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Competence of standards professionals —

Part 2:
In standards-related organizations

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Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Tasks and competences	2
4.1 Tasks.....	2
4.2 Knowledge.....	3
4.3 Skills.....	4
4.4 Attributes.....	5
5 Competence of standards professionals	6
5.1 General.....	6
5.2 Common competences.....	6
5.2.1 Common knowledge.....	6
5.2.2 Common skills.....	6
5.2.3 Common attributes.....	7
5.3 Competence for T1: “Standardization planning and evaluation”.....	8
5.3.1 Description of T1.....	8
5.3.2 Knowledge for T1.....	8
5.3.3 Skills for T1.....	9
5.3.4 Attributes for T1.....	9
5.4 Competence for T2: “Standards development: work programme management”.....	10
5.4.1 Description of T2.....	10
5.4.2 Knowledge for T2.....	10
5.4.3 Skills for T2.....	11
5.4.4 Attributes for T2.....	12
5.5 Competence for T3: “Standards development: committee operation and assistance”.....	12
5.5.1 Description of T3.....	12
5.5.2 Knowledge for T3.....	12
5.5.3 Skills for T3.....	13
5.5.4 Attributes for T3.....	14
5.6 Competence for T4: “Standards development: drafting standards”.....	14
5.6.1 Description of T4.....	14
5.6.2 Knowledge for T4.....	14
5.6.3 Skills for T4.....	15
5.6.4 Attributes for T4.....	15
5.7 Competence for T5: “Participation in international standardization”.....	16
5.7.1 Description of T5.....	16
5.7.2 Knowledge for T5.....	16
5.7.3 Skills for T5.....	17
5.7.4 Attributes for T5.....	17
5.8 Competence for T6: “Editing and publication of standards”.....	18
5.8.1 Description of T6.....	18
5.8.2 Knowledge for T6.....	18
5.8.3 Skills for T6.....	18
5.8.4 Attributes for T6.....	19
5.9 Competence for T7: “Dissemination of standards”.....	19
5.9.1 Description of T7.....	19
5.9.2 Knowledge for T7.....	19
5.9.3 Skills for T7.....	20
5.9.4 Attributes for T7.....	20
5.10 Competence for T8: “Training and education about standards”.....	21

5.10.1	Description of T8	21
5.10.2	Knowledge for T8	21
5.10.3	Skills for T8	21
5.10.4	Attributes for T8	22
5.11	Competence for T9: “Public service related to standards”	22
5.11.1	Description of T9	22
5.11.2	Knowledge for T9	23
5.11.3	Skills for T9	23
5.11.4	Attributes for T9	24
Annex A (informative) Survey questionnaire to identify the competence of standards professionals in standards-related organizations		25
Annex B (informative) Summary of ISO/IWA 30 survey results		29
Annex C (informative) Career roadmap for standards professionals in standards-related organizations		33
Annex D (informative) Workshop contributors		34
Bibliography		36

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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/30-2 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^[20] 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^[21], 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 standards-related organizations;
- the common competences for standards professionals in standards-related organizations;
- the competences by task for standards professionals in standards-related organizations;
- a career roadmap for standards professionals in standards-related organizations.

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 2: In standards-related organizations

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 an organization performing standardization activities.

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 <http://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 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]

4 Tasks and competences

4.1 Tasks

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

The nine tasks of standards professionals in standards-related organizations are:

- a) T1: Standardization planning and evaluation;
- b) T2: Standards development: work programme management;
- c) T3: Standards Development: committee operation and assistance;
- d) T4: Standards development: drafting standards;
- e) T5: Participation in international standardization;
- f) T6: Editing and publication of standards;

- g) T7: Dissemination of standards;
- h) T8: Training and education about standards;
- i) T9: Public service related to standards.

NOTE T# represents a specific task.

In conducting standardization tasks in standards-related organizations, standards professionals should meet the expectations of the members, domestic interested parties including regulators and companies, and foreign partners.

Standardization tasks in standards-related organizations may involve planning, developing, publishing, disseminating, educating and providing relevant services.

NOTE The tasks of standards professionals in standards-related organizations 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](#).

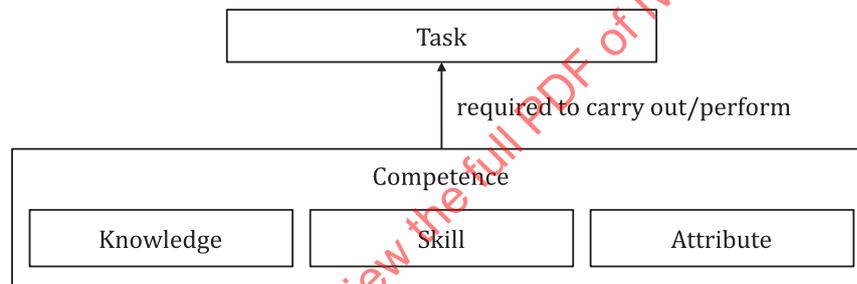


Figure 1 — Relationship between task and competence

4.2 Knowledge

The 20 recommended types of knowledge for standards professionals in standards-related organizations 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 methodologies/methods for strategy development;
- d) K4: Knowledge of methodologies for performance management;
- e) K5: Knowledge of methods for standard/technology analysis and needs survey;
- f) K6: Knowledge of programme management;
- g) K7: Knowledge of harmonization with International Standards;
- h) K8: Knowledge of the principles, process and procedure for standards development;
- i) K9: Knowledge of project management;
- j) K10: Knowledge of the drafting rules for standards;
- k) K11: Knowledge of the validation methods for standards;

- l) K12: Knowledge of international standardization activities and organizations;
- m) K13: Knowledge of marketing and public relations;
- n) K14: Knowledge of IT systems and database management;
- o) K15: Knowledge of human resource development;
- p) K16: Knowledge of the laws and systems related to standardization;
- q) K17: Knowledge of the legislation process and methods;
- r) K18: Knowledge of standards application to the development of technical regulations;
- s) K19: Knowledge of responding to foreign technical regulations (WTO/TBT);
- t) K20: Knowledge of statistical methods.

NOTE K# represents a specific type of knowledge.

4.3 Skills

The 29 recommended skills for standards professionals in standards-related organizations are:

- a) S1: Ability to develop a strategic plan for standardization;
- b) S2: Ability to conduct performance measurement and analysis for standardization;
- c) S3: Ability to develop action plans for implementing the strategic plan;
- d) S4: Ability to identify the needs of standardization;
- e) S5: Ability to collect relevant information of standards and standardization;
- f) S6: Ability to quantify the needs and expectations of interested parties;
- g) S7: Ability to determine whether a standard(s) needs to be newly established or revised;
- h) S8: Ability to prepare standards development plans;
- i) S9: Ability to manage multiple projects;
- j) S10: Written and verbal communication and presentation skills;
- k) S11: Ability to work with committees and individuals;
- l) S12: Programme management abilities;
- m) S13: Project management abilities;
- n) S14: Ability to draft standards;
- o) S15: Ability to validate standards;
- p) S16: Leadership skills for committee operation;
- q) S17: Ability to derive agreement on proposed standards;
- r) S18: Ability to organize a committee;
- s) S19: Documentation skills of international standardization;
- t) S20: Language and communication skills;
- u) S21: Ability to edit and publish documents;

- v) S22: Ability to undertake standards marketing and sales;
- w) S23: Ability to manage IT systems and databases;
- x) S24: Ability to plan education and training programmes;
- y) S25: Teaching and training skills;
- z) S26: Ability related to drafting law;
- aa) S27: Ability to apply standards to technical regulations;
- bb) S28: Ability to interpret relevant documents and official letters related to WTO/TBT;
- cc) S29: Ability to communicate with organizations related to WTO/TBT.

NOTE S# represents a specific skill.

