

# Towards a Management System Standard for Innovation

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## Abstract

The purpose of this letter is to provide background and rationale for developing a management system standard to further the profession of innovation management. A systems approach is not new; however, the ISO 56002 Innovation management system - guidance standard is providing a common language and framework for building an innovation capability. The letter describes the innovation management principles and the system elements. We have heard that even having a standard for innovation management is an oxymoron. The publication of ISO 56002 in 2019 has triggered a broader conversation about the merits and drawbacks of a management system standard for innovation work. Some issues have been pointed out by Joe Tidd in his review and critical assessment of the standard (Tidd, 2021). As experts involved in drafting the standard, we can offer informed perspectives of this assessment by focusing on four topics related to context, innovation strategy, adaptable processes and tools, and process versus system approaches. These perspectives are ours alone and do not represent the views of the ISO Working Group. We invite the community to engage in this discussion to evolve our thinking about standardization for innovation management.

**Keywords:** Innovation Management, System, Standard, Strategy, Process, Tools.

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## 1 Introduction

### 1.1 Background and rationale

Innovation management is today an emerging profession, similar to quality management and project management in the past. In the case of quality, a management system standard was fundamental to professionalizing the discipline, including establishing a common language and body of knowledge. For innovation management to take its rightful place as a well-recognized, legitimized profession, there is also a need for a management system standard.

The discipline of innovation management is facing challenges:

- We have more than 50 years of innovation management research that has given us good knowledge of the factors supporting innovation success. Still, there has been limited adoption of practices in most organizations. With this slow progress, there is a need for guidance.
- There are many proposed frameworks by consultants and professors. Organizations are confused, and many are seeking a more credible framework and a common language. Experience has proven that a management system standard has boosted the quality and environment fields.

- Management fads are coming and going. There is a need for a more stable generic foundation that is long-lasting and provides the basis for developing the discipline and profession (Tidd and Bessant, 2018).
- Organizations ask themselves if they have the right innovation capabilities and how they can be improved, but there is no recognized framework to compare against.

To address these challenges, a framework based on a management system standard should provide the following:

- Practical guidance that is compatible with other management systems to increase organizational understanding and value without prescribing specific actions or tools. Guiding principles are required that allow for implementation flexibility.
- A common language and framework based on consensus in an international community of experts and practitioners.
- A durable foundation for innovation management that is applicable for most sectors, organization types and sizes, etc.

It is about using the robust features of an international standardization approach, building on community, consensus, experts, etc., to boost the practical application of research-based knowledge, with the understanding that what we know will continue to evolve.

## 1.2 About the development

The development of the Innovation management system guidance standard started at the European level in 2008. The ISO level work was initiated in 2013, building on this work. Over 50 countries were involved in drafting the standard, supported by National mirror committees and many other experts. The first main publication, ISO 56002, was released in July 2019 (ISO 56002, 2019). The authors of this letter were involved in the drafting of this standard.

It is worth noting that there has been significant research since the 1990s, especially for strategic, breakthrough, or radical innovation. Seminal research was conducted by Rensselaer Polytechnic Institute (RPI) through its radical innovation research program for over two decades, starting in 1995. This body of knowledge covers how to manage projects by addressing management challenges and uncertainties. It identifies how to establish an innovation management system and build discovery, incubation, and acceleration competencies (O'Connor et al., 2008). Finally, it looks at how to move beyond the champion and institutionalize innovation through people by identifying discrete innovation roles and making the case for innovation management as a profession.

In addition, it has been over ten years since the front end of innovation was considered “fuzzy.” It is uncertain and chaotic, yet we now understand how to navigate this uncertainty via a systematic approach (Arteaga and Hyland, 2013). This is further supported by the start of the European standard work in 2008 and the findings from the RPI research also published in 2008. Ultimately, the ISO 56002 standard draws upon the vast body of knowledge to codify what was “fuzzy” through an innovation management system.

## 2 Inside the standards

### 2.1 Definition of innovation

A shared understanding of what innovation means is critical for building an effective innovation management system. ISO is providing a broad definition with a focus on novelty and value.

