



# Beyond Risk? How ISO Standard 56002 helps businesses to be more innovative and responsible

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# 1. Introduction

## 1.1 What are ISO management standards?

ISO – the International Organisation for Standardization – has developed a series of different management system standards that aim to guide organizations to improve their performance by focusing on specified topics. This could be represented by objectives related to product or service quality (ISO 9001), energy management (ISO 51001), environmental performance (ISO 14001), health and safety in the workplace (ISO 45001), social responsibility (ISO 26000) and recently innovation (ISO 56002). These standards operate through so-called standard’s clauses requirements that need to be present in the organization’s processes before a certification granted. All standards specify in repeatable steps how implemented management systems reflexively engage in a continuous cycle of self-evaluation, correction, and improvement of operations and processes and lead towards heightened employee awareness, and management leadership & commitment.

ISO standard’s contribution to an organisation’s wellbeing may vary from providing a clear definition of what is expected from each individual employee and how they contribute to the organization’s overall objectives. In addition to the above, ISO reports that benefits of an effective management system to an organization can include<sup>1</sup>:

- More efficient use of resources and improved financial performance,
- Improved risk management and protection of people and the environment, and
- Increased capability to deliver consistent and improved services and products, thereby increasing value to customers and all other stakeholders.

The generic nature of ISO standard’s requirements allows organisations to interpret and consequently adopt new management practices into the organisational operations while reflecting on context from which an organisation’s operates. Many argue, however, that generalizability serves as double-edge sword that does not incentives businesses to use standard’s presence to improve practices but serves as a legitimacy tool to communicate organisational credentials that may not be accompanied by meaningful actions. One such example stands ISO 14001 Environmental Management System, which has been heavily criticised for its minimal positive impact on the environment as the standard does not seek reductions in mitigating environmental impact but primarily evaluates organisations against awareness of an impact the organisation has on the environment.

Despite this criticism and the perception that ISO standards represent bureaucratic tools serving predominantly contractual and marketing needs, ISO standards have enjoyed trends of worldwide adoption. Table 1 highlights a number of valid certifications issues in 2018 to the most recognised ISO standards.

	Total valid certificates	Total number of sites
ISO 9001:2015	878,664	1,180,965
ISO 14001:2015	307,059	447,547
ISO IEC 27001:2013	31,910	59,934

<sup>1</sup> <https://www.iso.org/management-system-standards.html>

ISO 22000:2005&2018	32,120	36,105
ISO 45001:2018	11,952	14,607
ISO 13485:2003&2016	19,472	24,123
ISO 50001:2011	18,059	46,770
ISO 20000-1:2011	5,308	7,225
ISO 22301:2012	1,506	5,282
ISO 28000:2007	617	666
ISO 39001:2012	547	1,422
ISO 37001:2016	389	1,541

Table 1 ISO Management System Standard Certifications in 20182

### 1.1.1 ISO and continual improvement

Standards requirements are designed to be applicable across all economic sectors, various types, and sizes of organisations and diverse geographical, cultural and social conditions. Many ISO management standards follow the same structure, use the same terms & definitions and requirements are embedded in Deming’s plan-do-check/study-act cycle.

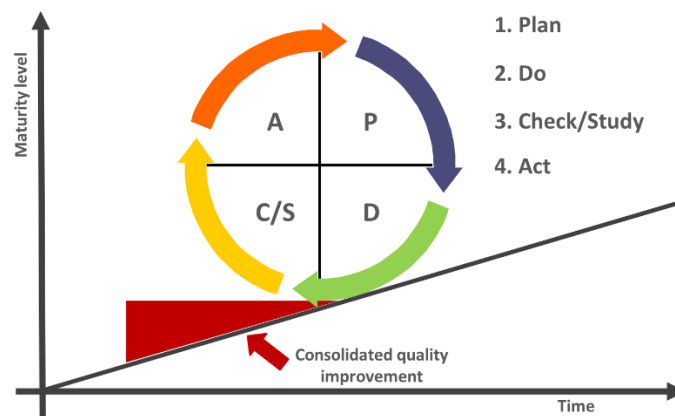


Figure 1 Plan Do Check/Study Act cycle

The PDSA Cycle is a repetitive process that assists knowledge identification leading to the continual improvement of a product, process, or service. This integrated learning – improvement starts with the Plan phase. This encompasses identifying a goal or a purpose, formulating a theory, defining