4.4 Attributes

The 20 recommended attributes for standards professionals in standards-related organizations 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 international, national and organizational level based on their profile or assigned tasks so as to accomplish the mission and objectives of the organization performing standardization activities.

They do not have to be technical experts about the 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 standards-related organizations is defined in [Table 1](#).

Table 1 — Common knowledge recommended for standards professionals

Knowledge	Description
K2: Knowledge of existing standards/technical regulations in a specified sector	Standards professionals should have knowledge of relevant existing standards and/or technical regulations in a specified sector.
K1: Technical knowledge in a specified sector	Standards professionals should have basic technical and/or professional knowledge of a specific industry or a related field, at a level sufficient to understand the added value of standards and standardization, and to be able to carry out the applicable standardization tasks.
K8: Knowledge of the principles, process and procedure for standards development	Standards professionals should have basic understanding of the principles, process and procedure associated with standards development, and be able to provide appropriate advice. EXAMPLE Standards professionals developing standards with ISO and IEC are able to apply the ISO/IEC Directives[31][32][33][34][35].
K12: Knowledge of international standardization activities and organizations	Standards professionals should have practical knowledge of standardization activities and organizations at the international, regional, national or industrial level. Standards professionals participating in national standardization activities should be aware of council or technical management board decisions regarding the activities of the technical committees in general and of the committee for which s/he is responsible. NOTE 1 For basic information for standards professional participating in ISO's technical work, see Reference [37]. NOTE 2 For additional information on international standardization activities, see the ISO/IEC Directives[31][32][33][34][35].

5.2.2 Common skills

The common skills recommended for standards professionals in standards-related organizations are defined in [Table 2](#).

Table 2 — Common skills recommended for standards professionals

Skills	Description
S1: Ability to develop a strategic plan for standardization	Standards professionals should be able to identify and develop a strategic plan for standardization that harmonizes with the national plan for standards development.
S10: Written and verbal communication and presentation skills	Standards professionals should be able to communicate with committee members and related interested parties by written communication as well as by verbal communication when developing and disseminating standards.
S5: Ability to collect relevant information of standards and standardization	Standards professionals should be able to collect the relevant information of standards, standardization, market needs or other information to determine the establishment of a new standard(s) or the revision of an existing standard(s). Standards professionals should be able to search for standards (published or under development), e.g. by developing an inventory of standards in a specified sector. NOTE International Standards, graphical symbols, codes or terms and definitions can be searched for using ISO's Online browsing platform ^[38] .
S11: Ability to work with committees and individuals	Standards professionals should be able to cooperate and co-work with experts and interested parties from different perspectives and backgrounds in terms of culture and technology. NOTE For additional information on participating in IEC as a committee member, see Reference ^[25] .

5.2.3 Common attributes

The common attributes recommended for standards professionals in standards-related organizations are defined in [Table 3](#).

Table 3 — Common attributes recommended for standards professionals

Attributes	Description
A5: Collaborative/cooperative/synergic	Standards professionals should be able to facilitate cooperation among interested parties to reach consensus, which is an essential procedural principle and a necessary condition for the development of standards. Standards professionals should adhere to the code of conduct, where applicable. NOTE 1 For additional information for standards professionals participating in ISO, see Reference ^[28] . NOTE 2 For additional information for standards professionals participating in IEC, see Reference ^[24] .
A1: Accurate/precise/meticulous	Standards professionals should be able to manage the whole process for standards development according to agreed target dates and in accordance with the development plan from preparation to completion.
A3: Analytical/logical/systematic	Standards professionals should have extensive analytical ability and talent for a logical and systematic approach to integrate technical and non-technical knowledge into drafting standards that will be accepted and widely used.
A2: Adaptable/adjustable/flexible/versatile	Standards professionals should have good flexibility and ongoing adaptability to adjust to working with people with different cultural and technical backgrounds both inside or outside of an organization.

5.3 Competence for T1: “Standardization planning and evaluation”

5.3.1 Description of T1

T1: “Standardization planning and evaluation” may include, but is not limited to, the following sub-tasks or processes:

- a) T1-1: Set and implement a medium- to long-term standardization strategic plan to align with and support the organization strategy;
- b) T1-2: Develop and implement an action plan(s) based on medium- to long-term strategies;
- c) T1-3: Conduct an environment scan and determine the context for standardization;
- d) T1-4: Review and evaluate the standardization strategic plan in line with the current organization strategy to provide new opportunities or mitigate risks.

NOTE T#-# represents a specific sub-task. Subtask codes are used in the career roadmap given in [Annex C](#).

The competence required or recommended for T1: “Standardization planning and evaluation” can be defined using knowledge (see [5.3.2](#)), skills (see [5.3.3](#)) and attributes (see [5.3.4](#)).

5.3.2 Knowledge for T1

The knowledge recommended for T1: “Standardization planning and evaluation” is defined in [Table 4](#).

Table 4 — Knowledge recommended for T1

Knowledge	Description
K3: Knowledge of methodologies/methods for strategy development	Standards professionals in charge of establishing policy on standards/standardization at the country and regional level, as well as in industry and non-government organizations, should have knowledge of methodologies/methods for strategy and roadmap development. NOTE For methodologies/methods for the development of a strategy and roadmap for standardization, the following techniques can be used: — environmental analysis (context analysis); — PEST analysis; — SWOT analysis; — risk assessment, etc.
K5: Knowledge of methods for standard/technology analysis and needs survey	Standards professionals should have knowledge of designing and conducting methods for a standard/technology analysis and needs survey.
K6: Knowledge of programme management	Standards professionals should have general knowledge of programme management applicable to standards development. EXAMPLE Programme management activities include setting and reviewing the objectives of a programme, coordinating activities across projects, and overseeing the integration of project outputs/results. NOTE A standardization programme is generally a group of standardization projects aligned with specific goals.
K7: Knowledge of harmonization with International Standards	Standards professionals participating in national standardization activities should understand the methods for the adoption of International Standards and other international deliverables as regional or national standards as specified in ISO/IEC Guide 21-1 and ISO/IEC Guide 21-2.
K4: Knowledge of methodologies for performance management	Standards professionals should have knowledge of the methodologies to measure and manage the performance of the planning, development and dissemination of standards.

5.3.3 Skills for T1

The skills recommended for T1: “Standardization planning and evaluation” are defined in [Table 5](#).

Table 5 — Skills recommended for T1

Skills	Description
S3: Ability to develop action plans for implementing the strategic plan	Standards professionals should be able to develop action plans for implementing the strategic plan, including designing an architecture of standards related to a framework of products, services and/or processes. NOTE “Action plan” can also be referred to as an “implementation plan”.
S4: Ability to identify the needs of standardization	Standards professionals should be able to identify the needs of standardization based on an environment analysis, context analysis, etc.
S2: Ability to conduct performance measurement and analysis for standardization	Standards professionals should be able to measure and analyse the performance of standardization activities.
S9: Ability to manage multiple projects	Standards professionals should be able to manage multiple projects simultaneously. NOTE For the effective and efficient management of multiple projects, it can be necessary to prioritize projects, block times, create focuses, review the workload regularly, overlay project plans, track progress, stay organized, etc.
S8: Ability to prepare standards development plans	Standards professionals should be able to prepare plans for standards development in accordance with the rules of the international, regional, national and/or industrial organization in which s/he is participating.
S6: Ability to quantify the needs and expectations of interested parties	Standards professionals should be able to evaluate and prioritize the needs and expectations of interested parties and express them as a number or a quantity.

5.3.4 Attributes for T1

The attributes recommended for T1: “Standardization planning and evaluation” are defined in [Table 6](#).