Innovation is defined as a “new or changed entity, realizing or redistributing value.” Value is not

limited to financial value but can be any kind of value, such as an experience, well-being, or social value. Furthermore, anything can be innovated according to the definition. The innovation entity can be, for example, a product, service, process, model, method, etc., ranging from incremental to radical.

According to the definition, innovation is an outcome rather than a process or activity. The broad nature of this definition often requires the use of one or more attributes in order to be more specific, for example, process innovation, incremental innovation, radical business model innovation, or social innovation. The definition of innovation is a cornerstone of the ISO 56000 family of standards and was published in ISO 56000 (ISO 56000, 2020). It was developed in collaboration with the terminology group of ISO 9000 in 2014 and in liaison with the development of the updated definition of innovation in the OECD Oslo Manual that was published in 2018.

## 2.2 Innovation management principles

Eight innovation management principles were developed to guide the effective management of innovation activities. They can be used as an introduction to understand the innovation management system or as a tool for assessing the innovation management capabilities of an organization. The following includes short descriptions of each of these principles:

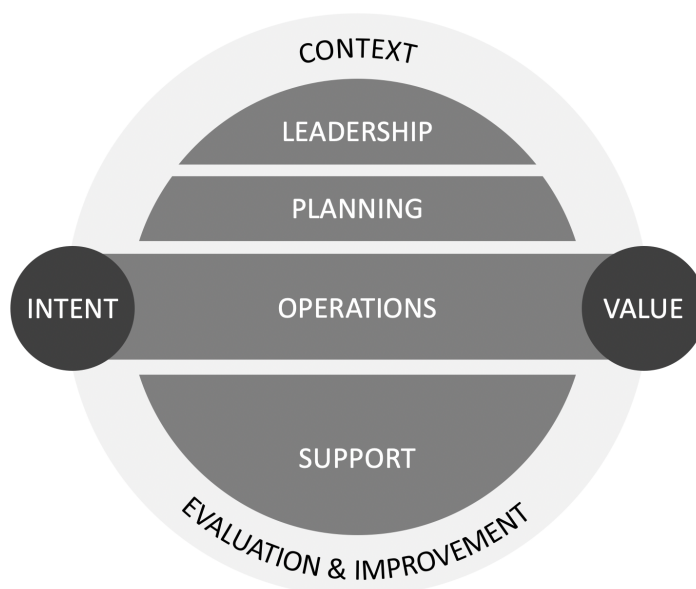
- Realization of value – Value, financial or non-financial, is realized from the deployment, adoption, and impact of new or changed solutions for interested parties.
- Future-focused leaders – Leaders at all levels, driven by curiosity and courage, challenge the status quo by building an inspiring vision 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 behaviors that encourage openness to change, risk-taking, and collaboration and 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 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 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.

The innovation management principles were published in ISO 56000 (ISO 56000, 2020).

## 2.3 Innovation management system

We know from research and practice that managing innovation activities can be particularly challenging in established organizations. This is especially true for radical or breakthrough innovations that challenge the current ways of working, business models, or organizational culture. Transformation and change are often an uphill battle.

We also know that innovation activities can be managed largely by creating the right conditions, removing barriers, and engaging people in the organization. The ability of an organization to innovate is dependent on several interconnected factors, such as, leadership, resources, culture,



**Figure 1.** Overview structure of an innovation management system (ISO 56002).

structures, processes, and so forth. Therefore, a systems approach is necessary for managing innovation activities to link together the related parts (Karlsson and Magnusson, 2019).

An innovation management system provides a systemic and systematic approach for any organization to address its innovation challenges.

The structure of the guiding standard for innovation management system (ISO 56002, 2019) covers seven key elements, one for each heading in the document (see Fig. 1). These headings are the same for all management system standards.

**CONTEXT:** The organization should track external and internal issues and trends, e.g., user preferences, technology developments, and internal capabilities, to identify opportunities and challenges that can trigger innovation activities.

