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Innovation management system — Requirements

Système de management de l'innovation — Exigences

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Contents

Page

Foreword

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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 document 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).

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This document was prepared by Technical Committee ISO/TC 279, *Innovation management*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 389, *Innovation Management*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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

0.1 General

The ability of organizations to innovate is recognized as a critical factor for their viability, competitiveness, resilience and renewal, and for the sustainable development of society.

Adopting an innovation management system by an organization aims to improve its innovation performance and ability to adapt to changes. A systems approach can reduce the level of uncertainty and increase the feasibility of achieving desired results of innovation initiatives.

The benefits of implementing an innovation management system can be:

— increased realization of value from new products, services, processes, models, methods, etc. for the organization and interested parties;

— enhanced innovation performance through the systematic management of innovation activities under conditions of uncertainty;

— sustained build-up of innovation capabilities;

— enhanced reputation to attract users, customers, employees and partners;

— enhanced capability to collaborate (e.g. in a value chain or an innovation ecosystem);

— improved ability to attract funding;

— increased resilience and ability to evolve in a dynamic and uncertain environment.

This document provides a common language and framework for organizations to establish and implement an innovation management system. It can also be used by:

a) collaborating organizations seeking a shared framework for innovating together;

b) organizations seeking confidence in the innovation capability of current and potential partners, suppliers or other interested parties;

c) funders, donors and investors seeking confidence in the innovation capability of a funding applicant or partner organization;

d) policy-makers and government authorities aiming to promote innovation activities at local, regional and national levels.

The requirements in this document are not always an effective basis for the evaluation of newly formed organizations.

0.2 Innovation management principles

This document references the eight innovation management principles, described in ISO 56000, that are the foundation of the innovation management system. The principles are as follows:

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

— Future-focused leaders: 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.

— Strategic direction: 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.

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

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

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

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

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

0.3 Innovation management system

0.3.1 General

An innovation management system is a set of interrelated and interacting elements with the purpose of realizing value, both financial and non-financial. Value is realized by systematic and iterative innovation processes to identify opportunities, create and validate concepts, and develop and deploy solutions for users, customers and other interested parties. Opportunities can, for example, be based on current or future, stated or unstated needs. The system can be applied to exploring and exploiting both new and existing opportunities.

The management system elements are described under the main clauses in this document: context of the organization (see Clause 4), leadership (see Clause 5), planning (see Clause 6), support (see Clause 7), operation (see Clause 8), performance evaluation (see Clause 9) and improvement (see Clause 10), see Figure 1.

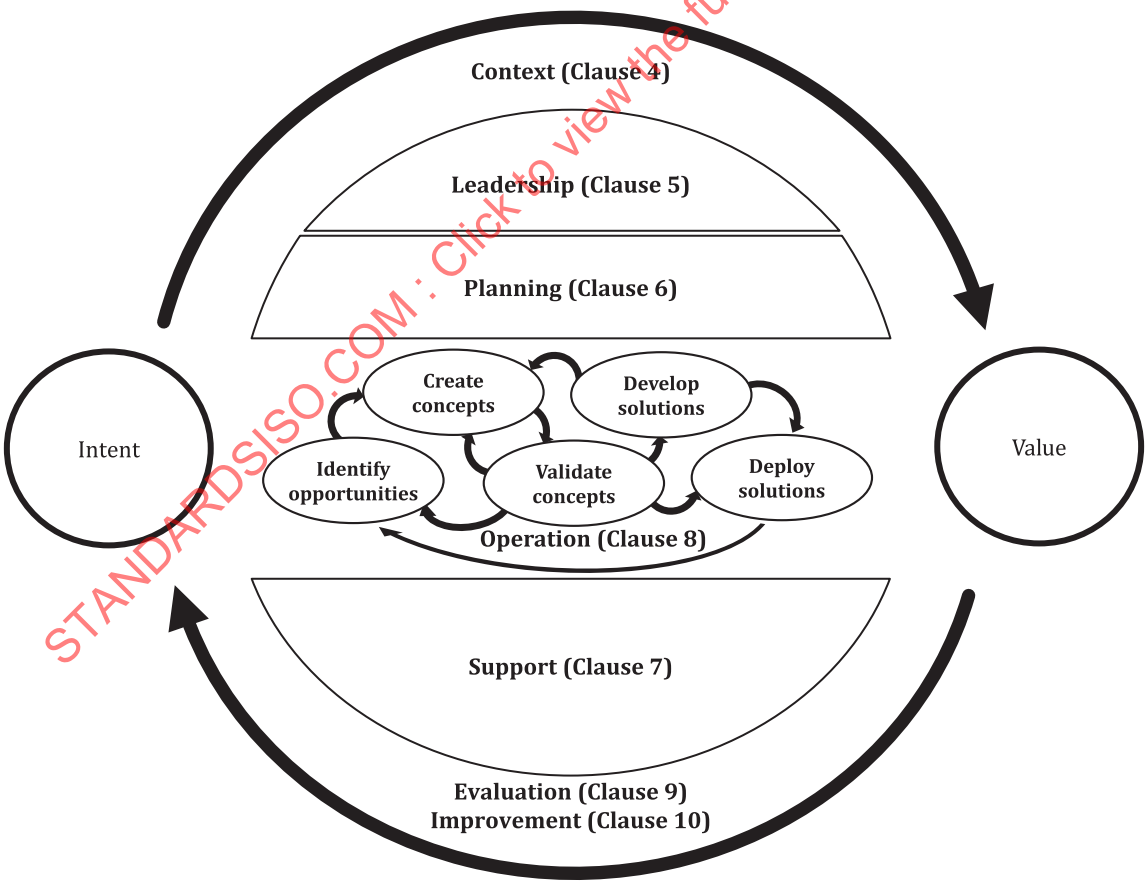

Figure 1 — Representation of the innovation management system with references to the clauses in this document

The management system elements can be gradually adopted to implement the system according to the context and maturity of the organization.