Table 6 — Knowledge recommended for T1

Attributes	Description
A18: Results-oriented/willing to improve and/or learn	Standards professionals should be results-oriented and willing to improve the system and process: <ul style="list-style-type: none"> — for standards development; — for the editing, publication, and dissemination of standards; — for public service related to standards.
A4: Attentive/good listener	Standards professionals should be able to pay close attention to issues in an acceptable manner.
A17: Responsible/accountable	Standards professionals should be able to take responsibility for the overall management of: <ul style="list-style-type: none"> — standards development, including providing advice on the process, meeting preparation and networking; — the editing, publication and dissemination of standards; — the service for the public and interested parties provided by governmental bodies and/or standards bodies.
A14: Open-minded	Standards professionals should be willing to consider new ideas without prejudice in general, and as facilitators for training and education on standards and standardization.

Table 6 (continued)

Attributes	Description
A16: Perceptive/insightful/incisive	Standards professionals should provide thoughtful insights and be good at understanding issues or figuring issues out.
A20: Strong-willed/persistent	Standards professionals should be able to continue firmly or obstinately on a course of action in despite of difficulty or opposition.
A11: Globally minded (able to work with people worldwide)	Standards professionals should be able to understand and respect the political, social and cultural environments of others to ensure that the views of all are heard and understood.

5.4 Competence for T2: “Standards development: work programme management”

5.4.1 Description of T2

T2: “Standards development: work programme management” may include, but is not limited to, the following sub-tasks or processes:

- a) T2-1: Develop plans or a roadmap for specific technical/industrial sectors;
- b) T2-2: Manage and evaluate the performance of work plans for specific technical/industrial sectors;
- c) T2-3: Develop and manage the standards development procedures and rules.

The competence required or recommended for T2: “Standards development: work programme management” can be defined using knowledge (see 5.4.2), skills (see 5.4.3) and attributes (see 5.4.4).

5.4.2 Knowledge for T2

The knowledge recommended for T2: “Standards development: work programme management” is defined in Table 7.

Table 7 — Knowledge recommended for T2

Knowledge	Description
K10: Knowledge of the drafting rules for standards	<p>Standards professionals should have substantial knowledge of the rules, principles and structure of standards to be drafted in detail.</p> <p>NOTE 1 For the drafting of International Standards, see Reference [35].</p> <p>NOTE 2 For additional information on writing standards, see Reference [27].</p> <p>NOTE 3 For a model manuscript of a draft International Standard, see Reference [36].</p> <p>NOTE 4 For the drafting of standards considering small and medium enterprises (SMEs), see ISO/IEC Guide 17.</p> <p>Standards professionals should have knowledge of how to address safety, environmental and consumer issues in product standards at all stages of the product life cycle.</p> <ul style="list-style-type: none"> — Safety aspects as specified in ISO/IEC Guide 51. — Environmental aspects as specified in ISO Guide 64. — Consumer aspects as specified in ISO/IEC Guide 76.

Table 7 (continued)

Knowledge	Description
K9: Knowledge of project management	Standards professionals should have knowledge of the project management methodology applicable to standards development at the international, regional, national and industry/association level. Project management addresses the planning, organizing, monitoring, controlling and reporting of all aspects of a project, and the motivation of all those involved to achieve the project objectives as specified in ISO 21500. NOTE For additional information on project management applied to ISO standards development, see References [39] and [40].
K18: Knowledge of standards application to the development of technical regulations	Standards professionals should have knowledge of standards application to the development of technical regulations.
K7: Knowledge of harmonization with International Standards	See the description of K7 in 5.3.2 (Knowledge for T1).
K6: Knowledge of programme management	See the description of K6 in 5.3.2 (Knowledge for T1).

5.4.3 Skills for T2

The skills recommended for T2: “Standards development: work programme management” are defined in Table 8.

Table 8 — Skills recommended for T2

Skills	Description
S3: Ability to develop action plans for implementing the strategic plan	See the description of S3 in 5.3.3 (Skills for T1).
S4: Ability to identify the needs of standardization	See the description of S4 in 5.3.3 (Skills for T1).
S2: Ability to conduct performance measurement and analysis for standardization	See the description of S2 in 5.3.3 (Skills for T1).
S8: Ability to prepare standards development plans	See the description of S8 in 5.3.3 (Skills for T1).
S9: Ability to manage multiple projects	See the description of S9 in 5.3.3 (Skills for T1).
S13: Project management abilities	Standards professionals should be able to manage standardization projects effectively by planning, organizing, budgeting, directing, controlling, managing resources, etc. NOTE For additional information on project management applied to ISO standards development, see References [39] and [40].
S12: Programme management abilities	Standards professionals should be able to manage a standardization programme composed of multiple projects. NOTE 1 Programme management generally consists of setting and reviewing objectives, coordinating activities across projects, and overseeing the integration of work products and results. NOTE 2 For the ISO standardization programme, the ISO/CS Technical Programme Manager (TPM) provides support and guidance and ensures that ISO/IEC Directives, Part 1, are followed.

5.4.4 Attributes for T2

The attributes recommended for T2: “Standards development: work programme management” are defined in [Table 9](#).

Table 9 — Attributes recommended for T2

Attributes	Description
A17: Responsible/accountable	See the description of A17 in 5.3.4 (Attributes for T1).
A18: Results-oriented/willing to improve and/or learn	See the description of A18 in 5.3.4 (Attributes for T1).
A4: Attentive/good listener	See the description of A4 in 5.3.4 (Attributes for T1).
A14: Open-minded	See the description of A14 in 5.3.4 (Attributes for T1).
A8: Decisive (able to reach timely conclusions)	Standards professionals should be able to reach timely conclusions and provide decisive guidance during the process of standards development even in situations of conflict.

5.5 Competence for T3: “Standards development: committee operation and assistance”

5.5.1 Description of T3

T3: “Standards development: committee operation and assistance” may include, but is not limited to, the following sub-tasks or processes:

- a) T3-1: Manage standards development projects (e.g. scheduling, prioritization, communication in the committee work programme);
- b) T3-2: Produce and circulate committee project documents (e.g. proposal, comment, resolution, ballot results);
- c) T3-3: Arrange and coordinate committee meetings (e.g. agendas, minutes, decision/resolutions, reporting);
- d) T3-4: Advise and liaise with the chair, conveners and project leaders.

The competence required or recommended for T3: “Standards development: committee operation and assistance” can be defined using knowledge (see [5.5.2](#)), skills (see [5.5.3](#)) and attributes (see [5.5.4](#)).

5.5.2 Knowledge for T3

The knowledge recommended for T3: “Standards development: committee operation and assistance” is defined in [Table 10](#).

Table 10 — Knowledge recommended for T3

Knowledge	Description
K10: Knowledge of the drafting rules for standards	See the description of K10 in 5.4.2 (Knowledge for T2).
K9: Knowledge of project management	See the description of K9 in 5.4.2 (Knowledge for T2).
K7: Knowledge of harmonization with International Standards	See the description of K7 in 5.3.2 (Knowledge for T1).
K3: Knowledge of methodologies/methods for strategy development	See the description of K3 in 5.3.2 (Knowledge for T1).

Table 10 (continued)

Knowledge	Description
K14: Knowledge of IT systems and database management	Standards professionals participating in developing standards should have knowledge of IT systems or tools (e.g. ISO Projects Portal ^[30]) that support the standards development process (e.g. documents, mirror documents, ballots, projects, meetings, global directory, notifications, submissions). Standards professionals in charge of IT systems for the sales of standards (e.g. a webstore) should have knowledge of IT systems and database management.

5.5.3 Skills for T3

The skills recommended for T3: “Standards development: committee operation and assistance” are defined in [Table 11](#).