<sup>2</sup> <https://www.iso.org/the-iso-survey.html>

success metrics and putting a plan into action. These activities are followed by the Do step, in which selected components from the planning phase are implemented, such as running a previously selected project that undergone assessment evaluation for its viability and added value. The third step, Check or Study step represents a phase in which outcomes are monitored against progress and success, or problems hindering improvements. These are typically monitored through a set of performance indicators that are linked to the business model (ie energy used per unit produced). The Act step closes the loop by integrating the learning generated by the entire process. The Act step offers insights into whether, for example, a project should be run on a larger scale, or what parameters may be modified to achieve greater effectiveness. These four steps can be repeated over and over as part of a never-ending cycle of continual learning and improvement.<sup>3</sup>

## 2. ISO 56002 Innovation management system (IMS)

### 2.1 The purpose of ISO 56002

The innovation management system represents a set of interrelated elements that aim for the value realisation (See Figure 2). With its focus to enhance the ability to innovate, it provides a common framework assisting the development and deployment of innovation capabilities necessary for performance evaluation and attainment of intended outcomes. These elements can be gradually adopted within a particular context and circumstances of the organization in order to manage risks associated with innovation projects.

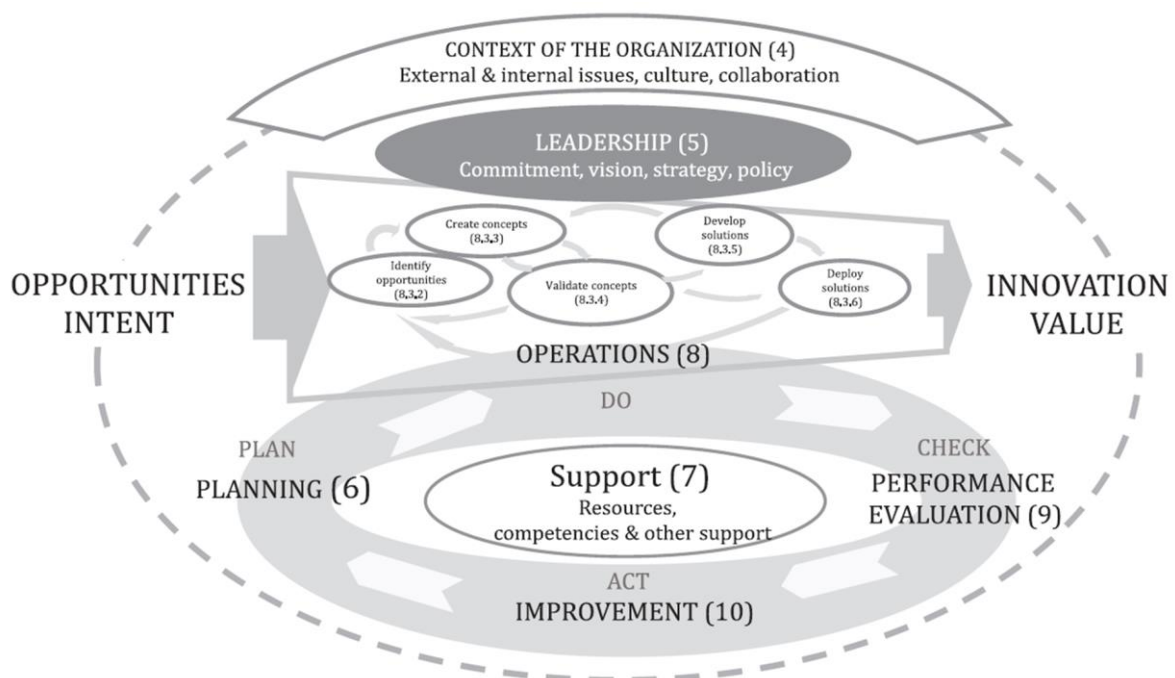


Figure 2 Representation of the framework of the innovation management system with references to the clauses of this document<sup>4</sup>

<sup>3</sup> <https://deming.org/explore/p-d-s-a>

<sup>4</sup> ISO 56002 Innovation management – Innovation management system - Guidance

Innovation activities represent high degrees of variation and uncertainty and involve risk-taking. This is relevant particularly for projects in the early stages. Not all brainstormed innovation activities result in innovation. There is a degree of discontinuation expected by the standard and should be integrated as part of the organisational learning process acting as a necessary input for the selection of future initiatives. Therefore, the standard strives to bring focus on value realization under conditions of uncertainty. It guides towards finding the right balance between assumption-based and evidence-based decision making, possibly calling on new, modified practices, leadership, structures, and process. However, as the process progresses, knowledge and uncertainty are expected to reduce.