Ultimately, the effective implementation of the innovation management system relies on the leadership and commitment by top management and other leaders at all levels in the organization.

The innovation management system is founded on the concept of Plan-Do-Check-Act (PDCA). The PDCA model provides an iterative process for the organization to achieve continual improvement of the system.

The clauses of this document are grouped in relation to the PDCA cycle as follows: Plan (see Clause 6), Do (see Clauses 7 and 8), Check (see Clause 9) and Act (see Clause 10).

0.3.2 Managing uncertainty and risk

Innovation initiatives include different degrees of variation and uncertainty. Uncertainties can be related to, for example, user acceptance, technical feasibility, manufacturing constraints, regulatory conditions, market potential and organizational constraints.

Innovation processes are characterized by experimentation and learning. As the processes progress, new knowledge and insights are gained, and uncertainty is reduced. Innovation processes are flexible and adaptable to the types of innovations the organization seeks to achieve.

Innovation initiatives involve risk and not all initiatives will achieve successful innovations. However, discontinued initiatives are an integral part of the innovation processes and sources of learning as input to future innovation activities.

The acceptable level of risk is dependent on the innovation ambition and strategy, the organization's capability, and the types of innovation addressed by the organization.

The management of uncertainty and risk can be addressed by different approaches (e.g. iterative processes, systematic experimentation, partnering, innovation portfolio diversification). By applying a systems approach, interdependencies and uncertainties can be better understood, measured and managed.

Organizations can also address the balance between pursuing opportunities and the related risks, including the risk of innovating versus the risk of not innovating.

0.3.3 Management levels

An innovation management system operates across strategic, tactical and operational levels.

The relationships among the different levels (see Figure 2) can be described as follows:

— The innovation intent (see Clause 4) at the strategic level helps to determine the scope of the innovation management system and forms the basis for establishing the innovation strategy.

— The scope (see Clause 4) sets the boundaries and applicability of the innovation management system.

— The innovation policy (see Clause 5) provides a framework for setting the innovation strategy and objectives. The innovation policy can complement other management system policies in the organization.

— The innovation strategy (see Clause 5), including strategic innovation objectives, is based on the innovation intent, is aligned with the innovation policy, and provides a framework for setting tactical innovation objectives and establishing innovation portfolios.

— The innovation objectives (see Clause 6) at the tactical level are consistent with the innovation policy and strategy.

— The innovation portfolios (see Clause 6) are aligned with the innovation strategy and objectives and consist of a set of innovation initiatives.

— The innovation initiatives (see Clause 8) are established at the operational level.

— The innovation processes (see Clause 8) are also established at the operational level to pursue innovation initiatives. They are flexible and adaptable to each individual initiative.