Table 11 — Skills recommended for T3

Skills	Description
S9: Ability to manage multiple projects	See the description of S9 in 5.3.3 (Skills for T1).
S3: Ability to develop action plans for implementing the strategic plan	See the description of S3 in 5.3.3 (Skills for T1).
S8: Ability to prepare standards development plans	See the description of S8 in 5.3.3 (Skills for T1).
S14: Ability to draft standards	Standards professionals should be able to prepare a draft of a standard according to the specified rules/procedures for the structure and drafting of standards. Standards professionals should be able to use templates and other tools for the preparation of standards. NOTE 1 ISO and IEC have published guides on the use of templates and other tools for the preparation of documents in accordance with the ISO/IEC Directives. These guides are available on the ISO website (https://www.iso.org) and IEC website (https://www.iec.ch). NOTE 2 ISO Central Secretariat (ISO/CS) organizes structured training activities for ISO members and professionals carrying out specific standards development activities. For additional information, see Reference [42] . NOTE 3 For the ISO standardization programme, the ISO/CS Editorial Programme Manager (EPM) provides support and guidance for drafting standards and ensures that the ISO/IEC Directives, Part 2, are followed.
S16: Leadership skills for committee operation	Standards professionals in the position of Committee Manager (previously called Secretary) should be able to operate a technical committee effectively and efficiently. NOTE 1 For information on hosting an ISO meeting, see Reference [31] , Annex SC. NOTE 2 For additional information on the operation of committees, see Reference [40] , Annex E.

5.5.4 Attributes for T3

The attributes recommended for T3: “Standards development: committee operation and assistance” are defined in [Table 12](#).

Table 12 — Attributes recommended for T3

Attributes	Description
A17: Responsible/accountable	See the description of A17 in 5.3.4 (Attributes for T1).
A4: Attentive/good listener	See the description of A4 in 5.3.4 (Attributes for T1).
A11: Globally minded (able to work with people worldwide)	See the description of A11 in 5.3.4 (Attributes for T1).
A8: Decisive (able to reach timely conclusions)	See the description of A8 in 5.4.4 (Attributes for T2).
A18: Results-oriented/willing to improve and/or learn	See the description of A18 in 5.3.4 (Attributes for T1).
A14: Open-minded	See the description of A14 in 5.3.4 (Attributes for T1).

5.6 Competence for T4: “Standards development: drafting standards”

5.6.1 Description of T4

T4: “Standards development: drafting standards” may include, but is not limited to, the following sub-tasks or processes:

- T4-1: Draft new standards in accordance with the drafting rules (e.g. ISO/IEC Directives, Part 2^[35]);
- T4-2: Revise existing standards in accordance with the rules;
- T4-3: Review and comment on circulated draft standards;
- T4-4: Validate standards as specified in the validation process;
- T4-5: Perform an impact analysis of standards application.

The competence required or recommended for T4: “Standards development: drafting standards” can be defined using knowledge (see [5.6.2](#)), skills (see [5.6.3](#)) and attributes (see [5.6.4](#)).

5.6.2 Knowledge for T4

The knowledge recommended for T4: “Standards development: drafting standards” is defined in [Table 13](#).

Table 13 — Knowledge recommended for T4

Knowledge	Description
K10: Knowledge of the drafting rules for standards	See the description of K10 in 5.4.2 (Knowledge for T2).
K7: Knowledge of harmonization with International Standards	See the description of K7 in 5.3.2 (Knowledge for T1).
K11: Knowledge of the validation methods for standards	Standards professionals should understand the methods for the review, verification and/or validation of standards. EXAMPLE 1 A checklist can be a simple method for the review of standards. EXAMPLE 2 A round robin test can be a method for the validation of standards for a testing method.

Table 13 (continued)

Knowledge	Description
	NOTE 1 For additional information on the review of standards, see Reference [35], Annex A. NOTE 2 For additional information on the validation of standards, see Reference [22].
K4: Knowledge of methodologies for performance management	See the description of K4 in 5.3.2 (Knowledge for T1).
K3: Knowledge of methodologies/methods for strategy development	See the description of K3 in 5.3.2 (Knowledge for T1).

5.6.3 Skills for T4

The skills recommended for T4: “Standards development: drafting standards” are defined in [Table 14](#).

Table 14 — Skills recommended for T4

Skills	Description
S14: Ability to draft standards	See the description of S14 in 5.5.3 (Skills for T3).
S8: Ability to prepare standards development plans	See the description of S8 in 5.3.3 (Skills for T1).
S4: Ability to identify the needs of standardization	See the description of S4 in 5.3.3 (Skills for T1).
S2: Ability to conduct performance measurement and analysis for standardization	See the description of S2 in 5.3.3 (Skills for T1).
S7: Ability to determine whether a standard(s) needs to be newly established or revised	Standards professionals should be able to determine the establishment of a new standard(s) or the revision of an existing standard(s) based on the information on standards and standardization. NOTE For additional information on the justification of new ISO/IEC standards development, see References [31], [32], [33] or [34], Annex C.

5.6.4 Attributes for T4

The attributes recommended for T4: “Standards development: drafting standards” are defined in [Table 15](#).

Table 15 — Attributes recommended for T4

Attributes	Description
A17: Responsible/accountable	See the description of A17 in 5.3.4 (Attributes for T1).
A18: Results-oriented/willing to improve and/or learn	See the description of A18 in 5.3.4 (Attributes for T1).
A4: Attentive/good listener	See the description of A4 in 5.3.4 (Attributes for T1).
A8: Decisive (able to reach timely conclusions)	See the description of A8 in 5.4.4 (Attributes for T2).
A7: Culturally broad-minded/non-discriminatory/unprejudiced	Standards professionals should be open and unprejudiced when working with people or groups from different cultures.
A12: Intellectual/fast learner	Standards professionals should be able to engage in critical thinking, research and reflection about society, propose solutions for technical problems and learn things quickly.

5.7 Competence for T5: “Participation in international standardization”

5.7.1 Description of T5

T5: “Participation in international standardization” may include, but is not limited to, the following sub-tasks or processes:

- a) T5-1: Organize and coordinate domestic mirror committees;
- b) T5-2: Participate in international standardization meetings and voting;
- c) T5-3: Cooperate with organizations for international standardization.

The competence required or recommended for T5: “Participation in international standardization” can be defined using knowledge (see [5.7.2](#)), skills (see [5.7.3](#)) and attributes (see [5.7.4](#)).

5.7.2 Knowledge for T5

The knowledge recommended for T5: “Participation in international standardization” is defined in [Table 16](#).

Table 16 — Knowledge recommended for T5

Knowledge	Description
K7: Knowledge of harmonization with International Standards	See the description of K7 in 5.3.2 (Knowledge for T1).
K10: Knowledge of the drafting rules for standards	See the description of K10 in 5.4.2 (Knowledge for T2).
K3: Knowledge of methodologies/methods for strategy development	See the description of K3 in 5.3.2 (Knowledge for T1).
K19: Knowledge of responding to foreign technical regulations (WTO/TBT)	Standards professionals should understand the process for searching foreign technical regulations related to standards development. Standards professionals should understand the process for searching TBT notifications and responding to these through the WTO/TBT Information Management System ^[50] or a national WTO/TBT enquiry point(s).
K18: Knowledge of standards application to the development of technical regulations	See the description of K18 in 5.4.2 (Knowledge for T2).
K4: Knowledge of methodologies for performance management	See the description of K4 in 5.3.2 (Knowledge for T1).

5.7.3 Skills for T5

The skills recommended for T5: “Participation in international standardization” are defined in [Table 17](#).