Furthermore, the IMS standard is intended to be applicable to:

- a) All types of organisations, regardless of type, sector, or size.
- b) All types of innovations, e.g. product, service, process, model, 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.

It does not describe detailed activities within the organisation, but rather provides guidance at a general level. It does not prescribe any requirements or specific tools or methods for innovation activities.

Similarly to other ISO management standards, the innovation implementation process is embedded in the plan-do-study/check-act cycle that ensures that innovation projects are adequately supported, resourced and managed through organizational processes. The ISO 56002 standard outlines the requirements of its adoption but has been part of so-called ISO 56000 family standards that relate to:

- a) ISO 56000 Innovation management – *Fundamentals and vocabulary* providing essential background for the proper understanding and implementation of ISO 56002 document
- b) ISO TR 56004 *Innovation management assessment – Guidance* providing guidance for organisations to plan, implement and follow up on an innovation management assessment
- c) ISO 56003 *Innovation management – Tools and methods for innovative partnership – Guidance*;
- d) And subsequent standards providing guidance on tools and methods to support the implementation of an innovation management system.

Organisations can adopt ISO 56002 standard as a stand-alone management system but it can also complement other already existing management standards within an organisation. In such a case, there is an additional expectation that organisations will find a balance between innovation management guidance and other management system standards

The following section looks at requirements provided by Clauses 4-10 of ISO 56002:2019.

## 2.2 The framework of the innovation management system in ISO 56002

Consistently with other ISO management standards, ISO 56002 approaches conceptualization and operationalisation of innovation through a set of interrelated and interacting elements aiming towards the realization of value. From elevated perspective, the system presented earlier by Figure 2, shows how opportunities intent represent a pool of ideas and opportunities on the left side of the figure, which leads through series of reflecting and interrelated steps to identification of prioritized idea, development of innovation with the greatest impact of concept and solution with greatest innovative outcome on the right site.

Additionally, one can interpret Figure 2 as a syntax of two-directional top-down and bottom-up forces where from a top-down perspective, leadership empowered by clear vision, commitment, and organisational strategy evaluates emerging ideas and opportunities within the context of the organisation. From the bottom-up perspective, selected ideas are realized and supported by support structures represented by resources, necessary competencies that are able to exert efforts needed to fulfill leadership's vision. These support structures feed their competencies into the operations of the system which consists of steps and loops allowing for reiteration and modification of an outcome.

## 2.3 ISO 56002 implementation clauses

The following section describes clauses relevant to the standard's adoption.

### 2.3.1 4 Context of the organisation

At first, an organization needs to define and review the context within which it operates.

There are four subclauses that list issues in the following categories.

- Understanding the organization and its context (external and internal issues). The standard provides a list of external and internal issues that an organization may wish to take into consideration. Issues range from geopolitical and environmental aspects, past experiences, the likelihood of potential impact of trends to unique skills and knowledge held within an organization, branding cultural aspects values and attitudes present at the company.
- Understanding the needs and expectations of interested parties representing a typical stakeholder identification process, embedded in principles of corporate social responsibility, identifying a process of managing stakeholder expectations, and assessing stakeholder importance and valence.
- Determining the scope of the innovation management system combining key findings from contextual and stakeholder evaluations and tie them towards other standards that may or may not be already present at an organization. This further defines the scope of the innovation management system and its position in an organization.
- Establishing the innovation management system that assists in determining the innovation strategy. This step is embedded in the logic of alignment of innovation intent in an appropriate organizational culture that fosters curiosity, collaboration, and tolerance for failure.

### 2.3.2 5 Leadership

This clause presents attributes leadership should demonstrate with respect to the innovation management system. These are, for example, accountability for the effectiveness and efficiency of the innovation, fostering culture supporting innovation activities, ensuring structures, support and access to resources are available and so forth. Overall, the standard unfolds its description in two broader categories that are further developed into relevant sub-categories. These are:

- leadership and commitment calling on brining focus on value realization, innovation vision, and development of an appropriate innovation strategy.
- innovation policy calling on assessing innovation vision, establishing innovation policy, communicating the innovation policy, defining organisational roles, responsibilities, and authorities.