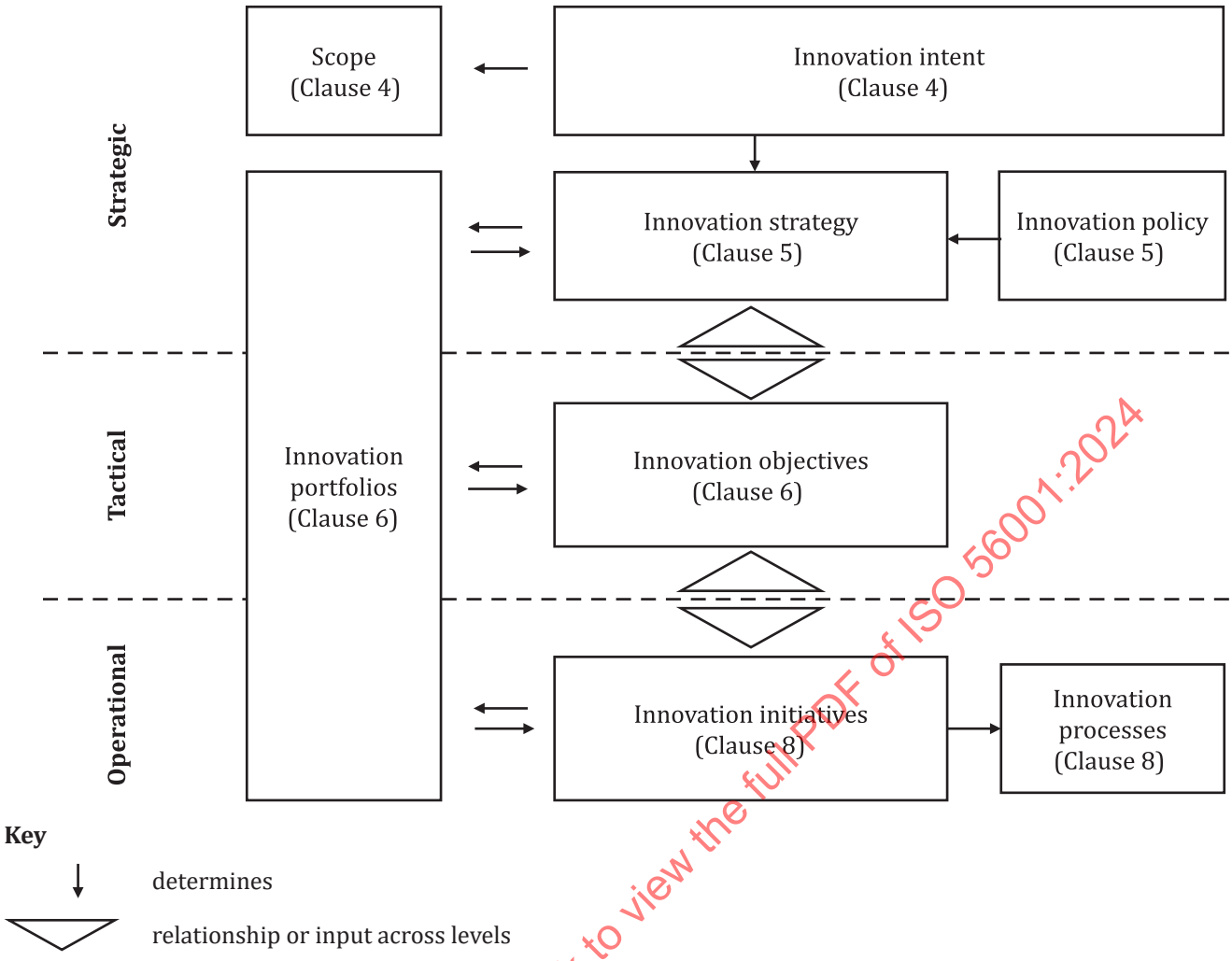

Figure 2 — Representation of the management levels and their relationships with references to the clauses in this document

0.4 Relationship with other management system standards

Management system standards (MSS) complement each other but can also be used independently. The innovation management system can be implemented together with other management system disciplines, helping organizations to balance the exploitation of existing offerings and operations, with the exploration and introduction of new offerings and ways of working.

This document applies the ISO/IEC Directives, Part 1, Consolidated ISO Supplement Annex SL, Appendix 2 harmonized structure for MSS. The harmonized structure provides identical clause numbers, clause titles, text, and common terms and core definitions to be used by all MSS within the ISO portfolio. This structure enables an organization to align or integrate its innovation management system with the requirements of other MSS.

Other standards on innovation management developed by ISO/TC 279 provide additional support and guidance for organizations. Summaries of these standards are described in Annex A.

0.5 Contents of this document

This document contains the requirements used to evaluate conformity. Conformity to this document can only be claimed when all its requirements are implemented and fulfilled by the organization.

An organization is not expected to structure its innovation management system or documented information to be aligned with the clause structure of this document.

In this document, the following terms are used:

— “shall” indicates a requirement;

— “consider” indicates reflecting upon possible actions before making a decision;

— “can” indicates a possibility.

A “NOTE” is used for information, clarifying the associated requirement.

Innovation management system — Requirements

1 Scope

This document specifies requirements for an innovation management system that an organization can use to develop and demonstrate its innovation capability, enhance its innovation performance, and realize value for users, customers and other interested parties. The requirements in this document are generic.

This document is applicable to any organization, regardless of type or size, products and services provided, or the types of innovations and innovation approaches used.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 56000, *Innovation management — Fundamentals and vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 56000 and the following apply.

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

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

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

3.1
innovation
new or changed entity, realizing or redistributing value

Note 1 to entry: Novelty and value are relative to, and determined by, the perception of the *organization* (3.2) and relevant *interested parties* (3.3).

Note 2 to entry: An innovation can be a product, service, *process* (3.9), model, method, etc.

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".

[SOURCE: ISO 56000:2020, 3.1.1, modified — Note 4 to entry deleted.]

3.2
organization
person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its *objectives* (3.7)

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, or part or combination thereof, whether incorporated or not, public or private.

Note 2 to entry: If the organization is part of a larger entity, the term "organization" refers only to the part of the larger entity that is within the scope of the *innovation* (3.1) *management system* (3.5).

Note 3 to entry: Organizational functions can include, for example, research and development, human resources, finance, sales, marketing and operations.

3.3
interested party (preferred term)
stakeholder (admitted term)
person or *organization* (3.2) that can affect, be affected by, or perceive itself to be affected by a decision or activity

Note 1 to entry: Interested parties can include, for example, users, customers, suppliers, partners, innovation ecosystems, funding organizations, investors, universities and public authorities.

3.4
top management
person or group of people who directs and controls an *organization* (3.2) 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* (3.5) covers only part of an organization, then top management refers to those who direct and control that part of the organization.

3.5
management system
set of interrelated or interacting elements of an *organization* (3.2) to establish *policies* (3.6) and *objectives* (3.7), as well as *processes* (3.9) to achieve those objectives

Note 1 to entry: A management system can address a single discipline or several disciplines.