**LEADERSHIP:** Based on the understanding of the context, top management should demonstrate leadership and commitment by establishing an innovation vision, strategy, and policy, including the necessary roles and responsibilities.

**PLANNING:** Innovation objectives, organizational structures, and innovation portfolios should be established based on the direction set by top management and the identified opportunities and risks.

**SUPPORT:** The support necessary for innovation activities should be put in place, e.g., people with the right competences, financial and other resources, tools and methods, communication and awareness creating activities, as well as approaches for intellectual property management.

**OPERATIONS:** Innovation initiatives or projects should be established in line with the strategies and objectives. Innovation processes should be configured according to the types of innovations to be achieved and include the following generic innovation activities: identify opportunities, create and validate concepts, and finally develop and deploy solutions.

**EVALUATION:** The performance of the innovation management system should be regularly evaluated to identify strengths and gaps.

**IMPROVEMENT:** Based on the evaluation, the system should be improved by addressing the most critical gaps with regards to the understanding of the context, leadership, planning, support, and operations.

The guiding framework is based on the eight innovation management principles and is applicable for all types of organizations, regardless of type, sector, or size. An organization can select the most relevant parts of the system to be implemented, depending on its specific situation.

### 3 Practical use and implications

Several organizations have started to use the systems approach to innovation management and even decided to implement an innovation management system according to ISO 56002. Other organizations have been applying the principles and implemented the system elements long before the management system standard was developed. The project International Collaboration Platform for Innovation Management System, started in 2019, is led by a consortium of researchers and practitioners from Sweden, Denmark, the UK, and Canada. Its purpose is to capture the learnings from several case studies of organizations that have deployed an innovation management system in one way or another. These organizations offer regional and global perspectives from Europe to Asia to the Americas and represent private, public, and not-for-profit sectors. The case studies seek to validate the systems approach for innovation management, provide knowledge that can further improve standardization efforts, and guide organizations in building sustainable innovation capabilities (Hyland et al., 2021 forthcoming).

### 4 Discussion and issues

We have heard that even having a standard for innovation management is an oxymoron. The publication of ISO 56002 has triggered a broader conversation about the merits and drawbacks of a management system standard for innovation work. Some issues have been pointed out by Joe Tidd in his review and critical assessment of the standard (Tidd, 2021). This review is of significant value to help us validate its strengths and identify its weaknesses. As experts involved in drafting the standard, we can offer informed perspectives of this critical assessment. It is not our intent to systematically address each point in this review. We have selected four key themes that warrant discussion and reflection as follows.

#### 4.1 Generic versus context specific

The development of the standard started with the premise of a foundation to drive innovation management as a discipline and promote its professionalization. This required describing what is common, avoiding prescriptions, and steering clear of a myriad of innovation tools, often not research-based.

The issue of sectoral diversity is an important one. There is no single best recipe. While there are common principles, they should be applied differently by types of innovation, sectors, organization size, external and internal environments, and within other contexts.

Tidd raised excellent contextual factors that influence the innovation process, such as sector, size, novelty, lifecycle, etc. They also influence the design of an innovation management system. We agree that ISO 56002 could benefit from more diversity. Other standards in the ISO 56000 family are already taking this into account. A matrix could be developed to address organizational challenges and establish what could be generally applied to establish an innovation management system (i.e., the foundational pillars) and then what would be more relevant in one context or another.

## 4.2 Planning versus emergent approach

The planning and innovation strategy approaches were hotly debated in drafting the standard. The use of “planning” in an innovation management system is confusing. While all agreed that adaptability and flexibility are required, the constraints of the ISO High-Level Structure (HLS) limited the view of strategy to be a more traditional planning function. An innovation management system requires an innovation strategy driven by an emergent innovation or strategic intent that sets a direction for an uncertain future. Note that the use of intent here is about designing an innovation strategy, not the intent to innovate.