Table 17 — Skills recommended for T5

Skills	Description
S20: Language and communication skills	Standards professionals should be able to communicate in both the local language and the international official language (usually English) for standardization and translation. NOTE Language skills in the national language(s) and/or English are essential. In international standardization, additional language skills are beneficial. For example, the official languages of ISO and IEC are English, French and Russian, but meetings are conducted in English by default in accordance with the ISO/IEC Directives, Part 1: 2019, 4.3 [31][32][33][34]. Language skills are needed to support clear communication and to ensure that standards written in the national language or English can be translated into other languages in an unambiguous way.
S19: Documentation skills of international standardization	Standards professionals in the position of Committee Manager (previously called Secretary) or Project Leader should be able to prepare the documents for standardization [e.g. New Work Item Proposal (NWIP), International Standard documentation, CRM reports, minutes].
S14: Ability to draft standards	See the description of S14 in 5.5.3 (Skills for T3).
S17: Ability to derive agreement on proposed standards	Standards professionals should be able to derive agreement on proposed standards in a strategic and diplomatic manner.
S3: Ability to develop action plans for implementing the strategic plan	See the description of S3 in 5.3.3 (Skills for T1).
S4: Ability to identify the needs of standardization	See the description of S4 in 5.3.3 (Skills for T1).
S18: Ability to organize a committee	Standards professionals should be able to take the lead to organize a new committee, subcommittee or working group. NOTE For drafting the business plan of a new technical committee, see Reference [31], Annex SC.

5.7.4 Attributes for T5

The attributes recommended for T5: “Participation in international standardization” are defined in [Table 18](#).

Table 18 — Attributes recommended for T5

Attributes	Description
A11: Globally minded (able to work with people worldwide)	See the description of A11 in 5.3.4 (Attributes for T1).
A9: Diplomatic	Standards professionals should be able to manage and operate inter-divisions or international relations by considering different needs and objectives.
A7: Culturally broad-minded/non-discriminatory/unprejudiced	See the description of A7 in 5.6.4 (Attributes for T4).
A17: Responsible/accountable	See the description of A17 in 5.3.4 (Attributes for T1).
A14: Open-minded	See the description of A14 in 5.3.4 (Attributes for T1).

5.8 Competence for T6: “Editing and publication of standards”

5.8.1 Description of T6

T6: “Editing and publication of standards” may include, but is not limited to, the following sub-tasks or processes:

- a) T6-1: Plan and manage the standards publication process;
- b) T6-2: Organize an editing committee;
- c) T6-3: Edit and proofread standards;
- d) T6-4: Publish standards (online, offline).

The competence required or recommended for T6: “Editing and publication of standards” can be defined using knowledge (see [5.8.2](#)), skills (see [5.8.3](#)) and attributes (see [5.8.4](#)).

5.8.2 Knowledge for T6

The knowledge recommended for T6: “Editing and publication of standards” is defined in [Table 19](#).

Table 19 — Knowledge recommended for T6

Knowledge	Description
K10: Knowledge of the drafting rules for standards	See the description of K10 in 5.4.2 (Knowledge for T2).
K14: Knowledge of IT systems and database management	See the description of K14 in 5.5.2 (Knowledge for T3).
K7: Knowledge of harmonization with International Standards	See the description of K7 in 5.3.2 (Knowledge for T1).
K13: Knowledge of marketing and public relations	Standards professionals should have a basic knowledge of marketing, such as the concepts, principles and techniques.
K16: Knowledge of the laws and systems related to standardization	Standards professionals should have knowledge of the national laws (e.g. acts, decrees, rules, ordinances, regulations) and systems related to standardization.

5.8.3 Skills for T6

The skills recommended for T6: “Editing and publication of standards” are defined in [Table 20](#).

Table 20 — Skills recommended for T6

Skills	Description
S21: Ability to edit and publish documents	Standards professionals should be able to maintain the highest degree of quality, clarity, timely delivery and consistency of standards (including conformity with the relevant rules and policies) in editing and publication.
S14: Ability to draft standards	See the description of S14 in 5.5.3 (Skills for T3).
S23: Ability to manage IT systems and databases	Standards professionals in charge of the IT system for standards (e.g. webstore, intranet) should be able to manage the IT systems and databases for standards and/or standardization.
S20: Language and communication skills	See the description of S20 in 5.7.3 (Skills for T5).
S22: Ability to undertake standards marketing and sales	Standards professionals should be able to plan and implement the marketing, promotional and other programmes (including pricing) of standards.

Table 20 (continued)

Skills	Description
S15: Ability to validate standards	Standards professionals should be able to review, verify and/or validate the drafts of standards in terms of market relevance, duplication and conformity with the rules for the structure and drafting of standards. NOTE For additional information on the review of International Standards, see Reference [35], Annexes A and B.

5.8.4 Attributes for T6

The attributes recommended for T6: “Editing and publication of standards” are defined in [Table 21](#).

Table 21 — Attributes recommended for T6

Attributes	Description
A13: Observant/eagle-eyed	Standards professionals should be able to adhere strictly to the rules of standards development and drafting.
A17: Responsible/accountable	See the description of A17 in 5.3.4 (Attributes for T1).
A18: Results-oriented/willing to improve and/or learn	See the description of A18 in 5.3.4 (Attributes for T1).
A4: Attentive/good listener	See the description of A4 in 5.3.4 (Attributes for T1).
A8: Decisive (able to reach timely conclusions)	See the description of A8 in 5.4.4 (Attributes for T2).
A15: Patient/uncomplaining/tolerant	Standards professionals should be able accept or tolerate delays, problems or suffering without becoming anxious.
A19: Self-reliant/self-directed	Standards professionals should be able to organize themselves.

5.9 Competence for T7: “Dissemination of standards”

5.9.1 Description of T7

T7: “Dissemination of standards” may include, but is not limited to, the following sub-tasks or processes:

- a) T7-1: Develop and manage a dissemination strategy;
- b) T7-2: Develop a catalogue, package products and a handbook;
- c) T7-3: Develop and operate an information system for standards dissemination;
- d) T7-4: Develop and maintain an online sales system (e.g. webstore);
- e) T7-5: Promote standards-related information (e.g. social media, such as YouTube, online services, webzines, bulletins, journals, seminars, workshops);
- f) T7-6: Analyse and reflect interested parties’ feedback.

The competence required or recommended for T7: “Dissemination of standards” can be defined using knowledge (see [5.9.2](#)), skills (see [5.9.3](#)) and attributes (see [5.9.4](#)).

5.9.2 Knowledge for T7

The knowledge recommended for T7: “Dissemination of standards” is defined in [Table 22](#).

Table 22 — Knowledge recommended for T7

Knowledge	Description
K13: Knowledge of marketing and public relations	See the description of K13 in 5.8.2 (Knowledge for T6).
K14: Knowledge of IT systems and database management	See the description of K14 in 5.5.2 (Knowledge for T3).
K7: Knowledge of harmonization with International Standards	See the description of K7 in 5.3.2 (Knowledge for T1).
K5: Knowledge of methods for standard/technology analysis and needs survey	See the description of K5 in 5.3.2 (Knowledge for T1).
K18: Knowledge of standards application to the development of technical regulations	See the description of K18 in 5.4.2 (Knowledge for T2).
K11: Knowledge of the validation methods for standards	See the description of K11 in 5.6.2 (Knowledge for T4).

5.9.3 Skills for T7

The skills recommended for T7: “Dissemination of standards” are defined in [Table 23](#).

Table 23 — Skills recommended for T7

Skills	Description
S22: Ability to undertake standards marketing and sales	See the description of S22 in 5.8.3 (Skills for T6).
S23: Ability to manage IT systems and databases	See the description of S23 in 5.8.3 (Skills for T6).
S24: Ability to plan education and training programmes	Standards professionals should be able to plan education and training programmes for standards and/or standardization.
S25: Teaching and training skills	Standards professionals should be able to teach and train people on specific standards and/or standardization.
S3: Ability to develop action plans for implementing the strategic plan	See the description of S3 in 5.3.3 (Skills for T1).
S20: Language and communication skills	See the description of S20 in 5.7.3 (Skills for T5).

5.9.4 Attributes for T7

The attributes recommended for T7: “Dissemination of standards” are defined in [Table 24](#).

Table 24 — Attributes recommended for T7

Attributes	Description
A18: Results-oriented/willing to improve and/or learn	See the description of A18 in 5.3.4 (Attributes for T1).
A17: Responsible/accountable	See the description of A17 in 5.3.4 (Attributes for T1).
A10: Friendly/outgoing	Standards professionals should be friendly and socially confident.
A4: Attentive/good listener	See the description of A4 in 5.3.4 (Attributes for T1).
A14: Open-minded	See the description of A14 in 5.3.4 (Attributes for T1).