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

3.6
policy
intentions and direction of an *organization* (3.2) as formally expressed by its *top management* (3.4)

3.7
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 finance, health and safety, and environment). They can be, for example, organization-wide or specific to a project, product or *process* (3.9).

Note 3 to entry: An objective can be expressed in other ways, e.g. as an intended result, as a purpose, as an operational criterion, as an *innovation* (3.1) objective 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* (3.5), innovation objectives are set by the *organization* (3.2), consistent with the innovation *policy* (3.6), to achieve specific results.

3.8
risk
effect of uncertainty

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

Note 2 to entry: Uncertainty is the state, even partial, of deficiency of information related to, understanding or knowledge of, an event, its consequence, or likelihood.

Note 3 to entry: Risk is often characterized by reference to potential events and consequences, or a combination of these.

Note 4 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 of occurrence.

3.9
process
set of interrelated or interacting activities that uses or transforms inputs to deliver a result

Note 1 to entry: Whether the result of a process is called an output, a product or a service depends on the context of the reference.

3.10
competence
ability to apply knowledge and skills to achieve intended results

3.11
documented information
information required to be controlled and maintained by an *organization* (3.2) 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:

a) the *management system* (3.5), including related *processes* (3.9);

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

c) evidence of results achieved (records).

3.12
performance
measurable result

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

Note 2 to entry: Performance can relate to managing activities, *processes* (3.9), products, services, systems or *organizations* (3.2).

3.13
continual improvement
recurring activity to enhance *performance* (3.12)

3.14
effectiveness
extent to which planned activities are realized and planned results are achieved

3.15
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) and *interested parties* (3.3) that the need or expectation under consideration is implied.

Note 2 to entry: A specified requirement is one that is stated, e.g. in *documented information* (3.11).

3.16
conformity
fulfilment of a *requirement* (3.15)

3.17
nonconformity
non-fulfilment of a *requirement* (3.15)

3.18
corrective action
action to eliminate the cause(s) of a *nonconformity* (3.17) and to prevent recurrence

3.19
audit
systematic and independent *process* (3.9) for obtaining evidence and evaluating 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) itself, or by an external party on its behalf.

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

3.20
measurement
process (3.9) to determine a value

3.21
monitoring
determining the status of a system, a *process* (3.9) or an activity

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

4 Context of the organization

4.1 Understanding the organization and its context

The organization shall determine:

a) external and internal issues that are relevant to its purpose and that affect its ability to achieve the intended result(s) of its innovation management system;

b) whether climate change is a relevant issue;

c) areas of opportunity for potential value realization.

NOTE 1 Issues can have a positive or negative impact on the organization and be related to past experiences, present situations and future forecasts.

NOTE 2 External issues can be related to, for example, political, economic, market, social, technological, legal, regulatory, standards, environmental and ethical factors; whether local, regional, national or international.

NOTE 3 Internal issues can be related to, for example, the organization's vision, mission, values, culture, finance, people, practices, value realization models, capabilities, resources, governance and performance.

4.2 Understanding the needs and expectations of interested parties

The organization shall determine:

a) the internal and external interested parties, both current and potential, that are relevant to the areas of opportunity and the innovation management system;

b) the relevant needs, expectations and requirements, both current and anticipated, of these interested parties;

c) which of these needs, expectations and requirements will be addressed through the innovation management system.

NOTE 1 Needs and expectations can be stated or unstated.

NOTE 2 Relevant interested parties can have requirements related to climate change, environmental and social impacts, governance and ethics.

NOTE 3 Interested parties can include, for example, users, customers, partners, suppliers, competitors, associations, academia, regulators, authorities, employees, owners and investors.

4.3 Determining the scope of the innovation management system

4.3.1 Innovation intent

The organization shall determine its innovation intent, considering the areas of opportunity, and the needs, expectations and requirements of interested parties.

The innovation intent shall be available as documented information.

NOTE The innovation intent expresses the aspiration of how innovation activities can contribute to the purpose and strategic direction of the organization. It can include scenarios of what value can be realized in the areas of opportunity.

4.3.2 Scope of the innovation management system

The organization shall determine the boundaries and applicability of the innovation management system to establish its scope.

When determining this scope, the organization shall consider:

a) the external and internal issues and areas of opportunity referred to in 4.1;

b) the needs, expectations and requirements referred to in 4.2;

c) the innovation intent.

The scope shall state what is covered in terms of offerings, processes and operations, organizational structures and functions, and geographical locations, as applicable.

The scope shall be available as documented information.

4.4 Innovation management system

The organization shall establish, implement, maintain and continually improve an innovation management system, including the processes and other management system elements needed and their interactions, in accordance with the requirements of this document.

5 Leadership

5.1 Leadership and commitment

5.1.1 General

Top management shall demonstrate leadership and commitment with respect to the innovation management system by:

a) taking accountability for the effectiveness and efficiency of the innovation management system;

b) ensuring that the innovation intent, policy, strategy and objectives are established, and are compatible with the strategic direction of the organization;

c) ensuring the integration of the innovation management system requirements into the organization's structure and business processes;

d) ensuring that the resources, needed for the innovation management system, are available;

e) communicating the importance of effective innovation management and of conforming to the innovation management system requirements;

f) ensuring that the innovation management system achieves its intended result(s);

g) engaging, directing, empowering and supporting persons to contribute to the effectiveness of the innovation management system;

h) promoting continual improvement;

i) encouraging and supporting leaders at all levels and other relevant roles to demonstrate their leadership and commitment, as it applies to their areas of responsibility.