### 2.3.3 6 Planning

The planning phase of the standard is captured by four sub-clauses that outline the process of ideas' prioritization and subsequent planning for the realization of an innovation initiative. The following sub-clauses are:

- actions addressing opportunities and risks. This is probably the most important part of the entire standard. This clause takes the organization through a process of aspect/impact assessment of collected innovative ideas. The clause makes the organization develop an evaluation framework that ranks prospective innovation initiatives against desired/undesired effects, compares effects of acceptance of risk against those of prevention, degree, and type of risk that may or may not be accepted, uncertainties associated with the opportunities in order to identify the right idea should be taken on and developed further. Again, thanks to its generic nature this clause is not too prescriptive and allows for a degree of flexibility in order to evaluate trades off between accepting risks against prevention and when to pull an "emergency brake" or under what conditions risks are no longer acceptable? These are all valid questions necessary to ask before the development and subsequent deployment of a selected idea.
- innovation objectives and planning to achieve them follow the typical SMART target setting with a focus on specific, measurable, achievable, relevant, time-bound targets, and allocating relevant personnel able to achieve set goals.
- organizational structures providing the necessary support to carry out the selected innovation project.
- innovation portfolios providing guidance and awareness on different innovation initiatives allowing for initiative's alignment and contribution to innovation strategy and objectives whilst balancing risk versus return, degrees of novelty as well as different time-horizons for completion.

### 2.3.4 7 Support

This clause illuminates at a greater depth what should be considered in terms of necessary support of selected innovation project's completion. It outlines through sub-clauses eight different forms of support. These are:

- resources (in terms of people, time, knowledge, finance, infrastructure)
- competence kinds of abilities that may be included in competencies
- awareness (of what, by whom)
- communication (what, why, when, with whom, how, who)
- documentation (what needs to be documented, how to document, how to keep control over documents)
- tools and methods (what tools can be selected, availability of different kinds of tools and methods, accessibility to tools and methods within the organization)
- strategic intelligence management helping to acquire, collect, interpret, analyse, evaluate, apply and deliver, share the necessary knowledge, and information between relevant interested parties.
- intellectual-property management assisting the development of an approach that manages value realization from an innovation.

### 2.3.5 8 Operation

This clause builds on previously selected and planned for innovative ideas with the ultimate outcome of its large-scale deployment. It offers implementation actions that are described in the Figure 3 Innovation process. Again, the innovation process is embedded in a series of plan-do-check-act mini-cycles with an additional focus on continuous review of the initiative.

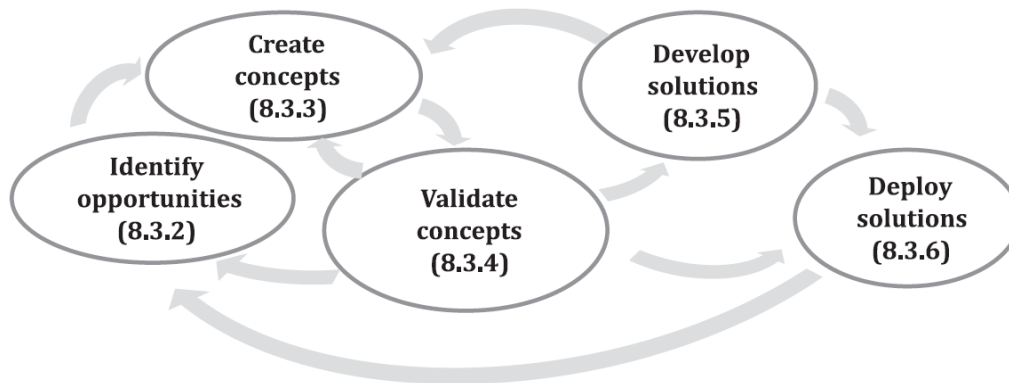


Figure 3 Innovation process<sup>5</sup>

### 2.3.6 9 Performance evaluation

Performance evaluation clause offers guidance on decisions related to what should be monitored and measured, the kinds of tools and methods needed for valid results, who should deliver necessary measurements and kinds of input- throughput- output-related indicators used for assessment of innovations' progress, success or failure. The performance and evaluation clause introduces a system of internal audits and its relation to an overarching management review evaluating the effectiveness of the innovation management system.

