

## Risk Management for New Projects in the Context of a Sustainable and Circular Bioeconomy

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### Abstract

We cannot talk about sustainable development and circular economy without taking into account the fact that any private organization is created with the aim of bringing profit or other benefits to investors. Effective implementation of the new integrated management systems that address risk-based thinking, planning of changes, or the product life cycle increases the overall performance of the organization and hence the long-term business growth (*sustainable success*).

Any organization shall determine its context and, in close connection with it, to determine its risks and opportunities as a basis for planning. Determination of risks and opportunities and, first of all, planning the actions to address them, will allow the organization to achieve the intended results as best as possible, to improve these results and to prevent the undesirable effects to occur.

In this paper we proposed to present some special particularities of risk management for new projects and, from this point of view, to identify some recommendations on the risk treatment in case a project was drawn up by the management of an organization.

We will therefore consider the analysis of the integrated management systems implementation, in particular risk management and project management, in the context of developing a sustainable and circular bioeconomy.

**Keywords:** Risk management, integrated management systems, change planning, life cycle, sustainable bioeconomy.

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### Introduction

Starting from the current context (characterized by global warming, limited non-renewable resources, ecosystem degradation and demographic growth), governmental, non-governmental organizations, including business environment around the world, have become increasingly concerned about achieving the sustainable development goal through the transition to the circular economy (European Commission, 2018).

The implementation of integrated management systems (quality, food safety, environmental, occupational health and safety) in line with the revised ISO standards is a concrete and viable tool for achieving the sustainable development goal and circular economy in Europe.

According to the EC Communication from 20<sup>th</sup> of May 2020, *From Farm to Fork strategy, the heart of the Green Pact*, is essential to the achievement of the 17 sustainable development goals undertaken by the UNO and the way forward following the COVID-19 pandemic and the resulting economic crisis.

The COVID-19 pandemic highlighted the importance and need for the implementation of a robust and resilient food system capable of operating in any circuit, ensuring sufficient food supplies to citizens at affordable prices (European Commission, 2020).

Any organization shall determine its context and, in close connection with it, to determine its risks and opportunities as a basis for planning (ASRO, 2015).

### Literature review

According to *SR ISO 31000:2018. Risk management. Guidelines* (ASRO, 2018a), risk is defined as “the effect of uncertainty on the achievement of the objectives”. The positive effect creates or leads to an opportunity, the negative effect creates or leads to a threat, or both.

*Risk-based thinking* is not a new concept, being implicitly present in the previous editions of the standards through the requirement for preventive action. Moreover, since the '70, economists Harry M. Markowitz and James Tobin (from the US), as well as Germany's Nikolas Luhmann, have associated the risk with the development of an organization or a company (Popa and Gulie, 2018).

The standards for management systems define the risk as *an effect of uncertainty and the effect is a deviation from the expected, positive or negative*.

Uncertainty is hovering over the organization's goals achievement, which may be a barrier to achieving the goal or an opportunity.

The current editions of management system standards address risks and opportunities together. The introductory chapter of ISO 9001:2015 states that opportunities may be the consequence of a situation favorable to achieving an intended result, i.e. opportunities are circumstances that can lead to the performance improvement of the organization (ASRO, 2015b). Whether or not the organization makes use of opportunity may also lead to higher or lower risks. Risk-based thinking has also been incorporated into the standards requirements and is becoming essential for the effective implementation of management systems, which will thus act as prevention tools. Organizations must determine the context in which they operate and, and, closely related to it, determine its risks and opportunities as a basis for planning (ASRO, 2020).

The organization processes will never have the same level of risk in terms of achieving the objectives, and risks and opportunities will always be different from one organization to another, even for similar organizations in terms of scope or organizational structure (ASRO, 2013). From this point of view, management system standards have left it up to organizations to decide on the methodology complexity to address risk-based thinking; organizations may choose to develop a more extensive risk approach than required by quality, food safety, environmental or occupational health and safety management system standards and may use a documented risk management process in accordance with ISO 31000:2018 for this purpose (ASRO, 2018a). In relation to risk-based thinking, new editions of management system standards address the *planning of changes* requirement for the first time as an important aspect of maintaining and long term improving of the integrated management system; by approaching the two components specific to risk management and change management respectively, the organization shall ensure that any proposed change is planned and implemented in a controlled manner without adversely affecting the achievement of the intended results of the system. The potential consequences analysis of changes leads to the negative impacts avoidance and to the benefit of positive effects (decreasing of nonconformities, decreasing of human error incidents etc.), and, most important, to the sustainable implementation of changes.

In the food industry, for example, negative effects may include: nonconforming products and services; unsafe, contaminated food with consequences on consumer health (food poisoning etc.); inefficient use of raw materials, materials, utilities with negative consequences on the global ecological footprint; accidental pollution, generation of large amounts of waste with negative consequences on the environmental pillar of sustainable development; injury or ill health of employees with negative consequences on the social pillar of sustainable development; non-compliance with legal and other applicable requirements; complaints, damage of the organization's reputation; failure to meet the organization's strategic objectives; fines, litigation, criminal liability, losses etc.

