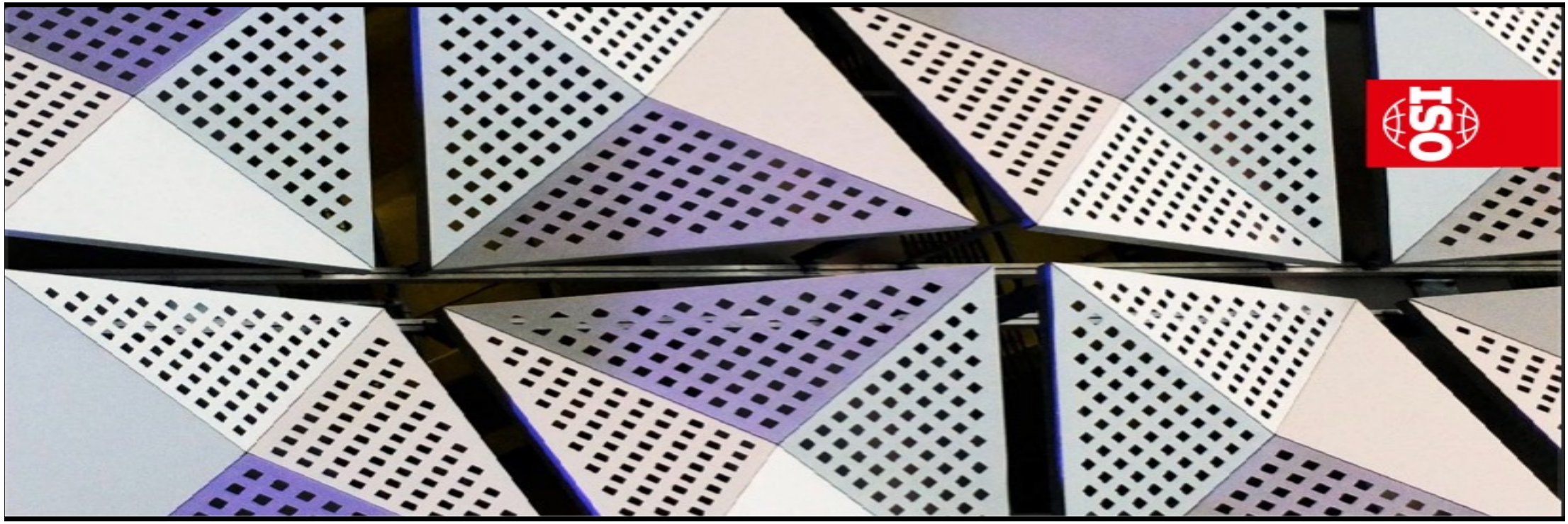

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INTERNATIONAL STANDARD

ISO 56000

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Innovation management — Fundamentals and vocabulary

Management de l'innovation — Principes essentiels et vocabulaire

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Reference number
ISO 56000:2020(E)

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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).

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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.

This document was prepared by Technical Committee ISO/TC 279, *Innovation management*.

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.

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Introduction

0.1 General

An organization's ability to innovate is recognized as a key factor for sustained growth, economic viability, increased well-being and the development of society.

The innovation capabilities of an organization include the ability to understand and respond to changing conditions of its context, to pursue new opportunities and to leverage the knowledge and creativity of people within the organization in collaboration with external interested parties.

This document is intended to help the user by establishing a coherent, consistent and common framework to:

a) understand the main terms, definitions, concepts and principles of innovation management;

b) support an organization to establish, implement, maintain and continually improve an innovation management system and other innovation management standards; and

c) facilitate communication and create awareness of innovation activities internally and across organizations.

Clause 3 specifies the terms and definitions that are necessary to understand innovation management and an innovation management system.

Clause 4 provides the fundamental concepts and innovation management principles, describing why organizations should engage in innovation activities, the main concepts regarding innovation and the principles that an organization should consider as the basis for the effective management of innovation activities as well as the foundation of the innovation management system.

Annex A presents the concept relationships graphically.

Annex B presents the relationship between the definitions within this document and those provided by other policy-setting organizations.

0.2 Relationships with other innovation management standards

This document relates to the ISO 56000 family of standards, developed by ISO/TC 279, as follows:

a) ISO 56002 *Innovation management — Innovation management system — Guidance*, provides guidance for organizations to establish, implement, maintain and continually improve an innovation management system;

b) ISO 56003 *Innovation management — Tools and methods for innovation partnership — Guidance*, provides guidance for organizations working together to innovate;

c) ISO TR 56004 *Innovation management assessment — Guidance*, provides guidance for organizations to plan, implement and follow-up on an innovation management assessment;

d) ISO 56005[1)] and subsequent standards provide further guidance on tools and methods to support the implementation of an innovation management system.

1) Under preparation. Stage at the time of publication: ISO/DIS 56005.

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Innovation management — Fundamentals and vocabulary

1 Scope

1.1 This document provides the vocabulary, fundamental concepts and principles of innovation management and its systematic implementation. It is applicable to:

a) organizations implementing an innovation management system or performing innovation management assessments;

b) organizations that need to improve their ability to effectively manage innovation activities;

c) users, customers and other relevant interested parties (e.g. suppliers, partners, funding organizations, investors, universities and public authorities) seeking confidence in the innovation capabilities of an organization;

d) organizations and interested parties seeking to improve communication through a common understanding of the vocabulary used in innovation management;

e) providers of training in, assessment of, or consultancy for, innovation management and innovation management systems;

f) developers of innovation management and related standards.

1.2 This document is intended to be applicable to:

a) all types of organizations, regardless of type, sector, maturity-level or size;

b) all types of innovations, e.g. product, service, process, model and method, ranging from incremental to radical;

c) all types of approaches, e.g. internal and open innovation, user-, market-, technology- and design-driven innovation activities.

This document specifies the terms and definitions applicable to all innovation management and innovation management system standards developed by ISO/TC 279.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

3.1 General terms related to innovation

3.1.1
innovation
new or changed *entity* (3.2.5), realizing or redistributing *value* (3.7.6)

Note 1 to entry: Novelty and value are relative to, and determined by, the perception of the *organization* (3.2.2) and relevant *interested parties* (3.2.4).

Note 2 to entry: An innovation can be a product, service, *process* (3.1.5), model, method, etc.

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Note 3 to entry: Innovation is an outcome. The word "innovation" sometimes refers to activities or processes resulting in, or aiming for, innovation. When "innovation" is used in this sense, it should always be used with some form of qualifier, e.g. "innovation activities".

Note 4 to entry: For the purpose of statistical measurement, refer to the Oslo Manual 2018, 4th edition, by OECD/Eurostat. See Annex B.2 for a comparison between the definitions of innovation by ISO and the OECD/Eurostat.

[SOURCE: ISO 9000:2015, 3.6.15, modified by using the term "entity" instead of "object" and by replacing Notes 1 and 2 to entry with the new Notes 1 to 4 to entry.]

3.1.1.1
radical innovation
breakthrough innovation
innovation (3.1.1) with a high degree of change

Note 1 to entry: Change can relate to the *entity* (3.2.5) or its impact.

Note 2 to entry: Radical innovation is at the other end of the continuum to incremental innovation.

3.1.1.2
disruptive innovation
innovation (3.1.1) initially addressing less demanding needs, displacing established offerings

Note 1 to entry: Compared to established offerings, disruptive innovations are initially simpler offerings with lower *performance* (3.7.1) and they are generally more cost effective, requiring fewer resources and offered at lower cost.

Note 2 to entry: Disruption occurs when a significant ratio of users or customers have adopted the innovation.

Note 3 to entry: Disruptive innovations can create new markets and value networks by addressing new users and deploying new business and value realization models.

3.1.2
management
coordinated activities to direct and control an *organization* (3.2.2)

Note 1 to entry: Management can include establishing *strategies* (3.3.4), *policies* (3.3.2) and *objectives* (3.3.3) and *processes* (3.1.5) to achieve those objectives.

Note 2 to entry: Control can include defining roles, appointing authority, assigning tasks, establishing incentives and rewards, and empowering and engaging people.

Note 3 to entry: The word "management" sometimes refers to people, i.e. a person or group of people with authority and responsibility for the conduct and control of an organization. When "management" is used in this sense, it should always be used with some form of qualifier, e.g. "top management".

[SOURCE: ISO 9000:2015, 3.3.3, modified by adding "strategies" to Note 1 to entry and by simplifying the text of Note 3 to entry.]

3.1.2.1
innovation management
management (3.1.2) with regard to *innovation* (3.1.1)

Note 1 to entry: Innovation management can include establishing an *innovation vision* (3.3.1.1), *innovation strategy* (3.3.4.1), *innovation policy* (3.3.2.1) and *innovation objectives* (3.3.3.1), and organizational structures and *innovation processes* (3.1.5.1) to achieve those objectives through planning, support, operations, *performance* (3.7.1) *evaluation* (3.8.3) and *improvement* (3.1.7).

3.1.3
system
set of interrelated or interacting elements

[SOURCE: ISO 9000:2015, 3.5.1]

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3.1.3.1
management system
set of interrelated or interacting elements of an *organization* (3.2.2) to establish *strategies* (3.3.4), *policies* (3.3.2) and *objectives* (3.3.3) and *processes* (3.1.5) to achieve those objectives

Note 1 to entry: A management system can address a single discipline or several disciplines, e.g. *innovation management* (3.1.2.1), quality management, financial management, or environmental management.

Note 2 to entry: The management system elements include the organization's structure, roles and responsibilities, planning, support and operation.