5.10 Competence for T8: “Training and education about standards”

5.10.1 Description of T8

T8: “Training and education about standards” may include, but is not limited to, the following sub-tasks or processes:

- a) T8-1: Develop training and education plans and programmes;
- b) T8-2: Operate training and education courses;
- c) T8-3: Analyse and reflect interested parties’ feedback.

The competence required or recommended for T8: “Training and education about standards” can be defined using knowledge (see 5.10.2), skills (see 5.10.3) and attributes (see 5.10.4).

5.10.2 Knowledge for T8

The knowledge recommended for T8: “Training and education about standards” is defined in [Table 25](#).

Table 25 — Knowledge recommended for T8

Knowledge	Description
K15: Knowledge of human resource development	Standards professionals should have general knowledge of human resource development, such as the concepts, principles and techniques.
K13: Knowledge of marketing and public relations	See the description of K13 in 5.8.2 (Knowledge for T6).
K9: Knowledge of project management	See the description of K9 in 5.4.2 (Knowledge for T2).
K16: Knowledge of the laws and systems related to standardization	See the description of K16 in 5.8.2 (Knowledge for T6).
K5: Knowledge of methods for standard/technology analysis and needs survey	See the description of K5 in 5.3.2 (Knowledge for T1).
K14: Knowledge of IT systems and database management	See the description of K14 in 5.5.2 (Knowledge for T3).
K20: Knowledge of statistical methods	Standards professionals should have knowledge of statistical methods/ techniques that can be applied extensively to the field of standardization. NOTE For additional information on statistical methods/techniques for standardization, see ISO/TR 18532.

5.10.3 Skills for T8

The skills recommended for T8: “Training and education about standards” are defined in [Table 26](#).

Table 26 — Skills recommended for T8

Skills	Description
S24: Ability to plan education and training programmes	See the description of S24 in 5.9.3 (Skills for T7).
S25: Teaching and training skills	See the description of S25 in 5.9.3 (Skills for T7).
S20: Language and communication skills	See the description of S20 in 5.7.3 (Skills for T5).
S9: Ability to manage multiple projects	See the description of S9 in 5.3.3 (Skills for T1).

Table 26 (continued)

Skills	Description
S3: Ability to develop action plans for implementing the strategic plan	See the description of S3 in 5.3.3 (Skills for T1).
S2: Ability to conduct performance measurement and analysis for standardization	See the description of S2 in 5.3.3 (Skills for T1).

5.10.4 Attributes for T8

The attributes recommended for T8: “Training and education about standards” are defined in [Table 27](#).

Table 27 — Attributes recommended for T8

Attributes	Description
A10: Friendly/outgoing	See the description of A10 in 5.9.4 (Attributes for T7).
A4: Attentive/good listener	See the description of A4 in 5.3.4 (Attributes for T1).
A6: Courteous/well-mannered/polite/respectful	Standards professionals should be respectful and courteous when communicating and developing standards with people from all backgrounds.
A14: Open-minded	See the description of A14 in 5.3.4 (Attribute for T1)
A17: Responsible/accountable	See the description of A17 in 5.3.4 (Attributes for T1).

5.11 Competence for T9: “Public service related to standards”

5.11.1 Description of T9

T9: “Public service related to standards” may include, but is not limited to, the following sub-tasks or processes:

- a) T9-1: Develop and enact laws and public policy on standardization considering health, safety, the environment, innovation or sustainability;
- b) T9-2: Promote the harmonization of standards and regulations;
- c) T9-3: Provide an assistance/consultancy service in response to foreign technical regulations (including the operation of a WTO/TBT enquiry point);
- d) T9-4: Communicate and coordinate with regulatory agencies, industry associations and other interested parties;
- e) T9-5: Analyse and communicate interested parties’ feedback and the impact of actions taken.

NOTE “Public service related to standards” in this document means a standards-related service focused mainly on the public. It is normally provided by national standards bodies, government agencies and non-profit organizations

The competence required or recommended for T9: “Public service related to standards” can be defined using knowledge (see [5.11.2](#)), skills (see [5.11.3](#)) and attributes (see [5.11.4](#)).

5.11.2 Knowledge for T9

The knowledge recommended for T9: “Public service related to standards” is defined in [Table 28](#).

Table 28 — Knowledge recommended for T9

Knowledge	Description
K18: Knowledge of standards application to the development of technical regulations	See the description of K18 in 5.4.2 (Knowledge for T2).
K16: Knowledge of the laws and systems related to standardization	See the description of K16 in 5.8.2 (Knowledge for T6).
K17: Knowledge of the legislation process and methods	Standards professionals should understand the system, process and methods of national legislation.
K19: Knowledge of responding to foreign technical regulations (WTO/TBT)	See the description of K19 in 5.7.2 (Knowledge for T5).
K7: Knowledge of harmonization with International Standards	See the description of K7 in 5.3.2 (Knowledge for T1).
K4: Knowledge of methodologies for performance management	See the description of K4 in 5.3.2 (Knowledge for T1).

5.11.3 Skills for T9

The skills recommended for T9: “Public service related to standards” are defined in [Table 29](#).

Table 29 — Skills recommended for T9

Skills	Description
S28: Ability to interpret relevant documents and official letters related to WTO/TBT	Standards professionals should be able to interpret relevant documents (e.g. notifications, specific trade concerns) and official letters related to WTO/TBT.
S27: Ability to apply standards to technical regulations	Standards professionals should be able to apply standards to technical regulations, whether these are to be established or revised. NOTE For additional information on the application of standards to technical regulations, see Reference [43] .
S29: Ability to communicate with organizations related to WTO/TBT	Standards professionals should know how to communicate with organizations related to WTO/TBT [e.g. through a national WTO/TBT enquiry point(s)]. Standards professionals should be able to search notifications and specific trade concerns (STCs) using the WTO/TBT Information Management System [50] . NOTE For information on standards-related notifications under the WTO/TBT Code of Good Practice, see Reference [44] .
S4: Ability to identify the needs of standardization	See the description of S4 in 5.3.3 (Skills for T1).
S3: Ability to develop action plans for implementing the strategic plan	See the description of S3 in 5.3.3 (Skills for T1).
S2: Ability to conduct performance measurement and analysis for standardization	See the description of S2 in 5.3.3 (Skills for T1).
S26: Ability related to drafting law	Standards professionals should be able to prepare a draft of law (e.g. acts, decrees, rules, ordinances, regulations) in accordance with the national rules for legislative drafting.

5.11.4 Attributes for T9

The attributes recommended for T9: “Public service related to standards” are defined in [Table 30](#).

Table 30 — Skills recommended for T9

Attributes	Description
A17: Responsible/accountable	See the description of A17 in 5.3.4 (Attribute for T1)
A18: Results-oriented/willing to improve and/or learn	See the description of A18 in 5.3.4 (Attribute for T1)
A4: Attentive/good listener	See the description of A4 in 5.3.4 (Attributes for T1).
A14: Open-minded	See the description of A14 in 5.3.4 (Attributes for T1).
A9: Diplomatic	See the description of A9 in 5.7.4 (Attributes for T5).

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Annex A (informative)

Survey questionnaire to identify the competence of standards professionals in standards-related organizations

A.1 General

To identify the competence requirements for standards professionals, KATS and KSA conducted a survey. The first round of the survey was conducted from October to December 2017 on 21 economies in Asia-Pacific Economic Cooperation (APEC) as part of the APEC project “Inspiring Next Generation of Standards Professional Development: Phase 2 – Developing Career Path and Career Map”^[21]. The second round was conducted from August to October 2018, following the formal approval of this document by the ISO/TMB in May 2018. Of 448 total responses, 408 responses, either fully or partially completed, were analysed and are reflected in this document to an offer objective reasoning of the required or recommended knowledge, skills and attributes for standards professionals.

