)   T2: Standards development in companies;

c)   T3: Standards development in external standardization organizations;

d) T4: Applying company standards;

e) T5: Applying standards developed by external standardization organizations.

NOTE   T# represents a specific task.

Standardization in companies may include, but is not limited to, five tasks based on the feedback process of ISO Management System Standards: Plan-Do-Check-Act (PDCA).

In conducting standardization tasks in companies, standards professionals should meet the expectations of research and development (R&D), product development, procurement, manufacturing and other divisions.

Standardization tasks in companies may involve the company standards themselves and/or additionally certain external standards, such as domestic, national, regional and international standards.

NOTE   The tasks of standards professionals in companies can vary depending on what they perform in their standardization activities.

To perform the tasks of standards professionals successfully, these professionals need a certain competence. Competence can be defined as knowledge, skills and attributes, as shown in Figure 1.
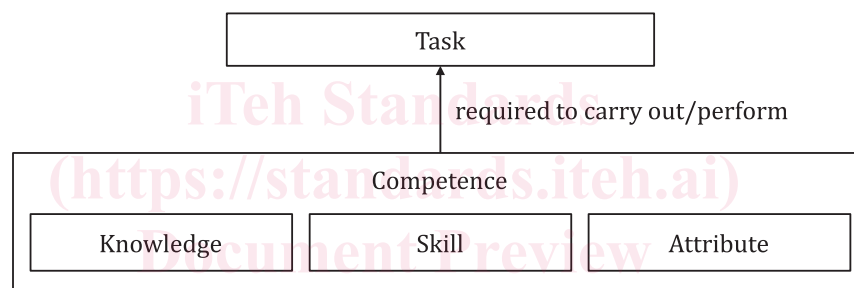

Figure 1 — Relationship between task and competence

4.2 Knowledge

The 18 recommended types of knowledge for standards professionals in companies are:

a) K1: Technical knowledge in a specified sector;

b) K2: Knowledge of existing standards/technical regulations in a specified sector;

c) K3: Knowledge of the company standardization principles;

d) K4: Knowledge of methodologies/methods for strategy development;

e) K5: Knowledge of methodologies for performance management;

f) K6: Knowledge of methods for standard/technology analysis and needs analysis;

g) K7: Knowledge of the process and methods to establish a standardization plan(s);

h) K8: Knowledge of the company standardization system;

i) K9: Knowledge of the drafting rules for company standards;

j) K10: Knowledge of the process and procedure for standards development;

k) K11: Knowledge of international standardization activities and related organizations;

l)   K12: Knowledge of the process and methods for an impact analysis of standards application;

m) K13: Knowledge of the validation methods for company standards;

n)   K14: Knowledge of external standards related to products and technology;

o)   K15: Knowledge of the requirements and process for certification;

p)   K16: Knowledge of statistical methods;

q)   K17: Knowledge of conformity assessment (testing, inspection, certification);

r)   K18: Knowledge of metrology (legal metrology, industrial metrology, scientific metrology).

NOTE   K# represents a specific type of knowledge.

4.3   Skills

The 16 recommended skills for standards professionals in companies are:

a)   S1: Ability to establish a standardization strategy aligned with the company strategy;

b)   S2: Ability to conduct performance measurement and analysis for standardization;

c)   S3: Ability to determine whether a standard(s) needs to be newly established or revised;

d)   S4: Ability to identify standards needs from a standardization environment analysis;

e)   S5: Ability to develop technical/engineering standards;

f)   S6: Ability to develop Management System Standards;

g)   S7: Ability to check on the justification of standards;

h)   S8: Ability to measure the effectiveness and/or efficiency of standards;

i)   S9: Ability to derive agreement on proposed standards;

j)   S10: Ability to undertake an impact analysis for company standards;

k)   S11: Ability to teach and explain company standards;

l)   S12: Ability to search and purchase external standards;

m) S13: Ability to prepare and respond to a certification audit;

n)   S14: Ability to take action for a performance assessment;

o)   S15: Ability to take action for a nonconformity;

p)   S16: Language and communication skills.

NOTE   S# represents a specific skill.

4.4   Attributes

The 20 recommended attributes for standards professionals in companies are:

a)   A1: Accurate/precise/meticulous;

b)   A2: Adaptable/adjustable/flexible/versatile;

c)   A3: Analytical/logical/systematic;

d) A4: Attentive/good listener;

e) A5: Collaborative/cooperative/synergic;

f) A6: Courteous/well-mannered/polite/respectful;

g) A7: Culturally broad-minded/non-discriminatory/unprejudiced;

h) A8: Decisive (able to reach timely conclusions);

i) A9: Diplomatic;

j) A10: Friendly/outgoing;

k) A11: Globally minded (able to work with people worldwide);

l) A12: Intellectual/fast learner;

m) A13: Observant/eagle-eyed;

n) A14: Open-minded;

o) A15: Patient/uncomplaining/tolerant;

p) A16: Perceptive/insightful/incisive;

q) A17: Responsible/accountable;

r) A18: Results-oriented/willing to improve and/or learn;

s) A19: Self-reliant/self-directed;

t) A20: Strong-willed/persistent.

NOTE   A# represents a specific attribute.

5   Competence of standards professionals

5.1   General

Standards professionals should have the competence to conduct and support standardization activities at the company level based on their profile or assigned tasks so as to achieve the objectives of their company.

They do not have to be technical experts about the company's products, services and processes, but they should have sufficient knowledge about these areas to understand how these can benefit from standards and standardization, and to carry out the applicable standardization tasks.

The competence of standards professionals can be defined as adeptly using required or recommended technical and non-technical knowledge, managerial and operational skills, and personal attributes including behaviours and attitudes.

5.2   Common competences

5.2.1   Common knowledge

The common knowledge recommended for standards professionals in companies is defined in Table 1.