Note 3 to entry: The scope of a management system can include the whole of the organization, specific and identified functions of the organization, specific and identified sections of the organization, or one or more functions across a group of organizations.

Note 4 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards. The original definition has been modified by adding "strategies" and by adding examples to Note 1 to entry, by replacing "system" with "management system" and adding "support" to Note 2 to entry.

3.1.3.2
innovation system
system (3.1.3) with regard to *innovation* (3.1.1)

Note 1 to entry: An innovation system can be related to a country or nation, e.g. a national innovation system, a region, an industry sector, an entire or part of an *organization* (3.2.2), a cluster or network of organizations, a community of practitioners or any value network or ecosystem of various *interested parties* (3.2.4).

Note 2 to entry: An innovation system can include an *innovation management system* (3.1.3.3).

3.1.3.3
innovation management system
management system (3.1.3.1) with regard to *innovation* (3.1.1)

Note 1 to entry: An innovation management system can be part of a general or integrated management system of an *organization* (3.2.2).

3.1.4
innovation activity
activity with regard to *innovation* (3.1.1)

Note 1 to entry: Innovation activities can be planned or unplanned.

Note 2 to entry: Innovation activities are directly or indirectly aiming for innovation. Not all innovation activities result in innovation.

3.1.5
process
set of interrelated or interacting activities that use inputs to deliver an intended result

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards. The original definition has been modified to prevent circularity between process and output.

3.1.5.1
innovation process
process (3.1.5) with regard to *innovation* (3.1.1)

Note 1 to entry: Innovation processes are generally planned and carried out under controlled conditions to realize *value* (3.7.6).

Note 2 to entry: Innovation processes can be configured to suit *innovation initiatives* (3.6.1).

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Note 3 to entry: Innovation processes are designed to manage *uncertainty* (3.2.6) with innovation as the intended result. Not all innovation processes result in innovation.

Note 4 to entry: An innovation process consists of several *innovation activities* (3.1.4). Examples of innovation processes are identification of opportunities, creation and validation of concepts, and development and *deployment* (3.6.4) of solutions.

Note 5 to entry: Innovation processes can be implemented within an *organization* (3.2.2) or across organizations in the case of, e.g. collaborative innovation, innovation clusters, value networks, or ecosystems.

3.1.6
invention
new *entity* (3.2.5)

Note 1 to entry: An invention should be new in the sense that it has not existed before.

Note 2 to entry: An invention is created and is generally the result of intellectual work.

Note 3 to entry: An invention can be a product, service, *process* (3.1.5), model, method, etc.

3.1.6.1
patentable invention
invention (3.1.6) eligible for patent protection under the applicable law

3.1.7
improvement
activity to enhance *performance* (3.7.1)

Note 1 to entry: The activity can be recurring or singular.

[SOURCE: ISO 9000:2015, 3.3.1]

3.1.7.1
continual improvement
recurring activity to enhance *performance* (3.7.1)

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

3.2 Terms related to organization

3.2.1
top management
person or group of people who directs and controls an *organization* (3.2.2) at the highest level

Note 1 to entry: Top management has the power to delegate authority and provide resources within the organization.

Note 2 to entry: If the scope of the *management system* (3.1.3.1) covers only part of an organization, then top management refers to those who direct and control that part of the organization.

Note 3 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

3.2.2
organization
person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its *objectives* (3.3.3)

Note 1 to entry: The concept of organization includes, but is not limited to sole-trader, company, corporation, firm, enterprise, authority, partnership, charity or institution of any size, or part or combination thereof, whether incorporated or not, public, or private, governmental, or non-governmental, national, or international.

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Note 2 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards. The original definition has been modified by adding more examples to Note 1 to entry.

3.2.3
context of the organization
combination of internal and external issues that can have an effect on an *organization's* (3.2.2) approach to developing and achieving its *objectives* (3.3.3)

Note 1 to entry: In English, this concept is often referred to by other terms such as "business environment", "organizational environment" or "ecosystem of an organization".

[SOURCE: ISO 9000:2015, 3.2.2, modified by removing the original Notes 1, 2 and 4 to entry.]

3.2.4
interested party
person or *organization* (3.2.2) that can affect, be affected by, or perceive itself to be affected by a decision or activity

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

3.2.5
entity
anything perceivable or conceivable

EXAMPLE Product, service, *process* (3.1.5), model (e.g. an organizational, business, operational or value realization model), method (e.g. a marketing or management method) or a combination thereof.

Note 1 to entry: Entities can be material (e.g. an engine), immaterial (e.g. a project plan) or imagined (e.g. the future state of the organization).

[SOURCE: ISO 9000:2015, 3.6.1, modified by replacing "object" with "entity" as the preferred term, by adding and removing examples and by replacing "non-material" by "immaterial" in Note 1 to entry.]

3.2.6
uncertainty
state of deficiency of information, understanding, or *knowledge* (3.4.1)

Note 1 to entry: The deficiency can be full or partial.

Note 2 to entry: Uncertainty can be related to the consequences or likelihood of an event, or the characteristics of an *entity* (3.2.5).

Note 3 to entry: Uncertainties can be managed by systematically addressing critical assumptions regarding the consequences, likelihood, or characteristics of events and entities, to gain information, understanding and knowledge.

3.2.7
risk
effect of *uncertainty* (3.2.6)

Note 1 to entry: An effect is a *deviation* (3.8.10) from the expected — positive or negative.

Note 2 to entry: Risk is often characterized by reference to potential "events" (as defined in ISO Guide 73:2009, 3.5.1.3) and "consequences" (as defined in ISO Guide 73:2009, 3.6.1.3) or a combination of these.

Note 3 to entry: Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated "likelihood" (as defined in ISO Guide 73:2009, 3.6.1.1) of occurrence.

Note 4 to entry: This constitutes one of the common terms and core definitions of the high-level structure for ISO management system standards. The definition has been modified by substituting the original Note 2 to entry with a separate definition of uncertainty.

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3.2.8
outsource (verb)
make an arrangement where an external *organization* (3.2.2) performs part of an organization's function or *process* (3.1.5)

Note 1 to entry: An external organization is outside the scope of the *management system* (3.1.3.1), although the outsourced function or process is within the scope.

Note 2 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

3.2.9
documented information
information required to be controlled and maintained by an *organization* (3.2.2) and the medium on which it is contained

Note 1 to entry: Documented information can be in any format and media, and from any source.

Note 2 to entry: Documented information can refer to:

— the *management system* (3.1.3.1), including related *processes* (3.1.5);

— information created in order for the organization to operate (documentation);

— evidence of results achieved (records).

Note 3 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

3.2.10
culture
shared values, beliefs and behaviours of an *organization* (3.2.2) or community

3.2.11
work environment
set of conditions under which work is performed

[SOURCE: ISO 9000:2015, 3.5.5, modified by removing Note 1 to entry.]

3.3 Terms related to objective

3.3.1
vision
aspiration of what an *organization* (3.2.2) would like to become or achieve as expressed by *top management* (3.2.1)

[SOURCE: ISO 9000:2015, 3.5.10, modified by adding "achieve" to the definition.]

3.3.1.1
innovation vision
vision (3.3.1) with regard to *innovation* (3.1.1)

Note 1 to entry: Generally, the innovation vision is consistent with the overall vision of the *organization* (3.2.2) and provides a framework for the setting of an *innovation strategy* (3.3.4.1), *innovation policy* (3.3.2.1) and *innovation objectives* (3.3.3.1).

3.3.2
policy
intentions and direction of an *organization* (3.2.2), as formally expressed by its *top management* (3.2.1)

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

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3.3.2.1
innovation policy
policy (3.3.2) with regard to *innovation* (3.1.1)

Note 1 to entry: Generally, the innovation policy is consistent with the overall policy of the *organization* (3.2.2), can be aligned with the *innovation vision* (3.3.1.1) and provides a framework for the setting of an *innovation strategy* (3.3.4.1) and *innovation objectives* (3.3.3.1).

Note 2 to entry: The innovation management principles can form a basis for the establishment of an innovation policy.

3.3.3
objective
result to be achieved

Note 1 to entry: An objective can be strategic, tactical, or operational.

Note 2 to entry: Objectives can relate to different disciplines (such as financial, health and safety, and environmental goals) and can apply at different levels (such as strategic, organization-wide, project, product, initiative and *process* (3.1.5)).

Note 3 to entry: An objective can be expressed in other ways, e.g. as an intended outcome, a purpose, an operational criterion, as an *innovation objective* (3.3.3.1), or by the use of other words with similar meaning (e.g. aim, goal, or target).

Note 4 to entry: In the context of *innovation management systems* (3.1.3.3), *innovation objectives* (3.3.3.1) are set by the *organization* (3.2.2) consistent with the *innovation strategy* (3.3.4.1) and the *innovation policy* (3.3.2.1), to achieve specific results.

Note 5 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards. The original definition has been modified by adding “initiative” to Note 2 to entry and “innovation strategy” to Note 4 to entry.

3.3.3.1
innovation objective
objective (3.3.3) with regard to *innovation* (3.1.1)

Note 1 to entry: Generally, innovation objectives are based on the *innovation strategy* (3.3.4.1) and the *innovation policy* (3.3.2.1) of the *organization* (3.2.2).

Note 2 to entry: Innovation objectives are generally specified for relevant functions, levels, initiatives and *processes* (3.1.5) in the organization.

3.3.4
strategy
plan to achieve *objectives* (3.3.3)

Note 1 to entry: A strategy generally includes a coordinated set of activities and the allocation of resources necessary to achieve the objectives.

Note 2 to entry: A strategy can be applied at different levels and functions in or across *organizations* (3.2.2). An overall strategy can be supported by a set of more detailed lower-level and functional strategies.