NOTE Reference to "business" in this document can be interpreted broadly to mean those activities that are core to the purposes of the organization's existence.

5.1.2 Focus on value realization

Top management shall demonstrate leadership and commitment with respect to value realization, by ensuring:

a) that a focus on sustained value realization, both financial and non-financial, is maintained as the overall purpose of the innovation management system;

b) the implementation of innovation processes that are capable of realizing value under conditions of uncertainty.

5.1.3 Change management

Top management shall demonstrate leadership and commitment with respect to change management by:

a) determining the need for change and adaptation to achieve innovation success;

b) creating awareness and communicating the importance and need for change and adaptation;

c) ensuring that people are engaged and prepared for change and able to adapt.

NOTE Change management can be related to implementing the innovation management system and can be applied upon deploying innovations.

5.2 Innovation policy

5.2.1 Establishing the innovation policy

Top management shall establish, implement and maintain an innovation policy that:

a) expresses a commitment to innovation activities;

b) is appropriate to the purpose of the organization;

c) provides a framework for setting the innovation strategy and objectives;

d) includes a commitment to meet applicable requirements;

e) includes a commitment to continual improvement of the innovation management system.

NOTE The innovation policy can consider the innovation management principles, and include ethical, sustainability, social and other commitments.

5.2.2 Communicating the innovation policy

The innovation policy shall:

a) be available as documented information;

b) be communicated and understood within the organization;

c) be available to interested parties, as appropriate.

5.3 Innovation strategy

5.3.1 Establishing the innovation strategy

Top management shall establish, implement and maintain one or more innovation strategies that:

a) express the purpose of innovation activities, the strategic innovation objectives and how to achieve them;

b) determine and provide the necessary support, including the allocation of resources;

c) are compatible with the strategic direction of the organization;

d) are based on the innovation intent and aligned with the innovation policy;

e) determine the areas of opportunity to explore and exploit;

f) provide a framework for setting tactical and operational innovation objectives, and establishing innovation portfolios and innovation performance indicators;

g) are consistent across units, levels and functions, as applicable;

h) are flexible and adaptable;

i) are monitored, reviewed and updated, as appropriate, based on the innovation performance.

NOTE An innovation strategy can support the strategic direction of the organization or challenge it by providing an alternative or more visionary direction.

5.3.2 Communicating the innovation strategy

The innovation strategy shall:

a) be available as documented information;

b) be communicated, understood and applied within the organization;

c) be available to interested parties, as appropriate.

5.4 Innovation culture

Top management shall determine and promote the organizational culture needed to support innovation activities by:

a) analysing the current culture as part of understanding the internal context of the organization;

b) considering the innovation intent, policy and strategy;

c) encouraging leaders at all levels to demonstrate their leadership and commitment, and act as role models;

d) ensuring competence development, awareness, engagement and communication, as appropriate;

e) considering the following characteristics, as appropriate:

1) enabling the coexistence of creativity and effective execution;

2) openness to change, risk-taking attitude, collaboration and co-creation;

3) exploiting insights, focus on users and value realization;

4) exploration and experimentation to acquire new knowledge and competence;

5) questioning of assumptions and established conditions;

6) diversity of participation and respect for different perspectives;

7) balance of assumption-based and evidence-based analysis and decision-making;

8) encouragement of feedback and continuous learning;

9) the ability to work with ambiguity and uncertainty.

NOTE Organizations with an innovation culture frequently have future-focused leaders who are driven by curiosity and courage, motivate through purpose, promote seeking new knowledge, act as coaches and mentors, demonstrate design and other good practices, facilitate learning from successes and failures, and encourage, empower, recognize, and incentivize innovators and teams.

5.5 Roles, responsibilities and authorities

Top management shall ensure that the responsibilities and authorities for relevant roles are assigned, communicated and understood within the organization.

Top management shall assign the responsibility and authority for:

a) ensuring that the innovation management system conforms to the requirements of this document;

b) reporting on the performance of the innovation management system and on opportunities for improvement to top management;

c) the management of the relevant management system elements, including innovation portfolios, organizational structures, collaboration, innovation initiatives and innovation processes;

d) decision-making at all levels.

NOTE Responsibilities and authorities can be assigned to dedicated roles (e.g. innovation management professionals) or added to other established roles in the organization.

6 Planning

6.1 Actions to address risks and opportunities

6.1.1 General

When planning for the innovation management system, the organization shall consider the issues referred to in 4.1, the needs, expectations and requirements referred to in 4.2, and the innovation strategy referred to in 5.3, and determine the risks and opportunities that need to be addressed to:

a) manage the associated uncertainties, including the level and type of accepted risks;

b) give assurance that the innovation management system can achieve its intended result(s);

c) enhance desired effects and prevent, or reduce, undesired effects;

d) achieve continual improvement.

NOTE In the discipline of innovation management, opportunities are generally considered before risks.