### 2.3.7 10 Improvement

Improvement clause further enhances the focus on the continual improvement of the overall innovation management system. Unlike earlier ISO management standards, it comes as last and somewhat overarching clause to tie all loose ends together, possibly to help organisations from getting bogged in little details and forcing them to evaluate success of past innovation projects against questions exploring the extent the last and the next future project should enhance organisational strengths, address organizational weaknesses, gaps and so on. Again further assisting with the identification of future innovation projects. This clause has three sub-sections that outlines considerations related to nonconformities, corrective actions, and continual improvement.

## 3. Sustainability in ISO 56002

There are many milestones along the way of sustainability finding its way into our everyday life. One could bring the UN Conference on the Human Environment in 1972 as the key pointer to undertake active measures that contribute to sustainable development, others would possibly highlight 1987 Brundtland's report that coined nowadays commonly understood term of sustainable development. From this point onwards, the Brundtland's framework of sustainable development

<sup>5</sup> ISO 56002:2019 Innovation management – Innovation management system - Guidance

became the organizing principle from which most sustainability actions derive and seek to sustain the ability of natural systems to provide the natural resources and ecosystem services upon which our economies and societies depend. Sustainability, as a concept, has proliferated into all disciplines and terminology that accompanies these efforts may vary. Just as engineers may be focusing on energy-efficiency, product designers on product durability or waste minimization, office managers on double-sided printing and paper recycling, all these activities to some degree contribute to the overall agenda of sustainable development.

However, despite the emergence of sophisticated sustainability metrics, claims, rise in obligatory or voluntary reports on sustainability, many argue that the overall systemic approach to sustainable development is false and our drive for economic growth that stretches the needs on the provision of natural resources continues for us to become less sustainable. Now climate change and our imminent adaptation to it questions the effectiveness of our actions even more. As Duncan Austin puts it, we are possibly encountering a new affliction of greenwashing that may prove to be as harmful as a well-known greenwash<sup>6</sup>.



*Don't worry about sustainability. They're all LEED buildings!*

The following section considers to what extent ISO 56002:2019 incorporated sustainability principles into the standard and whether terms and concepts can create meaningful contributions to our societal efforts to establish viable, long-term structures through managing innovation.

The ISO 56002:2019 does not explicitly cite sustainability as its guiding principle for risk assessment of evaluated innovations. At the time of writing this document, ISO 56000 Innovation management – Fundamentals and vocabulary was under development and due for release in 2020. However, one can assume consistency in terminology across ISO management standards and the likelihood that ISO 56002 will reach out to ISO 31000:2018 Risk management – Guideline is high. This standard defines the concept as an “effect of uncertainty on objectives”. The definition provides additional notes which highlight the possibility of positive, negative or both effects along a possibility to create new opportunities and threats. Furthermore, according to the Risk management standard, objectives can have different aspects and categories with various forms of applications. Risks can be expressed in terms of risk sources, potential events, their consequences, and their likelihood<sup>7</sup>. Hence, risks may represent different realities. For example, risks to organizational viability may be approached differently than risks possessed to the environment or society. And each approach may deliver different outcomes.

<sup>6</sup> <https://app.thebrain.com/brains/2cfec560-6321-4d32-a42f-f04ad33f1092/thoughts/9672d3e6-2f57-40f4-b12e-b7d98a3f8866/attachments/83d9276d-1d32-48d3-8ef9-f4e1ec615fd9>

<sup>7</sup> ISO 31000:2018 Risk management – Guidelines

Even though the standard is not explicitly embedded in sustainability values, it touches “lightly” on sustainability through rather aspirational statements of potential benefits of implementing an innovation management system. One could argue that signs of greenwashing can be found in the Introductory (O) section of the standard. This section provides background information on the innovation management system, what is innovation as a concept, and presents innovation management principles that form the foundation of the innovation management system.

In this part, one can find elements of sustainability language for example in the definition of innovation’s role.

“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, AND IN COLLABORATION WITH EXTERNAL INTERESTED PARTIES.” (ISO 56002:2019)

There are clear overlaps between the cited role of innovation and the three sustainability pillars presented in Figure 3. These overlaps are further enhanced by the stated potential benefits of implementing innovation standard. Some of the benefits with relevance to sustainability listed by ISO 56002 are:

- Increased ability to manage uncertainty;
- Increased growth, revenues, profitability, and competitiveness;
- Reduced costs and waste, and increased productivity and resource efficiency;
- Improved sustainability and resilience;
- Increased satisfaction of users, customers, citizens, and other interested parties;
- Engaged and empowered people in the organization;
- Facilitated compliance with regulations and other relevant requirements.