Note 3 to entry: A strategy is generally planned but can evolve or emerge over time as a result of continual adaptations and adjustments.

[SOURCE: ISO 9000:2015, 3.5.12, modified by removing “long-term or overall” before “objectives” and by adding Notes 1 to 3 to entry.]

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3.3.4.1
innovation strategy
strategy (3.3.4) with regard to *innovation* (3.1.1)

Note 1 to entry: Generally, the innovation strategy is consistent with the overall strategy and strategic direction of the *organization* (3.2.2), can be aligned with the *innovation vision* (3.3.1.1) and *innovation policy* (3.3.2.1) and provides a framework for the setting of *innovation objectives* (3.3.3.1).

Note 2 to entry: An innovation strategy generally defines the rationale for engaging in *innovation activities* (3.1.4) and *innovation initiatives* (3.6.1) and how those activities are expected to realize *value* (3.7.6) for the organization and relevant *interested parties* (3.2.4).

Note 3 to entry: An innovation strategy can include the choices made in terms of what will be done, types of innovations to be focused on, who will be involved in terms of interested parties, what will be required in terms of resources, structures and *processes* (3.1.5), who will be responsible, when it will be completed, and how results will be *monitored* (3.8.1), *measured* (3.8.2), *evaluated* (3.8.3), protected, communicated and documented etc.

3.4 Terms related to knowledge

3.4.1
knowledge
outcome of the assimilation of information through learning

Note 1 to entry: Knowledge can be acquired through research, experience, or education.

Note 2 to entry: Knowledge include information, facts, principles, theories and practices that is related to a field of work or study.

Note 3 to entry: Knowledge can be individual or collective. Collective knowledge is gained from people collaborating and releasing their tacit and subconscious knowledge.

3.4.2
competence
ability to apply *knowledge* (3.4.1) and skills to achieve intended results

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

3.4.3
insight
profound and unique *knowledge* (3.4.1) about an *entity* (3.2.5)

Note 1 to entry: In the context of *innovation activities* (3.1.4), insights can reveal opportunities for the realization of *value* (3.7.6).

Note 2 to entry: Identifying insights is generally part of the *innovation processes* (3.1.5.1).

3.5 Terms related to intellectual property

3.5.1
intellectual asset
intangible creation or *knowledge* (3.4.1) resource which has *value* (3.7.6)

3.5.2
intellectual property
result of intellectual activities that is eligible for protection by law

Note 1 to entry: Intellectual property can include *inventions* (3.1.6), scientific discoveries, literary, scientific, or artistic works, symbols, designs, names, and images used in commerce, industrial designs, performances, recordings, broadcasts and other creative and industrial works.

Note 2 to entry: “Protection by law” refers to areas of law considered to be *intellectual property rights* (3.5.3).

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Note 3 to entry: See Annex B.3 for a comparison between the definitions related to intellectual property by ISO and TRIPS/WIPO Convention.

3.5.3
intellectual property rights
legal rights associated with *intellectual property* (3.5.2)

Note 1 to entry: Intellectual property rights include copyright and related rights, trademarks, geographical indications, industrial design rights, patents, layout-designs (topographies) of integrated circuits and protection of undisclosed information.

Note 2 to entry: See Annex B.3 for a comparison between the definitions related to intellectual property by ISO and TRIPS/WIPO Convention.

3.5.4
intellectual property management
management (3.1.2) with regard to *intellectual property* (3.5.2)

3.5.5
intellectual property strategy
strategy (3.3.4) with regard to *intellectual property* (3.5.2)

3.5.6
intellectual property policy
policy (3.3.2) with regard to *intellectual property* (3.5.2)

3.6 Terms related to innovation initiative

3.6.1
innovation initiative
set of coordinated activities aiming for *innovation* (3.1.1)

Note 1 to entry: An innovation initiative can be informal or formally controlled and can take the form of a project, program or any other kind of approach.

Note 2 to entry: An innovation initiative can be implemented by one or more *innovation processes* (3.1.5.1).

Note 3 to entry: The *objectives* (3.3.3) and scope of an innovation initiative can change and be updated, as the initiative proceeds. An initiative can be discontinued or put on hold or its output can be transferred to other initiatives, projects, or programs. Not all initiatives result in innovations.

Note 4 to entry: A set of innovation initiatives can form an *innovation portfolio* (3.6.2).

3.6.2
innovation portfolio
set of *innovation initiatives* (3.6.1) grouped together

Note 1 to entry: Innovation initiatives of the portfolio may not necessarily be interdependent or directly related.

Note 2 to entry: An innovation portfolio is generally used to facilitate the *management* (3.1.2) of innovation initiatives.

3.6.3
ideation
process (3.1.5) of generating, sharing and evolving ideas and concepts

Note 1 to entry: Ideation is generally part of *innovation processes* (3.1.5.1).

3.6.4
deployment
process (3.1.5) to bring *entities* (3.2.5) or resources into *effective* (3.7.4) action

Note 1 to entry: Deployment is generally part of the *innovation processes* (3.1.5.1).

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[SOURCE: Oxford English Dictionary, modified]

3.6.5
open innovation
process (3.1.5) for the *management* (3.1.2) of information and *knowledge* (3.4.1) sharing and flows across the boundaries of the *organization* (3.2.2) with regard to *innovation* (3.1.1)

Note 1 to entry: Open innovation can be a collaborative process involving several parties, e.g. in the form of a value network.

Note 2 to entry: Open innovation can be facilitated by the presence of an innovation ecosystem or value network.

3.6.6
innovation partnership
collaborative effort by two or more *organizations* (3.2.2) with the intention to achieve *innovation* (3.1.1)

Note 1 to entry: An innovation partnership can involve establishing joint *innovation objectives* (3.3.3.1), *strategies* (3.3.4), roles, structures, support and *processes* (3.1.5), including the contribution and sharing of resources, e.g. finances, *knowledge* (3.4.1) and people.

Note 2 to entry: The purpose of an innovation partnership can be for all parties to mutually benefit from jointly realizing *value* (3.7.6) from innovation opportunities.

3.7 Terms related to performance

3.7.1
performance
measurable result

Note 1 to entry: Performance can relate either to quantitative or qualitative findings.

Note 2 to entry: Performance can relate to the *management* (3.1.2) of activities, *processes* (3.1.5), products and services, *systems* (3.1.3), or *organizations* (3.2.2).

Note 3 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards. The original definition has been modified by modifying Note 2 to entry.

3.7.2
indicator
specific information on a state, condition, or impact

Note 1 to entry: Indicators are generally measurable and can be quantitative or qualitative.

3.7.3
efficiency
relationship between the result achieved and the resources used

[SOURCE: ISO 9000:2015, 3.7.10]

3.7.4
effectiveness
extent to which planned activities are realized and planned results are achieved

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards. The original definition has been modified by adding “are” before “achieved”.

3.7.5
innovation capability
ability to perform *innovation activities* (3.1.4) and *innovation initiatives* (3.6.1) to achieve *innovation* (3.1.1)

Note 1 to entry: Innovation capabilities can include proficiency in technologies, strategic intelligence, access to funds, operational functions and *processes* (3.1.5) contributing to innovation *performance* (3.7.1), competent and experienced people contributing to *innovation objectives* (3.3.3.1).

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3.7.6
value
gains from satisfying needs and expectations, in relation to the resources used

EXAMPLE Revenues, savings, productivity, sustainability, satisfaction, empowerment, engagement, experience, trust.

Note 1 to entry: Value is relative to, and determined by the perception of, the *organization* (3.2.2) and *interested parties* (3.2.4).

Note 2 to entry: Value can be financial or non-financial.

Note 3 to entry: Value can be created, realized, acquired, redistributed, shared, lost, or destroyed.

Note 4 to entry: The value of an *entity* (3.2.5) is generally determined in terms of the amount of other entities for which it can be exchanged.

Note 5 to entry: The word "value" sometimes refers to a (numerical) unit of data, e.g. the output from *measurement* (3.8.2) and "values" sometimes refers to principles or standards of behaviour, e.g. included in the concept of *culture* (3.2.10). When "value" is used in these senses, it should always be used with some form of qualifier, e.g. "numerical value" or the meaning should be obvious from the context.

3.8 Terms related to assessment

3.8.1
monitoring
determining the status of a *system* (3.1.3), a *process* (3.1.5), or an activity

Note 1 to entry: To determine the status, there may be a need to check, supervise, or critically observe.

Note 2 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

3.8.2
measurement
process (3.1.5) to determine a value

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

3.8.3
evaluation
process (3.1.5) of comparing results of analysis to established criteria

Note 1 to entry: Evaluation can be done to determine, e.g. *effectiveness* (3.7.4), *efficiency* (3.7.3), *performance* (3.7.1), *conformity* (3.8.8), or *value* (3.7.6).

3.8.4
assessment
process (3.1.5) comprising *monitoring* (3.8.1), *measurement* (3.8.2), analysis and *evaluation* (3.8.3)

3.8.4.1
innovation management assessment
assessment (3.8.4) with regard to *innovation management* (3.1.2.1)

Note 1 to entry: Innovation management assessment can be done to determine the *innovation capability* (3.7.5) or innovation *performance* (3.7.1) of an *organization* (3.2.2).

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3.8.5
requirement
need or expectation that is stated, generally implied or obligatory

Note 1 to entry: "Generally implied" means that it is custom or common practice for the *organization* (3.2.2) and *interested parties* (3.2.4) that the need or expectation under consideration is implied.

Note 2 to entry: A specified requirement is one that is stated, for example in *documented information* (3.2.9).