6.1.2 Planning actions

The organization shall plan:

a) actions to address these risks and opportunities;

b) how to

— integrate and implement the actions into its innovation management system processes;

— evaluate the effectiveness of these actions.

6.2 Innovation objectives and planning to achieve them

6.2.1 Innovation objectives

The organization shall establish innovation objectives at relevant functions and levels.

The innovation objectives shall:

a) be consistent with the innovation policy and strategy;

b) be measurable (if practicable);

c) take into account applicable requirements;

d) be monitored;

e) be communicated and understood;

f) be updated as appropriate;

g) be available as documented information.

6.2.2 Planning to achieve objectives

When planning how to achieve its innovation objectives, the organization shall determine:

a) what will be done;

b) what resources will be required;

c) who will be involved, considering the relevant interested parties;

d) who will be responsible;

e) when it will be completed;

f) how the results will be evaluated and, if applicable, protected;

g) how it will realize value.

6.3 Planning of changes

When the organization determines the need for changes to the innovation management system, the changes shall be carried out in a planned manner.

6.4 Innovation portfolio

The organization shall establish, implement and maintain one or more portfolios of innovation initiatives that:

a) are aligned with the innovation strategy and objectives;

b) include defined criteria to evaluate, improve, and prioritize the portfolio and its initiatives;

c) consider innovation and other portfolios, as applicable.

NOTE 1 Innovation portfolios can be established to realize synergies, including, for example, possibilities for re-use and optimization of resources, technologies, platforms and processes.

NOTE 2 Innovation portfolio criteria can include, for example, a balance of risk versus return, value versus effort, degrees of novelty, types of innovations, technology readiness levels, ranges of time horizons, different areas of opportunity, current versus new users and customers, and opportunities close to, adjacent to or beyond the current offerings of the organization.

NOTE 3 The organization can have innovation portfolios at strategic, tactical or operational levels.

6.5 Organizational structures

The organization shall establish, implement and maintain organizational structures that:

a) are adaptable and appropriate for achieving the intended results of the innovation management system;

b) are aligned with the innovation strategy and objectives;

c) consider the need for separated organizational structures dedicated to innovation activities, as appropriate.

NOTE Organizational structures can take the form of, for example, a department, an innovation laboratory, an incubator, an accelerator or an ecosystem.

6.6 Collaboration

The organization shall establish an approach for the management of internal and external collaboration that:

a) expresses the purpose of collaboration, the collaboration objectives and how to achieve them;

b) is aligned with the innovation strategy and objectives;

c) considers existing competences and resources;

d) considers issues related to intellectual property;

e) considers the importance of respect, openness and trust between parties;

f) is communicated and understood within the organization, as appropriate.

NOTE An approach can include, for example, the strategic relevance and scope of collaboration, identification and selection of collaboration parties, innovation ecosystems, and the implementation and communication of collaboration activities.

7 Support

7.1 Resources

7.1.1 General

The organization shall determine and provide the resources needed for the establishment, implementation, maintenance and continual improvement of the innovation management system.

When determining and providing resources, the organization shall consider:

a) the innovation strategy and objectives;

b) a flexible and adaptable approach;

c) the capabilities of, and constraints on, existing internal resources;

d) what needs to be established or obtained from external providers or through collaboration;

e) the need for securing and protecting resources for innovation activities as distinct from other activities.

7.1.2 People

The organization shall determine and provide the people needed for the effective implementation of the innovation management system, and consider:

a) people development with regards to innovation activities;

b) the need for incentives and recognition;

c) the diversity of people and teams;

d) the identification and protection of innovators, as necessary;

e) establishing the terms and conditions for the ownership of ideas and intellectual property.

7.1.3 Time

The organization shall allocate and protect people's time for innovation activities and training, as appropriate.

7.1.4 Finance

The organization shall determine, provide and monitor the financial resources needed for the effective implementation of the innovation management system, and consider:

a) the financial risks and opportunities associated with innovation activities;

b) establishing funding principles and criteria for innovation activities and portfolios;

c) the allocation and protection of dedicated financial resources for innovation activities;

d) a flexible and adaptable funding approach that covers planned and unplanned innovation activities.

NOTE Funding principles and criteria can be the balance of, for example, funding across different time horizons, different levels of risk and types of innovations, and internal and external sources of funding.

7.1.5 Infrastructure

The organization shall determine, provide and maintain the infrastructure needed for the effective implementation of the innovation management system, and consider:

a) the need for separate or shared infrastructure;

b) regularly evaluating advances in infrastructure, including developments in technology.

NOTE Infrastructure can be physical or virtual, internal or external, and can be obtained by, for example, outsourcing and partnering, and from an innovation ecosystem.

7.1.6 Knowledge

The organization shall establish an approach for the management of knowledge needed for the effective implementation of the innovation management system, and consider:

a) identifying, capturing, classifying, protecting, sharing and utilizing relevant knowledge, whether external or internal, tacit or explicit;

b) leveraging knowledge gained from past and current innovation activities, including successes and failures;

c) acquiring knowledge in new areas, from multiple and diverse sources, as relevant to current and potential future innovation activities;

d) the level and means of confidentiality.