The strategy formulation points by Tidd provide an appropriate frame of reference to complement the innovation strategy section of the standard. However, an innovation strategy is about setting the context within an organization for strategic initiatives that extend well beyond planning and leadership. Therefore, it will be important for future standards development to push the boundaries of the HLS design to support a more strategic and dynamic positioning within a management system standard.

## 4.3 Linear versus adaptable processes and tools

### Processes

Effective innovation management relies on iterative processes. The challenge is how best to depict it. If there are too many dimensions, then it is too complex. If there are too few, then it can be viewed as a linear process.

The objective of the standard is to present generic activities that can be combined in an interactive, flexible manner. These activities are relevant for product, service, business model, process, organizational design, etc., innovations. It is designed to manage the inevitable uncertainty in the front end of innovation due to the chaotic nature of learning, and managing uncertainty is one of the eight principles. Further, the standard does consider the “complex ways in which the simple linear model is challenged by reality” (Tidd, 2021). In fact, the events that impact this direction, such as shock triggers, multiple paths, project setbacks, organizational restructuring, and shifts in what defines success, are well documented in RPI’s research under the dimensions of organization and resource uncertainties (O’Connor and Rice, 2013).

### Tools

Tools are essential to codify and operationalize research findings. They do lead to better innovation outcomes. However, developing innovation toolkits is not within the scope of ISO 56002. Within the standard series, there is a separate working group for tools and methods.

It is worth noting that research-based tools exist at the system level for assessing innovation capability maturity, transition readiness, etc. Further, there are also examples in the literature of the link between incubation capabilities and firm performance (Markovitch et al., 2017) and appropriate metrics for the value creation stage (Kristiansen and Ritala, 2018). These studies are of critical importance to make the case for establishing an innovation management system since the value capture and monetization stages are to come much later in the value delivery process.

## 4.4 Processes versus management system

As a final discussion point, the distinction between innovation processes and an innovation management system is an important one. The standard is about the system, with processes as parts of its components. Due to the importance of linking the management system with an innovation strategy, the success of the system requires the top-down support of leadership, set within the right organizational context. On the other hand, any process needs to be bottom-up and

top-down for its success. Further, it is important to view the system as the enabler to building a capability for innovation work, not processes alone. It is only with a focus on innovation capability building that a legitimized profession can proliferate.

## 5 Concluding remarks

Is the discipline not mature enough for a management system standard, comparable to a quality or environmental one, or is it long overdue to use standards to help organizations reach the next level of innovation performance?

We can no longer hide behind arguments that we do not know enough about how to create the right conditions for innovation success!

The standard provides guidance through principles and allows for implementation flexibility based on sectoral diversity, organization size, profit, or social purpose, etc. It is not based on current popular approaches or skewed to, for example, US start-up experiences. Many references were considered from research and practice. In fact, within the ISO community, the focus is on generic approaches, not proprietary practices. Further, as a guidance standard, it is not about certifying compliance. It is intended to be a framework to move forward with a common language and approach. It is about enabling an innovation management profession to unfold.

Ultimately, there is the aim to move to an auditable and certifiable standard under the auspices of ISO 56001, a recently approved new work item. There is a delicate balance between building sustainable innovation capabilities to successfully innovate and to conform to a certifiable standard for legitimizing the profession.

In moving from a guidance to a certifiable standard, we want to raise a few critical questions to consider going forward based on the discussion above:

- Can the High-Level Structure (HLS) fully incorporate these more strategic, dynamic standard initiatives?
- How do we allow for sufficient sectoral diversity to make it relevant for organizations that are smaller, early in their innovation maturity, or with a mission rather than market purpose?
- How do we effectively capture learning from using the guidance standard to create a more pioneering certifiable standard?
- How do we develop innovation management system tools that go beyond process tools and innovation management assessments?
- How do we deal with a rapidly changing world, where the very essence of innovation is changing with it, such as moving beyond a profit orientation to organizational and societal transformation, process improvements, digital models, etc.?

We invite you to engage in this discussion and welcome your thoughts about the value of a series from the new world of standardization and asking what could be possible.

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## Biographies



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