Note 3 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

3.8.6
audit
systematic, independent, and documented *process* (3.1.5) for obtaining objective evidence and *evaluating* (3.8.3) it objectively to determine the extent to which the audit criteria are fulfilled

Note 1 to entry: An audit can be an internal audit (first party) or an external audit (second party or third party), and it can be a combined audit (combining two or more disciplines).

Note 2 to entry: An internal audit is conducted by the *organization* (3.2.2) itself, or by an external party on its behalf.

Note 3 to entry: "Audit evidence" and "audit criteria" are defined in ISO 19011.

Note 4 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards. The original definition has been modified to remove effect of circularity between audit criteria and audit evidence.

3.8.7
review
determination of the suitability, adequacy, *efficiency* (3.7.3), or *effectiveness* (3.7.4) of an *entity* (3.2.5) to achieve *objectives* (3.3.3)

EXAMPLE Management review.

[SOURCE: ISO 9000:2015, 3.11.2, modified by adding "efficiency", replacing "object" with "entity" and removing "established" before "objectives" in the definition and by reducing the number of examples and removing Note 1 to entry.]

3.8.8
conformity
fulfilment of a *requirement* (3.8.5)

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

3.8.9
nonconformity
non-fulfilment of a *requirement* (3.8.5)

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards.

3.8.10
deviation
departure from an intended or expected direction, position, or *objective* (3.3.3)

3.8.11
corrective action
action to eliminate the cause of a *deviation* (3.8.10) or *nonconformity* (3.8.9) and to prevent recurrence

Note 1 to entry: This constitutes one of the common terms and core definitions of the high level structure for ISO management system standards. The original definition has been modified by adding "deviation".

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4 Fundamental concepts and innovation management principles

4.1 General

4.1.1 Rationale for engaging in innovation activities

The environment in which an organization operates today is characterized by accelerated change, globalization of markets, emergence of new technologies and competitors, new regulatory requirements and ever more demanding users and citizens.

In this environment, the ability to innovate and to manage innovation activities are key success factors and often necessities for most organizations. They seek to continuously realize value by introducing new or changed products, services, processes, models, methods or any other kinds of innovations.

The reasons for innovating and the value that organizations are aiming to realize may include to increase revenues, growth and profitability, reduce costs, address unmet needs and increase the satisfaction of users, customers and citizens, gain competitive advantage, renew the portfolio of offerings, protect and create new markets, comply with regulations, motivate employees, attract partners, collaborators and funding, use resources more efficiently, reduce waste, enhance reputation, create social benefits and so on.

Engaging in innovation activities is thus a way for an organization to be future-focused and effectively deliver on its overall objectives of securing prosperity, sustainability and longer-term relevance and survival.

4.1.2 Innovation activities in organizations

4.1.2.1 Innovating is one aspect of development and change in organizations besides other activities to realize value, such as improvements, sales, marketing, communication, partnering and acquisitions.

Innovation can occur:

a) in all parts of an organization, within, and in collaboration between, units and processes, e.g. strategy, sales, marketing, training, research and development, sourcing, services, support and other operational activities;

b) across organizations in a value chain, network, or ecosystem, including suppliers, contractors, distributors, partners, users, customers and public authorities;

c) in all life cycle stages, including research, design, manufacturing, distribution, marketing, support, maintenance, withdrawal and recycling;

d) in all components of the value realization model, e.g. value proposition, user experience, partner relationships, revenue model and cost structure.

4.1.2.2 Innovation activities:

a) can serve different purposes depending on the overall strategy of the organization, e.g. the ambition to be a visionary or shaper (first mover) in an area or market, versus an adapter (fast follower);

b) are by nature explorative, characterized by uncertainty, experimenting, learning, and providing feedback and are therefore generally different from other organizational activities;

c) can be triggered and guided by insights, e.g. stated or unstated needs and expectations, opportunities, challenges, or problems related to offerings or interested parties, competitors, trends and other changes in the context;

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d) are often challenging, and are challenged by, the existing organizational structure and culture, and can face resistance and inertia from, e.g. established assumptions, paradigms and the current dominant logic.

These factors all have implications for how innovation activities can be managed as well as the need for an innovation management system.

4.1.3 Impact of innovations

Innovations can be transformative for organizations and their interested parties. Over time and depending on the context, there can be periods of relatively minor changes, e.g. continual and predictable improvements and incremental innovations, that are intermingled with occasional step changes in value realization to form new concepts, platforms, or generations of offerings, e.g. radical and disruptive innovations.

The resulting impact of innovations is generally both the realization of value and the redistribution or even destruction of value across a chain, network or ecosystem of interested parties. Innovations are continually changing the value distribution in a society resulting in new opportunities and challenges.

Some interested parties may be negatively impacted by disruptive innovations and innovations may have both positive and negative impacts on the broader context, beyond the interests of the interested parties involved, which may need to be considered.

Innovations are everywhere. Innovations can help to address our most critical global social, economic, political and environmental challenges. Innovations have been, and will continue to be, shaping the development and transformation of people's lives, organizations and societies.

4.2 Fundamental concepts

4.2.1 Innovation

An innovation (see 3.1.1) can be a product, service, process, model, method, or any other entity or combination of entities. For example, a model can be a business model, an operational model or any other value realization model. Anything, in any area, can be innovated.

The concept of innovation is characterized by novelty and value. To realize value, the entity should be introduced, implemented, deployed, adopted, or used to a certain extent. Thus, novelty and value are both necessary and sufficient characteristics of the concept of innovation. This means for example that insights, ideas and inventions without the manifestation of value, are not innovations.

The degree of novelty of an innovation is relative to, and determined by, the perception of the relevant interested parties involved. The innovation can e.g. be new to "the world", i.e. never been seen or done before anywhere, be new to a specific sector, area, or discipline, e.g. industry or market, or be new to a community, an organization, or a user segment, or to a specific interested party. An innovation can incorporate a combination of existing entities which means that it does not have to be original or unique in its parts.

Degrees of novelty can be expressed by attributes to an innovation, e.g. incremental innovation (gradual changes) or radical innovation (completely new or significant changes). The degree of novelty is also relative to the time of deployment. Over time, an innovation may be widely adopted and diffused in society, going from new to mainstream to eventually becoming obsolete. The life span may vary greatly from innovation to innovation.

The realization or redistribution of value can occur at different levels: individual, organizational, or societal. Value (see 3.7.6) can be both financial and non-financial, e.g. revenues, savings, productivity, sustainability, satisfaction, empowerment, engagement, experience, or trust. Value, positive or negative, is determined by the relevant interested parties involved. For example, the value of an innovation may be perceived differently by different categories of users or by producers, distributors and consumers throughout a particular value chain or network.

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When determining the value of an innovation, an interested party generally considers the benefits in relation to the costs associated with its realization and adoption, as well as the value of alternative products, services, processes, models, methods, etc. Value is related to the fulfilment of needs and expectations whether stated or unstated. The value of an innovation generally evolves over time, from uncertain to validated, as needs and expectations are determined and fulfilled.

The realization of value is the ultimate objective, desired impact and the rationale for organizations to engage in innovation activities. Innovations may be significant and transformative in their impact for all interested parties involved. Value can be realized, redistributed, or destroyed for innovators, intermediaries and users, in a value chain or network or across sectors, areas and disciplines.

4.2.2 Attributes of innovation

An innovation can have one or more attributes describing what, how and why it is innovated. A specific innovation may be described using multiple attributes, e.g. incremental product innovation.

4.2.2.1 Attributes describing what is innovated

Attributes can include:

a) a description of the entity that is innovated, e.g. product innovation, service innovation, process innovation, business model innovation or management innovation;

b) the degree of change of the entity ranging from incremental to radical change, e.g. incremental innovation or radical and breakthrough innovation.

4.2.2.2 Attributes describing how it is innovated

Attributes can include:

a) the relevant interested parties, internal or external, involved in innovation activities, e.g. user innovation, employee innovation, crowd-based innovation or cross unit innovation;

b) the context of innovation activities, e.g. internal innovation (using resources within an organization), open innovation (using resources within and outside of an organization), collaborative innovation (involving one or multiple partner organizations) or ecosystem innovation;

c) the resources that need to be, or are de facto, in place to innovate, e.g. technology innovation or digital innovation.

4.2.2.3 Attributes describing why it is innovated

Attributes can include:

a) the type of value being realized by the innovation when deployed, e.g. growth innovation, sustaining innovation, strategic innovation, productivity innovation, environmental innovation or social innovation;

b) the type of change or impact related to interested parties and contexts, e.g. disruptive innovation or transformative innovation.

4.2.3 Concepts related to innovation

4.2.3.1 Relationship between improvement and innovation

Improvement (see 3.1.7) can result, for example, in enhanced performance of a product or process. Both an innovation and improvement realize value and both involve change. The concepts are partly overlapping but improvement is limited to change of an existing entity, where measurements of its original state are meaningful (generally under conditions of lower uncertainty).

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An innovation can also include the introduction of a new entity that did not exist before (generally under conditions of greater uncertainty). Finally, improvements using existing approaches and known methods and solutions do not generally result in innovations.

4.2.3.2 Relationship between invention and innovation

Invention (see 3.1.6) is characterized by novelty. An invention is limited to being new in the sense that it has not existed before, while an innovation can be any new or changed entity, e.g. a product, service, process, model, method or a combination thereof. An innovation should realize value, which is not required for an invention. An invention can evolve and become an innovation, but an innovation does not necessarily have to include an invention.