The survey began with its purpose, terms and definitions followed by detailed questions, which asked about the importance of tasks, responsible divisions and positions of these tasks, and the associated knowledge, skills and attributes per task.

The survey included two types of questions. The survey questions on competence for standards professionals in companies (see ISO/IWA 30-1:2019, A.2, Q7 to Q16) included five tasks identified in companies, including 18 knowledge, 16 skills and 20 attributes competencies. The survey questions on competence for standards professionals in standards-related organizations (see Q7 to Q16 in A.2) included nine tasks identified in standards-related organizations, including 20 knowledge, 29 skills and 20 attributes competencies. Questions Q17, Q18 and Q19 (see A.2) are common questions for both types.

NOTE The term was changed from “standards-speciality organization” to “standards-related organization” at the second ISO/IWA 30 workshop.

A.2 Survey questions on competence for standards professionals in standards-related organizations

- Q7. Which TASKS (see 4.1) are important related to standardization in your organization? (SRO task 1/9 “Standardization planning and evaluation”.)
- Q7.1 Please select the most relevant division/department responsible in your organization for SRO task 1/9 “Standardization planning and evaluation”.
- Q7.2 Which sub-tasks are important in SRO task 1/9 “Standardization planning and evaluation”?
- Q7.3 Which sub-tasks require more experience in SRO task 1/9 “Standardization planning and evaluation”?
- Q7.4 Which of the types of KNOWLEDGE (see 4.2) are important in SRO task 1/9 “Standardization planning and evaluation”?
- Q7.5 Which of the SKILLS (see 4.3) are important in SRO task 1/9 “Standardization planning and evaluation”?
- Q7.6 Which of the ATTRIBUTES (see 4.4) are important in SRO task 1/9 “Standardization planning and evaluation”?

- Q8. Which TASKS (see [4.1](#)) are important related to standardization in your organization? (SRO task 2/9 “Standards development: work programme management”.)
- Q8.1 Please select the most relevant division/department responsible in your organization for SRO task 2/9 “Standards development: work programme management”.
- Q8.2 Which sub-tasks are important in SRO task 2/9 “Standards development: work programme management”.
- Q8.3 Which sub-tasks require more experience in SRO task 2/9 “Standards development: work programme management”.
- Q8.4 Which of the types of KNOWLEDGE (see [4.2](#)) are important in SRO task 2/9 “Standards development: work programme management”.
- Q8.5 Which of the SKILLS (see [4.3](#)) are important in SRO task 2/9 “Standards development: work programme management”.
- Q8.6 Which of the ATTRIBUTES (see [4.4](#)) are important in SRO task 2/9 “Standards development: work programme management”.
- Q9. Which TASKS (see [4.1](#)) are important related to standardization in your organization? (SRO task 3/9 “Standards development: committee operation and assistance”.)
- Q9.1 Please select the most relevant division/department responsible in your organization for SRO task 3/9 “Standards development: committee operation and assistance”.
- Q9.2 Which sub-tasks are important in SRO task 3/9 SRO task 3/9 “Standards development: committee operation and assistance”?
- Q9.3 Which sub-tasks require more experience in SRO task 3/9 “Standards development: committee operation and assistance”?
- Q9.4 Which of the types of KNOWLEDGE (see [4.2](#)) are important in SRO task 3/9 “Standards development: committee operation and assistance”?
- Q9.5 Which of the SKILLS (see [4.3](#)) are important in SRO task 3/9 “Standards development: committee operation and assistance”?
- Q9.6 Which of the ATTRIBUTES (see [4.4](#)) are important in SRO task 3/9 “Standards development: committee operation and assistance”?
- Q10. Which TASKS (see [4.1](#)) are important related to standardization in your organization? (SRO task 4/9 “Standards development: drafting standards”.)
- Q10.1 Please select the most relevant division/department responsible in your organization for SRO task 4/9 “Standards development: drafting standards”.
- Q10.2 Which sub-tasks are important in SRO task 4/9 “Standards development: drafting standards”?
- Q10.3 Which sub-tasks require more experience in SRO task 4/9 “Standards development: drafting standards”?
- Q10.4 Which of the types of KNOWLEDGE (see [4.2](#)) are important in SRO task 4/9 “Standards development: drafting standards”?
- Q10.5 Which of the SKILLS (see [4.3](#)) are important in SRO task 4/9 “Standards development: drafting standards”?

- Q10.6 Which of the ATTRIBUTES (see 4.4) are important in SRO task 4/9 “Standards development: drafting standards”?
- Q11. Which TASKS (see 4.1) are important related to standardization in your organization? (SRO task 5/9 “Participation in international standardization”).
- Q11.1 Please select the most relevant division/department responsible in your organization for SRO task 5/9 “Participation in international standardization”.
- Q11.2 Which sub-tasks are important in SRO task 5/9 “Participation in international standardization”?
- Q11.3 Which sub-tasks require more experience in SRO task 5/9 “Participation in international standardization”?
- Q11.4 Which of the types of KNOWLEDGE (see 4.2) are important in SRO task 5/9 “Participation in international standardization”?
- Q11.5 Which of the SKILLS (see 4.3) are important in SRO task 5/9 “Participation in international standardization”?
- Q11.6 Which of the ATTRIBUTES (see 4.4) are important in SRO task 5/9 “Participation in international standardization”?
- Q12. Which TASKS (see 4.1) are important related to standardization in your organization? (SRO task 6/9 “Editing and publication of standards”).
- Q12.1 Please select the most relevant division/department responsible in your organization for SRO task 6/9 “Editing and publication of standards”.
- Q12.2 Which sub-tasks are important in SRO task 6/9 “Editing and publication of standards”?
- Q12.3 Which sub-tasks require more experience in SRO task 6/9 “Editing and publication of standards”?
- Q12.4 Which of the types of KNOWLEDGE (see 4.2) are important in SRO task 6/9 “Editing and publication of standards”?
- Q12.5 Which of the SKILLS (see 4.3) are important in SRO task 6/9 “Editing and publication of standards”?
- Q12.6 Which of the ATTRIBUTES (see 4.4) are important in SRO task 6/9 “Editing and publication of standards”?
- Q13. Which TASKS (see 4.1) are important related to standardization in your organization? (SRO task 7/9 “Dissemination of standards”).
- Q13.1 Please select the most relevant division/department responsible in your organization for SRO task 7/9 “Dissemination of standards”.
- Q13.2 Which sub-tasks are important in SRO task 7/9 “Dissemination of standards”?
- Q13.3 Which sub-tasks require more experience in SRO task 7/9 “Dissemination of standards”?
- Q13.4 Which of the types of KNOWLEDGE (see 4.2) are important in SRO task 7/9 “Dissemination of standards”?
- Q13.5 Which of the SKILLS (see 4.3) are important in SRO task 7/9 “Dissemination of standards”?
- Q13.6 Which of the ATTRIBUTES (see 4.4) are important in SRO task 7/9 “Dissemination of standards”?