These overlaps are graphically illustrated in Figure 4.



Figure 4 The three pillars of sustainability

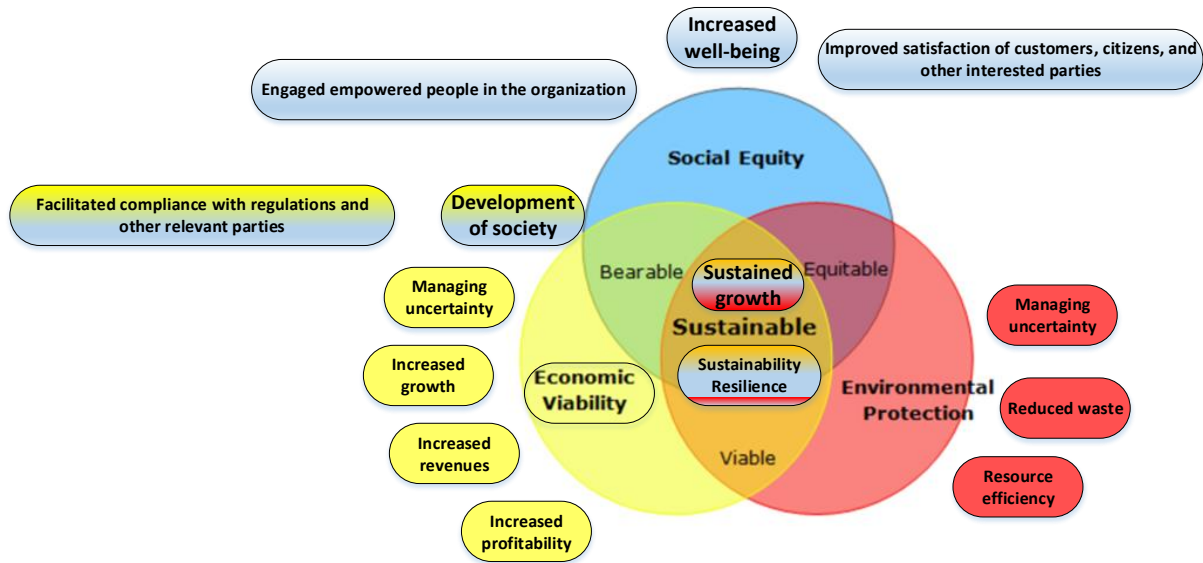


Figure 5 The three pillars of sustainability and ISO 56002:2019

It is important to state, however, that these terms are aspirational and not guaranteed once the system’s adoption has been completed. One cannot anticipate that an organisation will be consciously looking into connecting innovations to sustainability or to any form of a moral framework. In fact, the evaluating phase in Clause 6 does not explicitly ask for the identification of any form of relation to a moral value system or good practice in science. It calls for an assessment of opportunities and risks in order to ensure that the innovation management standard is effective, able to enhance desired effects, prevent or reduce undesired effects, compare the effects to acceptance of risk against those of prevention; and to achieve continual improvement. Thus, one may wonder, why ISO as the developing organization did not include the notion of responsibility into the ISO 56002:2019?

## 4. Responsible innovation and CEN

Research and innovation constantly lead to the development of new technologies, which can have a significant impact on people’s everyday life, their communities, the whole economy, society or the environment. The more these technologies enable improvements or change paradigms, the greater their impact can be. This may not only apply to the technological advancement in communication (e.g.5G widespread adoption) but other areas of everyday life too.

One serving example can be the development of chemicals used for household cleaning products. There are sophisticated health and safety requirements in place for most countries that control the management of hazardous substances. However, the harshest chemicals, from which society is trying so desperately to protect the external environment, are present in common household products such as dishwashing liquids, laundry detergents, shampoos, conditioners, soaps, and moisturizers. The situation is further exacerbated by a fact that manufacturers are not in fact obliged to inform consumers about the chemical compositions displayed on product labels. Petrochemicals are not only detrimental to the environment but also to human health. There are around 80,000 chemicals used around the world. On top of this, there are approximately 1.000 new chemicals developed every year. The legislation is falling behind with these innovative developments and there is no mandatory testing needed for these products before they are sold. Consumers most often do not know or understand what kind of chemicals appear in a bottle of laundry detergent or any cleaning product because manufacturers are not obliged to disclose such information on the product label. As these chemicals penetrate most households and everyday

lives, links are being made between these chemicals and health concerns such as hormone disruption, allergies, asthma, and even cancer.<sup>8</sup>