7.1.7 Intellectual property

The organization shall establish an approach for the management of intellectual property needed for the effective implementation of the innovation management system, and consider:

a) monitoring and analysing disclosed intellectual property that is relevant for the organization to avoid potential infringements;

b) identifying intellectual assets to be protected;

c) clarifying ownership of intellectual property:

d) maintaining and periodically reviewing an inventory of intellectual property.

NOTE 1 Intellectual property can include, for example, inventions, technologies, literary, scientific or artistic work, symbols, designs, processes, methodologies, names or images, software, data and know-how.

NOTE 2 The approach for the management of intellectual property can include, for example, specifying how to realize value from intellectual property, identifying opportunities, creating awareness, communicating and providing training.

7.1.8 Tools and methods

The organization shall determine, provide, and maintain the tools and methods needed for the effective implementation of the innovation management system, and consider:

a) appropriate tools and methods supporting different types of innovations and innovation activities;

b) creating awareness and providing training.

NOTE Tools and methods can include, for example, back casting, ethnographic research, scenario planning, foresight, brainstorming, strategic intelligence, design thinking, TRIZ, road mapping, customer surveys and/or business model templates.

7.2 Competence

The organization shall:

a) determine the necessary competence for the effective implementation of the innovation management system of person(s) doing work under its control that affects its innovation performance;

b) ensure that these persons are competent on the basis of appropriate education, training or experience;

c) where applicable, take actions to acquire the necessary competence and evaluate the effectiveness of the actions taken.

Appropriate documented information shall be available as evidence of competence.

NOTE 1 Applicable actions can include, for example: the provision of training to, the mentoring of, or the re-assignment of currently employed persons; or the hiring or contracting of competent persons.

NOTE 2 Competence can be a mix of, for example, design, engineering and business competence relevant to the context.

7.3 Awareness

Persons doing work under the organization's control shall be aware of:

a) the innovation intent, policy, strategy and objectives;

b) the meaning of innovation and the importance of innovation activities;

c) their contribution to the effectiveness of the innovation management system, including the benefits of improved innovation performance;

d) the implications of not conforming with the innovation management system requirements.

7.4 Communication

The organization shall determine the internal and external communications relevant to the innovation management system, including:

a) on what it will communicate;

b) when to communicate;

c) with whom to communicate;

d) how to communicate;

e) who communicates.

7.5 Documented information

7.5.1 General

The organization's innovation management system shall include:

a) documented information required by this document;

b) documented information determined by the organization as being necessary for the effectiveness of the innovation management system.

NOTE The extent of documented information for an innovation management system can differ from one organization to another due to:

— the size and maturity of the organization and its type of activities, processes, products and services;

— the complexity of processes and their interactions;

— the competence of persons.

7.5.2 Creating and updating documented information

When creating and updating documented information, the organization shall ensure appropriate:

a) identification and description (e.g. a title, date, version, author or reference number);

b) format (e.g. language, software version, graphics) and media (e.g. paper, electronic);

c) review and approval for suitability and adequacy.

7.5.3 Control of documented information

Documented information required by the innovation management system and by this document shall be controlled to ensure:

a) it is available and suitable for use, where and when it is needed;

b) it is adequately protected (e.g. from loss of confidentiality, improper use or loss of integrity).

For the control of documented information, the organization shall address the following activities, as applicable:

— distribution, access, retrieval and use;

— storage and preservation, including preservation of legibility;

— control of changes (e.g. version control);

— retention and disposition.

Documented information of external origin determined by the organization to be necessary for the planning and operation of the innovation management system shall be identified, as appropriate, and controlled.

NOTE Access can imply a decision regarding the permission to view the documented information only, or the permission and authority to view and change the documented information.

8 Operation

8.1 Operational planning and control

The organization shall plan, implement and control the innovation initiatives, processes and, where applicable, innovation portfolios needed to address innovation opportunities, meet requirements and implement the actions determined in Clause 6, by:

a) establishing criteria for managing the innovation initiatives, processes and portfolios;

b) implementing control of the innovation initiatives, processes and portfolios in accordance with the criteria.

Documented information shall be available to the extent necessary to have confidence that the innovation initiatives, processes and portfolios have been carried out as planned.

The organization shall control planned changes and review the consequences of unintended changes, taking action to prevent or mitigate any adverse effects, as necessary.

The organization shall ensure that externally provided processes, products or services, and any collaborative innovation initiatives that are relevant to the innovation management system are controlled.

8.2 Innovation initiatives

The organization shall manage each innovation initiative, and consider, if applicable:

a) establishing, and when appropriate reviewing, the scope, objectives and expected results of the initiative;

b) aligning with the innovation strategy, objectives and portfolios;

c) determining indicators and how to apply them for evaluating the established criteria;

d) establishing decision-making processes and assigning roles, responsibilities and authorities;

e) ensuring the necessary competences;

f) allocating the necessary resources and staffing levels;

g) establishing internal and external collaboration;

h) implementing the appropriate innovation processes;

i) issues related to intellectual property;

j) legal, regulatory and other applicable requirements;

k) continuously capturing and using knowledge gained, from both successes and failures.

NOTE 1 Innovation initiatives can be informal or formally controlled and can take the form of a project, programme or any other kind of approach.