- Q14. Which TASKS (see [4.1](#)) are important related to standardization in your organization? (SRO task 8/9 “Training and education about standards”.)
- Q14.1 Please select the most relevant division/department responsible in your organization for SRO task 8/9 “Training and education about standards”.
- Q14.2 Which sub-tasks are important in SRO task 8/9 “Training and education about standards”?
- Q14.3 Which sub-tasks require more experience in SRO task 8/9 “Training and education about standards”?
- Q14.4 Which of the types of KNOWLEDGE (see [4.2](#)) are important in SRO task 8/9 “Training and education about standards”?
- Q14.5 Which of the SKILLS (see [4.3](#)) are important in SRO task 8/9 “Training and education about standards”?
- Q14.6 Which of the ATTRIBUTES (see [4.4](#)) are important in SRO task 8/9 “Training and education about standards”?
- Q15. Which TASKS (see [4.1](#)) are important related to standardization in your organization? (SRO task 9/9 “Public service related to standards”.)
- Q15.1 Please select the most relevant division/department responsible in your organization for SRO task 9/9 “Public service related to standards”.
- Q15.2 Which sub-tasks are important in SRO task 9/9 “Public service related to standards”?
- Q15.3 Which sub-tasks require more experience in SRO task 9/9 “Public service related to standards”?
- Q15.4 Which of the types of KNOWLEDGE (see [4.2](#)) are important in SRO task 9/9 “Public service related to standards”?
- Q15.5 Which of the SKILLS (see [4.3](#)) are important in SRO task 9/9 “Public service related to standards”?
- Q15.6 Which of the ATTRIBUTES (see [4.4](#)) are important in SRO task 9/9 “Public service related to standards”?
- Q16. In your organization, do you think there are any other important tasks and sub-tasks related to standardization?
- Q16.1 What is the task related to standardization? Please provide details.
- Q16.2 What sub-tasks relate to the task you have written? Please provide details.
- Q16.3 Which sub-tasks require more experience in the task?
- Q16.4 Which of the types of KNOWLEDGE (see [4.2](#)) are important in the task you have written?
- Q16.5 Which of the SKILLS (see [4.3](#)) are important in the task you have written?
- Q16.6 Which of the ATTRIBUTES (see [4.4](#)) are important in the task you have written?
- Q17. What should be considered or discussed when International Standards for the competence requirements of standards professionals are proposed and developed?
- Q18. Please share your ideas or suggestions for the development of career path and competence requirements.
- Q19. Respondent ID

Annex B (informative)

Summary of ISO/IWA 30 survey results

B.1 Survey results for knowledge

Table B.1 shows the ISO/IWA 30 survey results by rank for knowledge in the nine tasks of standards professionals in standards-related organizations.

Table B.1 — Survey results for knowledge

Knowledge		Rank by task									Total rank ^a
		T1	T2	T3	T4	T5	T6	T7	T8	T9	
K2	Knowledge of existing standards/technical regulations in a specified sector ^c	1	1	3	1	4	7	3	1	1	1 ^b
K1	Technical knowledge in a specified sector ^c	4	2	4	3	5	4	4	2	3	2 ^b
K8	Knowledge of the principles, process and procedure for standards development ^c	2	3	1	4	1	2	4	8	11	3 ^b
K12	Knowledge of international standardization activities and organizations ^c	6	4	5	6	2	9	4	5	8	4 ^b
K7	Knowledge of harmonization with International Standards	8 ^d	8 ^d	7 ^d	4 ^d	2 ^d	4 ^d	4 ^d	12	7 ^d	5
K10	Knowledge of the drafting rules for standards	11	5 ^d	2 ^d	2 ^d	6 ^d	1 ^d	14	16	16	6
K3	Knowledge of methodologies/methods for strategy development	3 ^d	10	8 ^d	9 ^d	7 ^d	10	12	12	10	7
K9	Knowledge of project management	12	6 ^d	6 ^d	11	11	11	11	6 ^d	12	8
K18	Knowledge of standards application to the development of technical regulations	10	6 ^d	10	11	9 ^d	14	9 ^d	16	2 ^d	9
K5	Knowledge of methods for standard/technology analysis and needs survey	5 ^d	11	16	10	12	14	4 ^d	8 ^d	12	10
K16	Knowledge of the laws and systems related to standardization	13	13	10	13	14	8 ^d	12	6 ^d	3 ^d	11
K14	Knowledge of IT systems and database management	20	14	8 ^d	13	12	3 ^d	2 ^d	8 ^d	16	12
K4	Knowledge of methodologies for performance management	9 ^d	11	15	8 ^d	9 ^d	16	14	12	9 ^d	13
K13	Knowledge of marketing and public relations	14	19	19	17	17	4 ^d	1 ^d	4 ^d	16	14
K11	Knowledge of the validation methods for standards	16	16	12	7 ^d	14	11	9 ^d	18	12	15
K6	Knowledge of programme management	7 ^d	8 ^d	12	15	18	16	18	12	12	16
K17	Knowledge of the legislation process and methods	16	14	12	17	16	11	16	19	5 ^d	17
K19	Knowledge of responding to foreign technical regulations (WTO/TBT)	14	16	17	15	8 ^d	20	18	19	5 ^d	18
K15	Knowledge of human resource development	19	16	17	17	20	21	20	3 ^d	16	19

^a The total rank is based on the sum of the ranks of each knowledge for the nine tasks.

^b The four knowledge with highest total rank have been chosen as common competences considering the survey results.

^c Common knowledge.

^d Knowledge for a specific task.

Table B.1 (continued)

Knowledge		Rank by task									Total rank ^a
		T1	T2	T3	T4	T5	T6	T7	T8	T9	
K20	Knowledge of statistical methods	18	19	19	17	20	16	16	8 ^d	16	20

^a The total rank is based on the sum of the ranks of each knowledge for the nine tasks.

^b The four knowledge with highest total rank have been chosen as common competences considering the survey results.

^c Common knowledge.

^d Knowledge for a specific task.

B.2 Survey results for skills

Table B.2 shows the ISO/IWA 30 survey results by rank for skills in the nine tasks of standards professionals in standards-related organizations.

Table B.2 — Survey results for skills

Skills		Rank by task									Total rank ^a
		T1	T2	T3	T4	T5	T6	T7	T8	T9	
S1	Ability to develop a strategic plan for standardization ^c	1	2	5	7	4	7	6	7	2	1 ^b
S10	Written and verbal communication and presentation skills ^c	12	13	3	5	3	6	2	3	6	2 ^b
S5	Ability to collect relevant information of standards and standardization ^c	6	7	5	3	6	7	5	7	8	3 ^b
S11	Ability to work with committees and individuals ^c	4	5	1	2	2	7	14	10	11	4 ^b
S3	Ability to develop action plans for implementing the strategic plan	2 ^d	1 ^d	4 ^d	12	9 ^d	13	6 ^d	6 ^d	7 ^d	5
S4	Ability to identify the needs of standardization	3 ^d	3 ^d	12	6 ^d	9 ^d	16	10	10	5 ^d	6
S9	Ability to manage multiple projects	7 ^d	7 ^d	2 ^d	10	14	10	10	5 ^d	11	7
S2	Ability to conduct performance measurement and analysis for standardization	5 ^d	3 ^d	14	8 ^d	11	11	13	9 ^d	9 ^d	7
S20	Language and communication skills	16	17	14	12	1 ^d	4	6 ^d	4 ^d	17	9
S14	Ability to draft standards	15	13	8 ^d	1 ^d	7 ^d	2	18	18	23	10
S8	Ability to prepare standards development plans	8 ^d	6 ^d	5 ^d	3 ^d	15	24	22	15	17	11
S13	Project management abilities	10	9 ^d	12	19	15	24	21	10	14	12
S12	Programme management abilities	11	12 ^e	10	15	12	18	16	18	23	13
S6	Ability to quantify the needs and expectations of interested parties	8 ^d	19	10	15	17	18	14	15	20	14
S19	Documentation skills of international standardization	19	15	16	12	5 ^d	16	18	21	20	15
S16	Leadership skills for committee operation	14	11	8 ^d	17	12	18	22	23	20	16
S24	Ability to plan education and training programmes	22	24	25	24	20	13	6 ^d	2 ^d	11	17

^a The total rank is based on the sum of the ranks of each skill for the nine tasks.

^b The four skills with highest total rank have been chosen as common competences considering the survey results.

^c Common skill.

^d Skill for a specific task.

^e Any skill that does not have a rank by task from 1 to 9 has been allocated after the experts' review.