How can such a scenario even be allowed? And what can be done about managing innovations responsibly? Clearly, European Committee on Standardization (CEN) has asked itself questions related to responsible research and innovation and has approved the PRISMA project to develop guidelines on long-term strategies (roadmaps) to innovate responsibly.<sup>9</sup>

Responsible research and innovation (RRI) provides a way to address the needs and concerns of people and society in order to develop processes, products, and services aiming to positive societal impacts, guiding innovation towards sustainable development goals.<sup>10</sup> The principles of anticipation and reflection, inclusiveness, and responsiveness are generally considered to be of instrumental, normative and substantive value in relation to RRI implementation.<sup>11</sup>

“IS A TRANSPARENT, INTERACTIVE PROCESS BY WHICH SOCIETAL ACTORS AND INNOVATORS BECOME MUTUALLY RESPONSIVE TO EACH OTHER WITH A VIEW TO THE (ETHICAL) ACCEPTABILITY, SUSTAINABILITY AND SOCIETAL DESIRABILITY OF THE INNOVATION PROCESS AND ITS MARKETABLE PRODUCTS (IN ORDER TO ALLOW A PROPER EMBEDDING OF SCIENTIFIC AND TECHNOLOGICAL ADVANCES IN OUR SOCIETY)” (VON SCHOMBERG, 2011)

Although this process is in its infancy and shows parallels with ISO 56002, CEN’s approach shows a greater emphasis on planning and assessment with clear guidance set in principles and actions of RRI. These principles are:<sup>12</sup>

Principles for RRI implementation	Action lines
<b>Reflection &amp; Anticipation</b>	Integrate analysis of ethical, legal and social impacts (ELSI) since the early stages of product development
<b>Inclusiveness</b>	Perform stakeholder engagement to inform all phases of product development
<b>Responsiveness</b>	Integrate monitoring, learning, and adaptive mechanisms to address public and social values and normative principles in product development

Table 2: a set of principles and actions for RRI implementation

**Reflection:** scrutinize each activity, commitment, and assumption in order to connect them with a moral value system and the good practices of science, taking into account the limits of knowledge and that a particular framing of an issue may not be universally held.

Reflexivity in the RRI context is not to be referred to the moral responsibility of the single researcher or developer and is not a self-critique of the single professional, but it is intended as an institutional

<sup>8</sup> Rands, Malcolm. *Ecoman: From a garage in Northland to a pioneering global brand*. Penguin Random House New Zealand Limited, 2013.

<sup>9</sup> <https://www.rri-prisma.eu/>

<sup>10</sup> Von Schomberg, Rene. "Towards responsible research and innovation in the information and communication technologies and security technologies fields." *Available at SSRN 2436399* (2011).

<sup>11</sup> Sustainability (ISSN2071-1050), Special Issue "Responsible Research and Innovation (RRI) in Industry" [https://www.mdpi.com/journal/sustainability/special\\_issues/RRI](https://www.mdpi.com/journal/sustainability/special_issues/RRI)

<sup>12</sup> Stilgoe, Jack, Richard Owen, and Phil Macnaghten. "Developing a framework for responsible innovation." *Research Policy* 42, no. 9 (2013): 1568-1580.

practice. It can also be intended as a public matter and people external to the organization can be part of reflexivity actions. Reflexivity is important also with respect to the other phases of the product value chain or other functions inside the organization (besides the R&D), that could be affected by an R&I action or result.

- **Anticipation:** systematically extrapolate all the plausible scenarios for the application of the R&I results; identify in these scenarios the possible risks, opportunities, uncertainties, critical issues, and draw possible ways to prevent, manage or exploit them.

Anticipation isn't only intended to prevent undesirable events, but also to shape desirable futures and organize activities and resources towards them. When describing desirable futures, anticipation should be realistic and avoid overestimating the benefits of the innovation.

- **Inclusiveness:** introduce participatory approaches in the R&I processes from the very early stages, in order to engage people interested in the innovation process or results. Inclusion is referred to as the engagement of both internal and external stakeholders. Inclusion is also connected to the other dimensions of RRI because the reflexivity, anticipation and responsiveness can be improved by broad participation of different stakeholders.

**Responsiveness:** change the direction of the innovation process to answer to the stakeholder and public indications, needs, and values or to react to changing circumstances. It could be necessary also to adjust innovation actions when recognizing the insufficiency of knowledge and control, or in response to new knowledge, perspectives or regulatory requirements. The entire R&I processes should be shaped to be as responsive as possible.