NOTE 2 Innovation initiatives can be implemented using one or a combination of approaches (e.g. in the form of an ecosystem, internal, external or collaborative initiative; in a temporary or permanent setting) and can use outsourcing, acquisition or divesture.

8.3 Innovation processes

8.3.1 General

The organization shall establish, implement and maintain innovation processes that:

a) are flexible and adaptable to the individual innovation initiative;

b) consider and adapt, as necessary, the five generic innovation processes described in 8.3.2 to 8.3.6;

c) aim to reduce uncertainties and increase feasibility of the innovation initiative;

d) include decision points, when appropriate, to repeat the previous processes, continue to subsequent processes or to discontinue the innovation initiative;

e) utilize, and connect to, other relevant processes in the organization, as appropriate;

f) are regularly reviewed and, if necessary, re-configured;

g) consider integration of innovation initiatives within a portfolio;

h) consider issues related to intellectual property, including avoiding infringement and securing protection, as appropriate.

NOTE 1 Innovation processes can be iterative and non-sequential and form different configurations, depending on the types of innovations and the circumstances of the innovation initiatives.

NOTE 2 Innovation processes can require an adapted approach to control, especially regarding creative and experimentation activities, incorporating a higher degree of freedom and flexibility to manage uncertainty. This approach can intentionally be different from other established control practices in the organization.

8.3.2 Identify opportunities

To identify opportunities, the organization shall consider:

a) the scope, objectives and expected results of the innovation initiative;

b) acquiring, analysing and sharing insights based on relevant external and internal knowledge;

c) identifying, defining and prioritizing opportunities for value realization based on insights.

NOTE 1 Insights can be related to the stated and unstated needs and expectations of users, customers and other interested parties, and other relevant trends and challenges related to, for example, technologies, competitors, markets, regulations, the environment and intellectual property.

NOTE 2 The result of the processes can be:

— an understanding of the potential for value realization;

— identified, defined and prioritized opportunities, areas of opportunity or problem statements.

8.3.3 Create concepts

To create concepts, the organization shall consider:

a) identified opportunities as inputs;

b) generating, capturing, analysing, evaluating and selecting ideas for concepts, based on established criteria;

c) designing, developing, describing and prioritizing concepts for potential solutions and propositions for value realization for users, customers, partners and other interested parties.

NOTE The result of the processes can be created concepts, with preliminary value realization models, that can be validated, including an understanding of the critical uncertainties and assumptions for each concept.

8.3.4 Validate concepts

To validate concepts, the organization shall consider:

a) created concepts as inputs;

b) identifying, prioritizing and testing critical uncertainties and assumptions related to the concepts to gain new knowledge and reduce uncertainty;

c) designing, adjusting, re-designing or discontinuing the concepts based on lessons learned, feedback and new knowledge;

d) evaluating the feasibility and potential impact of the concept;

e) reducing remaining uncertainties, if necessary;

f) determining the priorities of validated concepts within innovation portfolio(s) and making adjustments, if necessary.

NOTE 1 Uncertainty can be related to, for example, interaction with users, customers, partners, other interested parties, support, resources, technology, intellectual property, marketing, time to market, competitive threats, financial and legal aspects, organizational structures and competences.

NOTE 2 The result of the processes can be validated concepts with acceptable levels of uncertainty that can be developed into solutions.

8.3.5 Develop solutions

To develop solutions, the organization shall consider:

a) validated concepts as inputs;

b) designing and developing concepts, including value realization models, into working solutions;

c) preparing the necessary deployment capabilities, including identifying and addressing the related uncertainties and risks.

NOTE 1 Deployment uncertainties and risks can be related to, for example, user acceptance, marketing, production, supply, partners, ecosystems, sustainability, scalability, budget cycle and timing.

NOTE 2 The result of the processes can be developed solutions, including value realization models, that can be deployed.

8.3.6 Deploy solutions

To deploy solutions, the organization shall consider:

a) developed solutions as inputs;

b) production, service provision, distribution plans and, if applicable, scalability plans;

c) providing solutions, including promotion and support, to interested parties;

d) evaluating the adoption and impact of solutions in terms of value realization;

e) implications for intellectual property;

f) capturing new knowledge from deployment to improve solutions and identify new opportunities;

g) determining the priorities of solutions within innovation portfolio(s) and making adjustments, if necessary.

NOTE The result of the processes can be deployed solutions realizing financial or non-financial value, as well as new knowledge and opportunities.

9 Performance evaluation

9.1 Monitoring, measurement, analysis and evaluation

9.1.1 General

The organization shall determine:

a) what needs to be monitored and measured;

b) which innovation performance indicators are to be used;

c) the methods for monitoring, measurement, analysis and evaluation, as applicable, to ensure valid results;

d) when the monitoring and measuring shall be performed;

e) when the results from monitoring and measurement shall be analysed and evaluated;

f) who will be responsible.

Documented information shall be available as evidence of the results.

NOTE The innovation performance indicators at initiative level, can include:

— input-related indicators (e.g. number of insights, number of initiatives, resources allocated);

— throughput-related indicators (e.g. number of ideas and concepts, speed of experimentation, time to value realization);

— output-related indicators (e.g. number of solutions deployed, speed of adoption);

— result-related indicators (e.g. return on innovation investment, user and customer productivity and satisfaction, social and environmental impact).