4.2.3.3 Relationship between creativity and innovation

Creativity is the ability to conceive an original entity, e.g. an idea, a concept or a solution to a problem. Creativity is generally part of, and supports, innovation activities, initiatives and processes. Creativity is also an important characteristic of a culture supporting innovation activities. However, to achieve innovations, creativity is not enough, it has to be supplemented by other abilities and processes, e.g. validation, development and deployment.

4.2.3.4 Relationship between research and innovation

Research involves theoretical, experimental or investigative work, primarily aiming to acquire new knowledge. Research can, but will not necessarily, provide input to different parts of the innovation processes, e.g. knowledge about trends, user behaviours and new technologies. Technological research can contribute to the innovation processes through technology transfer.

4.2.3.5 Relationship between development and innovation

Development involves systematic activities to transform requirements into specific characteristics of an entity drawing on existing knowledge gained from research and practical experience. Generally, this means evolving new or existing products, services, processes, models, methods, etc. based on determined requirements, using operational processes.

Development processes may result in innovation, but are often optimized for, and thus limited to, incremental and sustaining innovation, e.g. gradually extending existing offerings satisfying existing users. Innovation processes are often needed to supplement existing development processes in order to introduce new and radically different offerings to new users with stated or unstated needs and expectations.

4.2.4 Activities and processes to achieve innovation

Innovation processes (see 3.1.5.1) generally consist of a set of interrelated or interacting activities executed iteratively in a non-linear order, with the aim of achieving innovations. Examples of such processes are: identify opportunities, create and validate concepts and develop and deploy solutions. An innovation may also be the outcome of activities or processes not explicitly aiming for innovation. Innovation may be achieved without an explicit and systematic innovation process e.g. through serendipity or ad hoc activities.

Innovation processes can be used to form different process configurations to suit the specific innovation initiative at hand. Innovation processes should be flexible and adaptable to the types of innovations the organization seeks to achieve.

Innovation processes can be:

a) implemented fully or partly within, or independently from, other established processes within the organization (e.g. product development processes and sales processes). For example, the output from the validation process may be the input to the existing product development process;

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b) connected to other relevant internal or external processes, e.g. partnering processes, mergers and acquisition processes, collaboration processes, research and development processes and intellectual property management processes;

c) executed within an organization or across organizations involving different interested parties, e.g. using open innovation, collaborative innovation, value networks or ecosystems.

Innovation processes are explorative processes characterized by search, experimenting, failure tolerance and learning.

Innovation processes are generally designed to identify and test uncertainties in new contexts where decisions need to be based on assumptions rather than on validated knowledge and facts. Uncertainties may be found in different domains depending on the type of innovation, e.g. market, regulatory, technology, organizational or resource uncertainties.

Consequently, innovation processes involve risk-taking and the discontinuation of initiatives. Not all ideas, concepts or solutions will or have to result in an innovation. Discontinued or changed innovation initiatives are an integral part of the innovation processes and a source for learning as input to new process iterations and future innovation efforts.

The acceptable degree of risk-taking is dependent on the innovation ambition and the types of innovations addressed by the organization. For example, radical and disruptive innovations generally involve higher risk. Risk-taking related to innovation can be managed by, e.g. taking a portfolio perspective incorporating initiatives with different risk levels. The failure and risk tolerance related to innovation activities is dependent on the organizational culture.

4.2.5 Innovation management

Innovation processes are generally managed in order to achieve innovations. Organizations that pro-actively manage innovation activities and initiatives can be faster to pursue opportunities, react to challenges and manage related risks and are more likely to take effective actions and achieve sustained success. Reasons to manage innovation activities include:

a) ensuring the alignment of innovation activities and initiatives with the strategic direction of the organization, including resource allocation, indicators and follow-up;

b) ensuring that the innovation strategy and objectives are flexible and adaptable to the evolution of promising opportunity areas and innovations;

c) managing the trade-off between optimization of performance and exploration of new opportunities in the organization;

d) fostering a culture supporting innovation activities and creating the appropriate conditions to innovate effectively, including securing resources;

e) removing barriers for innovation initiatives and innovators, e.g. implement processes and provide support to enable innovation activities in the organization;

f) ensuring that innovation activities are based on an understanding of stated or unstated needs and expectations.

Innovation management (see 3.1.2.1) can include the establishment of policies and objectives, and strategies, processes, structures, roles and responsibilities and other support, to achieve those objectives through planning, operation, performance evaluation, etc.

Innovation management can be seen as an integral part of the general management activities of the organization. Innovation policies, objectives, and strategies can be part of, and enablers to, the strategic direction of the organization.

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4.2.6 Innovation management system

4.2.6.1 General

The processes and support needed to achieve innovations can be managed more effectively and efficiently as a system of interrelated and interacting elements. Reasons for managing innovation activities as a system include:

a) guiding the organization to focus on the most important and relevant innovation activities, initiatives and support given its strategic direction;

b) enabling top management to establish a relevant innovation ambition and vision and to optimize the use of resources;

c) creating awareness of innovation activities internally and externally based on a common framework and vocabulary;

d) facilitating the evaluation, including identification of weak elements, bottlenecks and unintended consequences and benchmarking of the innovation management system in order to drive improvements;

e) being compatible, with the possibility of integration, with other management systems of the organization.

4.2.6.2 Fundamental system elements

An innovation management system (see 3.1.3.3) includes all elements and their interactions that are needed for an organization to establish its innovation capabilities for the purpose of effectively and sustainably achieving innovations. Fundamental system elements are:

a) Context of the organization – The organization determines the external and internal issues that are relevant to its purpose, including areas of opportunity that can trigger innovation initiatives, the needs and expectations of interested parties and the necessary supportive culture and approach to collaboration.

b) Leadership – With the context of the organization as input, top management demonstrates leadership and commitment with respect to the innovation management system and establishes an innovation vision, strategy, and policy, as well as the necessary organizational roles, responsibilities and authorities.

c) Planning – Based on the leadership and ambition level set by top management, the organization determines its actions to address opportunities and risks, establishes its innovation objectives and plans to achieve them, including organizational structures and innovation portfolios.

d) Support – The necessary support for the innovation management system is established, e.g. people with the necessary competences, financial and other resources, awareness, communication, tools and methods, as well as approaches for the management of strategic intelligence and intellectual property.

e) Operations – The innovation initiatives, e.g. projects, programs, or other activities, are established and implemented using the appropriate innovation processes, e.g. identify opportunities, create and validate concepts, as well as develop and deploy solutions.

f) Performance evaluation – The performance of the innovation management system is regularly evaluated using innovation performance indicators in relation to what was planned and considering the vision, strategy, policy and objectives.

g) Improvement – Based on the performance evaluation, the innovation management system is continually improved by the organization with a focus on its most critical gaps and deviations with regard to context, leadership, planning, support and operations.

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4.2.7 Relationship with other management systems

The implementation of an effective and efficient innovation management system can have impact on, or be impacted by, other management systems and can require integration at several levels.

Management system standards complement each other but can also be used independently. An innovation management system can be implemented together with other management system standards, helping organizations to balance existing offerings and operations, with the exploration and introduction of new offerings.

The different elements of an organization's management system, including its innovation management system, can form an integrated management system.

4.3 Innovation management principles

The following eight principles are the basis for the effective management of innovation activities and the foundation of the innovation management system.

An innovation management principle includes a statement of the principle, a rationale of why the principle is important for the organization, some examples of benefits associated with the principle and finally examples of actions the organization can take to improve performance when applying the principle.

The principles can be considered as an open set to be integrated and adapted within the organization.

4.3.1 Realization of value

4.3.1.1 Statement

Value, financial or non-financial, is realized from the deployment, adoption and impact of new or changed solutions for interested parties.

4.3.1.2 Rationale

The purpose of innovation management is to realize value. Value is realized by the process of identifying, understanding and satisfying needs of interested parties. Realizing value, both financial and non-financial, is vital to the sustainability of organizations.

4.3.1.3 Key benefits

Some potential key benefits are:

a) contribution to competitive advantages, sustainable growth and long-term relevance of the organization;

b) clear focus for setting scope, objectives and performance evaluation criteria within the innovation management system;

c) a higher value output from innovation activities;

d) improved reputation as an innovative organization;

e) the realization of value legitimizes innovation activities;

f) enables the culture to support innovation activities.

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4.3.1.4 Possible actions

Possible actions include:

a) invest in activities for understanding the context to identify opportunities and challenges;

b) establish objectives, processes, systems and performance indicators for value capture and realization;

c) evaluate innovation initiatives based on a broad understanding of value including, but not limited to, learning, social, economic, environmental value and competence building;

d) empower people to undertake innovation initiatives to generate new opportunities for value realization;

e) recognize and celebrate realization of value to build a culture supporting innovation activities;

f) adapt organizational structures and innovation processes to maximize value realization;

g) assess how interested parties perceive value from current innovation activities and identify opportunities for improvement.

4.3.2 Future-focused leaders

4.3.2.1 Statement

Leaders at all levels, driven by curiosity and courage, challenge the status quo by building an inspiring vision and purpose and by continuously engaging people to achieve those aims.

4.3.2.2 Rationale

Conscious efforts to challenge the status quo enable the organization to balance the current focus and short-term performance with attention to innovation opportunities in order to anticipate and create the future. Leaders across the organization inspire and engage employees and other interested parties to innovate.

4.3.2.3 Key benefits

Some potential key benefits are:

a) openness to change, alternative ways of doing things and the pursuit of new opportunities;

b) clear and shared longer-term vision and purpose across the organization;

c) concurrent focus on both current and future innovation opportunities;

d) inspired and engaged people that can focus their creativity and execution efforts towards a shared vision.