Methodologically, RRI roadmap to implementation has been tested in practice on eight pilot use cases representing projects related to transformative technologies. This test helped to refine and deepen the understanding of different issues associated during the innovation' adoption. When compared to ISO 56002: 2019, the RRI roadmap is positioned in the planning phase of its ISO counterpart with explicit attention given to endorsement of RRI values and approach (top management commitment and leadership), analysis of the organisation and innovations explicitly against ethical, social and legal impacts of the product and stakeholder innovation ecosystem (context analysis), conducting risk assessment, drivers and challenges for RRI activities (materiality), performing pilot RRI actions, engaging with stakeholders along the RRI roadmap development (experiment and engage), evaluating impact of the roadmap on the product development and the organisation (validate) and consolidating a visual long-term RRI strategy (roadmap design).<sup>13</sup>

Figure 6 graphically depicts the flow of the RRI approach to the identification of relevant innovation initiatives. Although RRI logic in prioritization process may be very similar to ISO 56002, the emphasis on the assessment of innovation against ethical, social impacts concerning RRI is undeniable and it is something that ISO 56002 is explicitly lacking. The underlying guidance of assessment embedded in identification and definition of common social values perceived by a given organisation offers a chance that innovation will be (at least) considered against possible impacts on society, environment, and the economy. The proposed RRI standard goes even one step further by having a requirement in the step 'Experiment and engage' through which at least one inclusiveness action is performed. This action may involve stakeholders within the innovation eco-system in discussing and analysing key ethical and social impacts of the project and reviewing the draft roadmap.

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<sup>13</sup> CEN Project Plan of CEN/WS Guidenlines to develop long-term strategies (roadmaps) to innovate responsibly. Doc. CEN/WSxxN.03

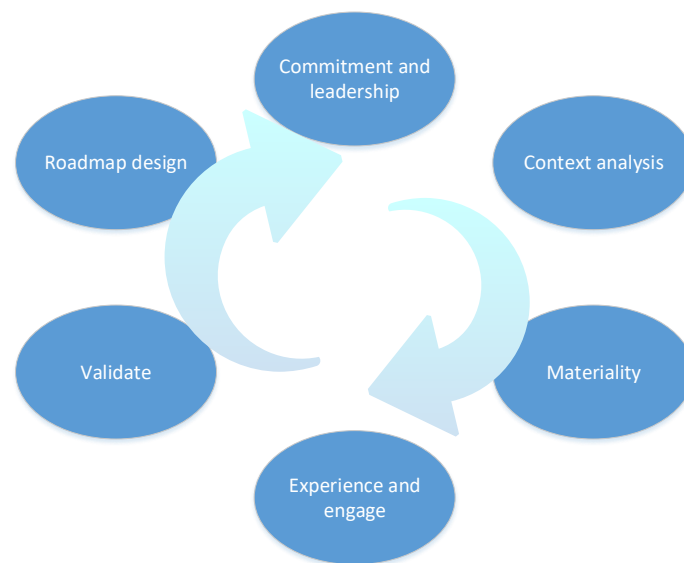


Figure 6 Overall approach and steps leading to the definition of the RRI roadmap<sup>14</sup>

## 5. Conclusion

The role of responsibility in the field of innovation is still a novel concept that is being developed and learned about to use for the benefit of all stakeholders. It requires a reflective and inclusive phase that identifies ways organisational activities can be linked to a moral value system and good practices in science. Such constructs may be perceived differently by various stakeholders and different cultures. Operationalizing such meta-constructs brings along challenges in a sense of drawing a line about who carries responsibility for innovation and its impact? As one example can stand a recent uptake of 5G technology. In this case, one could „assign“ the responsibility for the assessment of the invention to the developers of the new technology with predictable outcomes of faster data transfer, higher quality video, overall enhanced user’s experience along with positive economic impact. The impact of the wide-spread uptake rests, however, with national governments and institutions that may or may not carry out in-depth risk assessments of technology’s potential impact on citizen’s health. Thus, the passing of responsibilities in the framework of responsible innovation creates potential gaps in the insufficient assessment of impact-led innovation.

<sup>14</sup> CEN Project Plan of CEN/WS Guidenlines to develop long-term strategies (roadmaps) to innovate responsibly. Doc. CEN/WSxxN.03