4.3.2.4 Possible actions

Possible actions include:

a) encourage and support leaders to explore with curiosity and to execute with courage, while considering ethical, legal and sustainability issues;

b) recognize and reward leaders that challenge the status quo;

c) encourage leaders to share stories of successes and failures to inspire others;

d) align and communicate a longer-term vision and purpose throughout the organization;

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e) encourage and recognize people that are contributing to the vision and purpose;

f) foster a culture supporting innovation activities;

g) provide people with the necessary support, including resources.

4.3.3 Strategic direction

4.3.3.1 Statement

The direction for innovation activities is based on aligned and shared objectives and a relevant ambition level, supported by the necessary people and other resources.

4.3.3.2 Rationale

Commonly shared and understood innovation objectives and strategy, that are aligned with the overall objectives and strategic direction of the organization, provide the basis for allocating people and resources. The strategic direction is used for prioritizing innovation activities, as well as for setting the scope for monitoring and evaluating innovation performance and impact.

4.3.3.3 Key benefits

Some potential key benefits are:

a) improved compatibility with the overall objectives and strategic direction of the organization;

b) increased return on investment resulting from innovation initiatives;

c) explicit and transparent expression of the ambition level of the organization and shared expectations in terms of innovation activities;

d) framework for adapting the organizational structure, assigning roles, responsibilities and authorities, guiding investments and collaboration efforts etc.;

e) assigned people and allocated resources for the execution of innovation initiatives;

f) clear criteria for monitoring and evaluation of innovation initiatives and portfolios.

4.3.3.4 Possible actions

Possible actions include:

a) ensure and demonstrate that the innovation objectives are contributing to the overall objectives and strategic direction of the organization;

b) communicate the strategic direction by providing examples of opportunity areas and types of innovations to focus on;

c) plan, develop and implement innovation initiatives, processes and portfolios;

d) demonstrate how people are assigned and what resources are allocated to implement the innovation strategy;

e) establish innovation indicators to monitor, evaluate and recognize performance;

f) review and update the strategic direction to ensure effectiveness and impact;

g) communicate, as appropriate, the strategic direction externally to shape expectations and attract relevant interested parties.

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4.3.4 Culture

4.3.4.1 Statement

Shared values, beliefs and behaviours, supporting openness to change, risk taking and collaboration enable the coexistence of creativity and effective execution.

4.3.4.2 Rationale

Traditional management practices focus on efficient execution. For innovation management, it is also necessary to develop values, beliefs and behaviours supportive of the creation and execution of new ideas. To achieve innovation, the culture should enable the coexistence of the behaviours of creativity and execution.

4.3.4.3 Key benefits

Some potential key benefits are:

a) a creative working environment that promotes new insights and ideas through imagination and unconventional approaches;

b) collective knowledge achieved through exploration, collaboration and experimentation;

c) an execution working environment that increases focus, has adaptable processes and delivers with speed;

d) a working environment that encourages and enables experimentation, risk-taking and allows for failures as opportunities for learning;

e) people inspired to move out of their comfort zone, explore new opportunities and challenges;

f) people able to change between contrasting behaviours and approaches.

4.3.4.4 Possible actions

Possible actions include:

a) promote diversity to encourage different perspectives, to develop innovative behaviours and to maximize collective knowledge;

b) reduce hierarchy in organizational structures and use e.g. innovation hubs, spin-off's, campus structure or self-managed teams to promote creativity;

c) encourage open networks for finding opportunities and solutions;

d) encourage closed networks for a high level of trust and collaboration;

e) implement an innovation management system complementing existing formal or informal management systems;

f) support leaders so they are able to foster and continuously develop a culture supporting innovation activities;

g) define, recognize and demonstrate the different behaviours and personalities needed in the different stages of innovation processes;

h) allow for and learn from failures;

i) use storytelling to promote desired behaviours.

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4.3.5 Exploiting insights

4.3.5.1 Statement

A diverse range of internal and external sources are used to systematically build insightful knowledge, to exploit stated and unstated needs.

4.3.5.2 Rationale

The development of innovative solutions depends on the identification of stated and unstated needs. Identifying insights that can be exploited to realize value requires a systematic approach, drawing on diverse sources of knowledge. Effective insights go beyond the obvious and incorporate strategic foresight about future needs and conditions.

4.3.5.3 Key benefits

Some potential key benefits are:

a) improved understanding of the internal and external context in which the organization operates, including relevant driving forces and trends;

b) improved understanding that innovation activities can cause change and create new needs;

c) increased innovation effectiveness as ideation is guided by identified needs, issues and challenges;

d) increased satisfaction of users' needs, speed to realization, return on investment and lifecycle of solutions;

e) reduced levels of uncertainty;

f) better prioritization of which insights, ideas and ultimately innovations to invest in.

4.3.5.4 Possible actions

Possible actions include:

a) identify relevant cross-disciplinary internal and external sources of knowledge to develop a broad range of insights;

b) identify and engage with users, customers and other interested parties to develop unique and insightful knowledge;

c) make accumulated knowledge and insights readily available to all relevant people and interested parties;

d) ensure that information, knowledge and documented insights are relevant, reliable and secure;

e) develop, implement, maintain and improve suitable processes for the identification of exploitable insights;

f) develop competence for analysing information and making meaningful connections between types of knowledge;

g) balance the development of insights with available resources for exploitation;

h) ensure that insights are leveraged for ideation, concepting and other innovation activities.

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4.3.6 Managing uncertainty

4.3.6.1 Statement

Uncertainties and risks are evaluated, leveraged and then managed, by learning from systematic experimentation and iterative processes, within a portfolio of opportunities.

4.3.6.2 Rationale

Balancing the exploitation of opportunities and management of risks increases the potential for value realization. The application of a portfolio approach, combining experimentation and exploitation, generates confidence and builds resilience to manage uncertainties.

4.3.6.3 Key benefits

Some potential key benefits are:

a) enhanced confidence in the capability of the organization to address unfavourable circumstances;

b) increased capability to reduce uncertainty through systematic experimentation and learning;

c) optimized portfolio of opportunities and value realization, while mitigating the impact of related uncertainties;

d) room to adjust risk taking in accordance with strategic considerations;

e) increased and improved organizational knowledge and related management based on lessons learned and failures.

4.3.6.4 Possible actions

Possible actions include:

a) develop frameworks and processes to manage uncertainty, including the management of the ratio of investment to potential value;

b) develop and support a culture that enables experimentation and risk taking to embrace change and uncertainty;

c) systematically manage uncertainties and risks across the innovation management system;

d) establish a portfolio approach to innovation initiatives, balancing risk and value potential;

e) manage insights and knowledge to capture and disseminate lessons learned;

f) use indicators to monitor, evaluate and reduce uncertainties and risks;

g) ensure that people know how to identify and handle uncertainties and risks.

4.3.7 Adaptability

4.3.7.1 Statement

Changes in the context of the organization are addressed by timely adaptation of structures, processes, competences and value realization models to maximize innovation capabilities.

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4.3.7.2 Rationale

New ideas and solutions often require changes in structures, processes, competences, models and the capacity to respond accordingly. The ability to systematically anticipate and understand the need for change and respond to changes is an essential innovation capability.

4.3.7.3 Key benefits

Some potential key benefits are:

a) insight and the ability to provide timely response to changes;

b) shorter learning cycles;

c) increased potential for realization of value by early response to change;

d) improved identification, understanding, management and leverage of uncertainties and risks;

e) effective use of resources and improved return on investments;

f) timely scaling and implementation of changes with proper speed.

4.3.7.4 Possible actions

Possible actions include:

a) determine the ability of the organization to pursue new opportunities or detect, analyse and respond to disruptions;

b) create and analyse future scenarios and determine the transformations they imply, setting appropriate objectives;

c) determine the resources needed to act on changes in context, objectives or focus;

d) enable people to anticipate and adapt to change;

e) implement and manage change across multiple time horizons in parallel activities;

f) monitor and make timely decisions on the implementation of changes to ensure its effectiveness and fitness for purpose.

4.3.8 Systems approach

4.3.8.1 Statement

Innovation management is based on a systems approach with interrelated and interacting elements and regular performance evaluation and improvements of the system.

4.3.8.2 Rationale

The innovation performance of an organization is dependent on processes that operate towards a common purpose. Measuring the interaction between elements develops the understanding of their interrelation. Managing these elements as a system improves organizational learning, effectiveness and efficiency.

4.3.8.3 Key benefits

Some potential key benefits are:

a) enhanced ability to link the external to the internal context of the organization;

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b) a framework and language for implementing, evaluating, comparing and improving the management of innovation activities;

c) increased ability to solve complex problems, take advantage of opportunities and address challenges;

d) improved ability to link the system elements, ensuring the alignment of strategy and objectives;

e) improved understanding of how the different elements are contributing to performance and how capability gaps can be addressed;

f) improved ability for organizational change and learning through collaboration and interdependencies in the system.

4.3.8.4 Possible actions

Possible actions include:

a) embrace and promote the understanding of innovation management as a system;

b) explain the scope, purpose and objectives of the system, including relationships with interested parties;

c) ensure that all relevant functions are represented to enable the organization to operate an effective management system;

d) select innovation indicators that capture critical aspects of the system;

e) map system elements and their relationships and monitor the effectiveness of system linkages;

f) implement systematic innovation processes and the necessary support;

g) monitor, measure, analyse and evaluate elements and relationships for improvement and learning.

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Annex A
(informative)

Concept relationships and their graphical representation

A.1 General

In terminology work, the relationships between concepts are based on the hierarchical formation of the characteristics of a species so that the most economical description of a concept is formed by naming its species and describing the characteristics that distinguish it from its parent or sibling concepts. There are three primary forms of concept relationships indicated in this annex: generic (see A.2), partitive (seeA.3) and associative (see A.4).

A.2 Generic relation

Subordinate concepts within the hierarchy inherit all the characteristics of the superordinate concept and contain descriptions of these characteristics which distinguish them from the superordinate (parent) and coordinate (sibling) concepts. Generic relations are depicted by a fan or tree diagram without arrows (see Figure A.1).

Example from ISO 704:2009, (5.5.2.2.1)

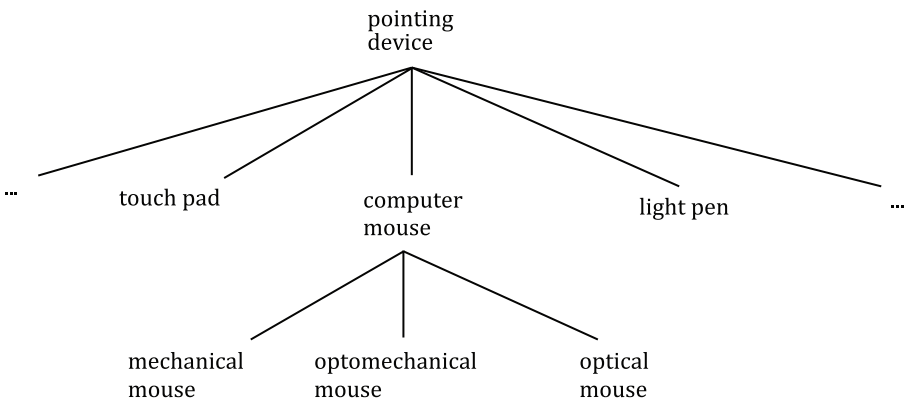

Figure A.1 — Graphical representation of a generic relation

A.3 Partitive relation

Subordinate concepts within the hierarchy form constituent parts of the superordinate concept. Partitive relations are depicted by a rake without arrows (see Figure A.2).

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Example from ISO 704:2009, (5.5.2.3.1)

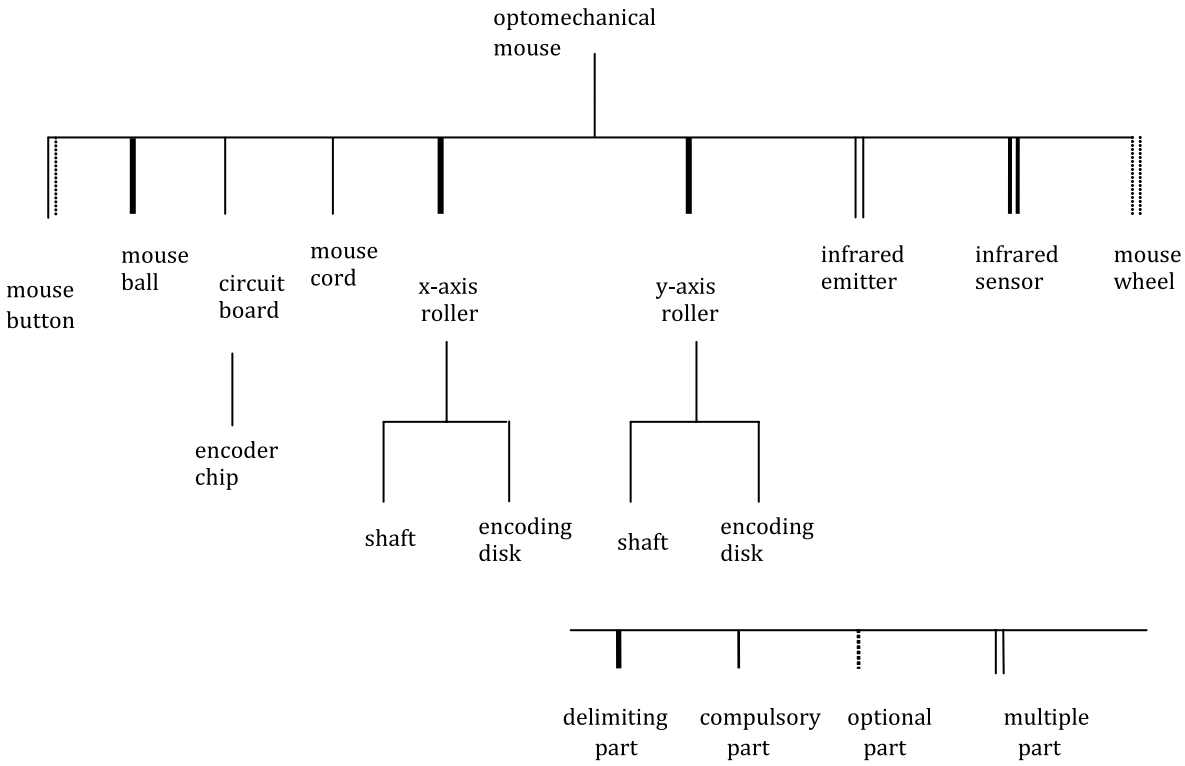

Figure A.2 — Graphical representation of a partitive relation

A.4 Associative relation

Associative relations cannot provide the economies in description that are present in generic and partitive relations, but are helpful in identifying the nature of the relationship between one concept and another within a concept system, Associative relations are depicted by a line with arrowheads at each end (see Figure A.3).

Example from ISO 704:2009, (5.6.2)

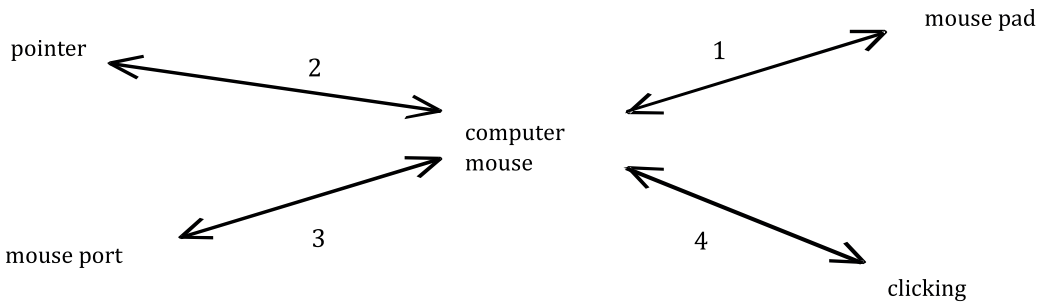

Figure A.3 — Graphical representation of an associative relation

A.5 Concept diagrams

Figures A.4 – A.8 show the concept diagrams on which the thematic groups of the innovation vocabulary are based.

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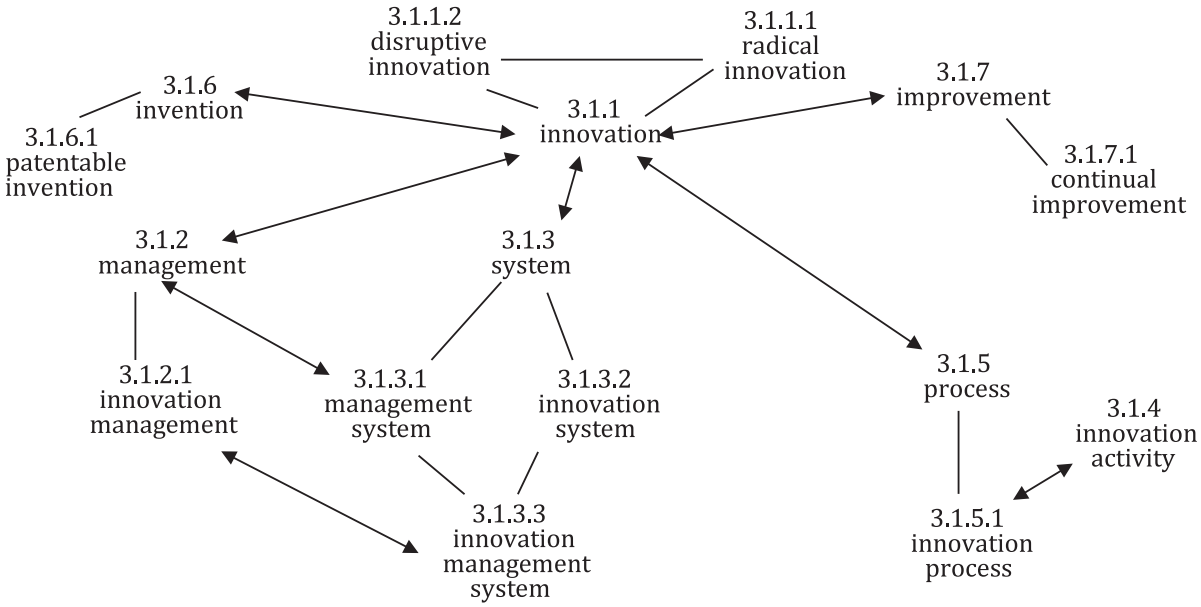

Figure A.4 — 3.1 General terms related to innovation

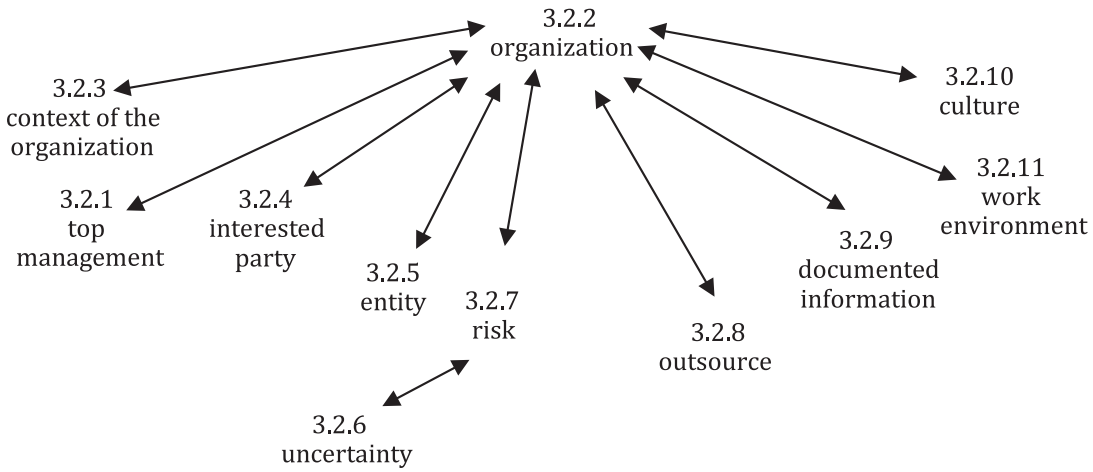

Figure A.5 — 3.2 Terms related to organization

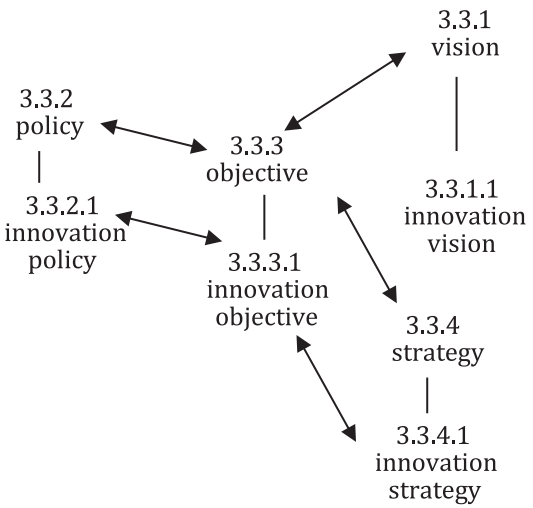

Figure A.6 — 3.3 Terms related to objective

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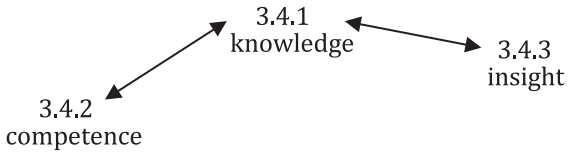

Figure A.7 — 3.4 Terms related to knowledge

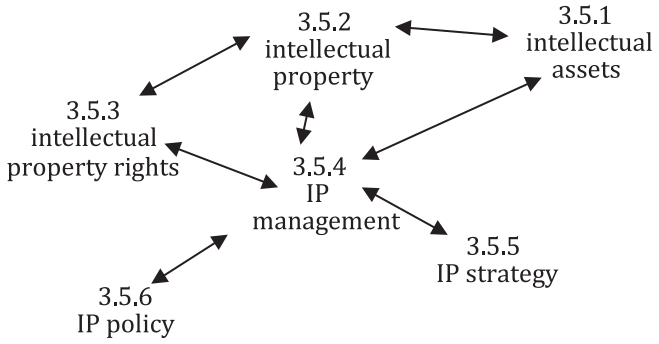

Figure A.8 — 3.5 Terms related to intellectual property

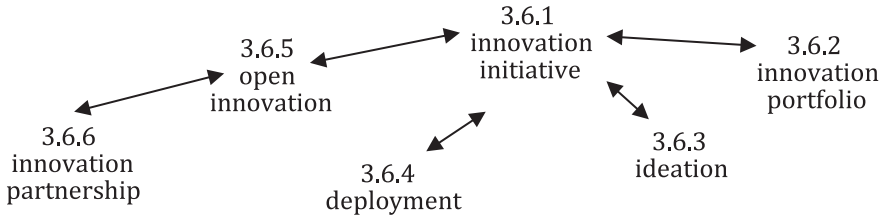

Figure A.9 — 3.6 Terms related to innovation initiative

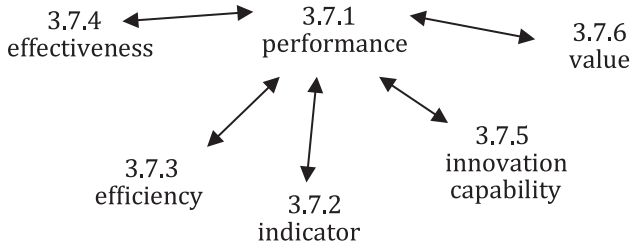

Figure A.10 — 3.7 Terms related to performance

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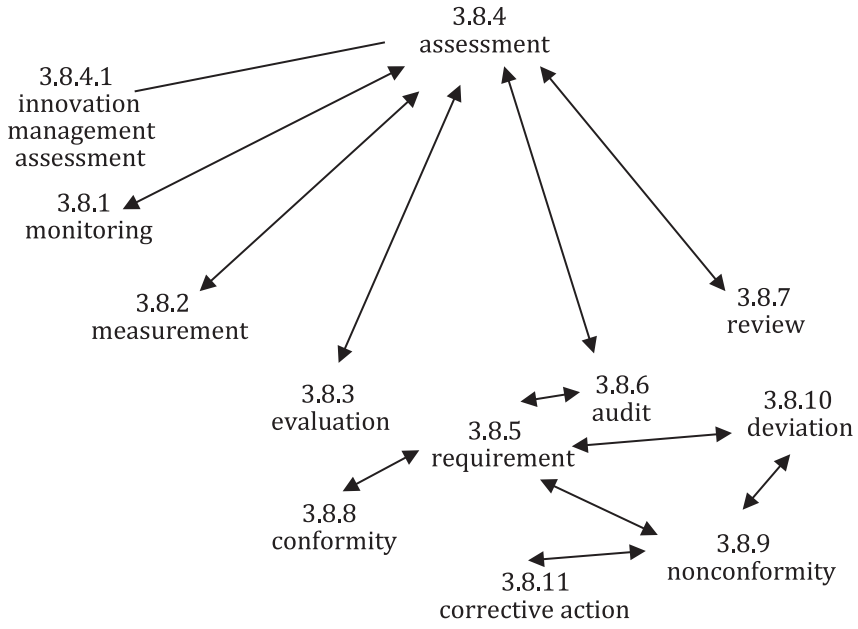

Figure A.11 — 3.8 Terms related to assessment

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Annex B
(informative)

Relations to vocabulary of other organizations

B.1 General

The ambition has been to align the terms and definitions of this document with the work of other policy-setting organizations to provide an understanding of the context and purpose of the different definitions and to clarify how the differences can be interpreted.

B.2 The Oslo Manual

A commonly used definition of innovation is in the Oslo Manual by the Organisation for Economic Co-operation and Development (OECD) and Eurostat.

The purpose of the definition is to guide statistical measurements of all economic sectors in the context of national surveys. The international standard of statistical measurements is the System of National Accounts (SNA), that is provided in the SNA Manual (European Commission, et al. 2009). SNA defines the terms used in the Oslo Manual other than those related directly to innovation.

In the fourth edition of the Oslo Manual (OECD/Eurostat 2018, Chapter 2), innovation is defined in the following way:

"An innovation is a new or improved product or process, or combination thereof, that differs significantly from the unit's previous products or processes and that has been made available to potential users or brought into use by the unit."

The "unit" in the definition refers to the "institutional unit" as defined in the SNA. An institutional unit has legal responsibility for its actions and consequently can own assets, incur liabilities and engage in a full range of economic transactions. "Product" is defined as a good or a service.

"A new or improved product, process, or combination thereof, that differs significantly from previous products and processes", can be interpreted as more restrictive compared to the corresponding "new or changed entity" of the ISO definition of innovation in this document (see 3.1.1).

The Oslo Manual definition is less restrictive compared to the definition by ISO in terms of the realization or redistribution of value. The product or process need only be "made available to potential users or brought into use by the unit". To realize or redistribute value is not required, according to the Oslo Manual.

B.3 The definitions of intellectual property, bridging with TRIPS/WIPO convention

Among practitioners within the innovation management domain the term "intellectual property" (IP) refers to the business assets (inventions, brand names, graphics, written material, etc.) while "intellectual property rights" refers to the legal rights attached to those assets (patents, trademarks, copyrights). In other words, IP refers to the underlying subject matter, while IP rights refers to the legal instrument protecting it.

ISO requires two separate terms for these concepts. The standard is written to help companies manage their innovation activities and processes. Some activities address managing the legal aspects of IP, such as applying for patents and trademarks, registering copyrights, making maintenance payments, etc. Other activities are for managing the underlying subject matter: evaluating inventions for use in

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products, deciding where and when to use a brand name, how to use a graphic or song in marketing campaigns, etc.

In the ordinary (non-legal) usage, the term "intellectual property" can encompass both the legal rights and the subject matter. For instance, a company might talk about contributing their intellectual property to a standard, meaning both the invention itself and a commitment to license the patent rights. ISO's definition attempts to reflect this common usage while more clearly distinguishing between the legal rights and underlying subject matter, so the appropriate term can be used with each type of management activity.

The definitions of IP in TRIPS (Agreement on Trade-Related Aspects of Intellectual Property Rights) and the WIPO (World Intellectual Property Organization) Convention focus on the legal rights aspects, while alluding to the underlying subject matter giving rise to those rights. The proposed ISO definitions are compatible with those treaty definitions by giving IP the same scope of coverage as the treaties recognize, while also reflecting accepted usage of the term in business contexts.

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