The product/service life cycle, another requirement first addressed by the new editions of management system standards, requires that all life cycle stages to be considered for the organization's products and services which can be controlled or influenced by the organization with particular attention to the product end-of-life treatment with a view to its reintegration into the nature. In the case of the food industry, a fair life-cycle approach will enable waste or scrap to be converted into valuable resources and the amount of food waste generated to be reduced, thus achieving the objectives of the sustainable and circular bioeconomy.

With the three concepts (risk-based thinking, planning of changes and life cycle), risk management for new projects becomes very important in the context of a sustainable bioeconomy.

### **Research methodology**

The research methodology in this paper is the documented one, for the purpose of accumulating information, by studying scientific literature, publications and reports made public by international or European institutions, the international standards published by ISO. This study has thus been developed following the analysis of how to implement risk management for new projects at the organizational level, the benefits for the organization and, last but not least, for the community.

In the traditional approach of the project management, also promoted by SR ISO 21500:2014 (ASRO, 2014), replaced by a new version in March 2021 (ISO 21500:2021), the life cycle of a project consists of the following steps: initiating, planning, implementing, controlling including change control and closing the project.

Representative for the role of risk management in the development of an organization is the process of identifying, analysing, evaluating and addressing the risks for each stage of the new project. It can be said that each project is unique; numerous differences have been identified between the projects, including those referring to: the products/services as outcomes of the project; the interested parties involved in the project; the resources needed to carry out the project; project constraints; how processes are designed to deliver the project outcomes.

According to ISO 21500:2021, the success of a project depends on the environment of the project, i.e. on a set of factors outside or inside the organizational boundaries, namely:

- Factors outside the organizational boundaries: socio-economic, geographical, policy, legislative, technological and environmental factors;
- Factors inside the organizational boundaries: strategy, technology, maturity of project management, availability of resources, culture and organizational structure.

### **Results**

Revised management system standards according to Annex SL, also known as the High-Level Structure (section of the part of the ISO/IEC Directives 1 which sets out how the management system standards of ISO should be written (ISO, 2012), radically changed the approach of management system implementation by bringing many new elements: the process approach (mandatory in the case of ISO 9001); the risk-based thinking approach; the sustainable development approach including the product life cycle (9001, 14001 and 45001); the principle of leadership (specific only for quality standard prior to Annex SL); change management approach (planning of changes); alignment of policies and objectives with the organization's development strategy; more respect to customer focus, interested parties; greater flexibility in documentation by giving up on mandatory procedures (ASRO, 2015a; ASRO, 2015b; ASRO, 2015c; ASRO, 2018b).

By analysing the requirements of those standards, as well as the results of their implementation in organizations, we can underline the benefits of an integrated management system that addresses risk-based thinking as it is showed in Fig.1:



**Figure no. 1. Benefits of an integrated management system which addresses risk-based thinking**  
 Source: Original

Based on the studies carried out at the level of some organizations, but also on those set out in ISO 21500:2021, the success of a project also depends on the project interested parties, both external (regulators, specific interest groups, customers, financiers, business partners etc.) as well as internal (project team, project manager, employees, project sponsor, shareholders), including its organizational structure (ISO, 2021; Risk Management methodology, 2018).

**Proposals and recommendation**

In line with the above, we identified specific risks for three stages of the project life cycle - financing, initiation and planning (The Orange Book, 2004; ASRO, 2013; ASRO, 2020), as follows:

**Table no. 1. Identification of risks in project stages**

Project stage	Stage objective	Identified risks	Impact
Project financing	Obtaining financing with non-reimbursable funds	Non-compliance with eligibility criteria	Not granting of non-reimbursable financing
		Failure to achieve the best score in technical and financial assessment	
		Projects with better indicators/scores	
Initiation of the project	Formal project definition	Wrong economic and financial analysis (under-sizing of the general budget)	Insufficient financial resources, difficulties in implementation
		Omissions in the process of identifying the relevant interested parties or their requirements	Difficulties in implementation, delays caused by opposition from third parties
		Unrealistic, unachievable goals	Failure to meet the objectives or general purpose of the project
		Project deliverables do not meet the real requirements of consumers	
Developing the project		Failure to identify implementation steps	Difficulties in implementation, delays

Planning of the project	management plan	Wrong estimation of some activities duration needed to carry out the investment	Failure to comply with the calendar plan of the project
		Project completion date incorrectly estimated	
		Under-estimation of costs	Exceeding of the planned budget during the implementation period
		Failure to identify all regulatory requirements applicable to the project and to the project deliverables	Difficulties in implementation; Difficulties in the endorsement process; Fines from authorities
		Incorrect or inaccurate identification of how the regulatory requirements will be complied with	
		Wrong planning of procurements (unrealistic over time)	Non-compliance with the procurement calendar plan; Project delays
		Incomplete, inaccurate criteria for acceptance of products/services to be purchased	Purchased products/services with low quality, low technical performance
		The selection criteria of suppliers not fully established, inaccurate	Inefficient selection of product or service suppliers
		Minimizing the issuing dates for permits and agreements for running the project	Failure to comply with the project calendar plan
		Failure to identify certain documents necessary to obtain permits and agreements in order to implement the project	Difficulties in the process of endorsement, delays
		Omissions in determining the mode and stages of communication with regulatory authorities	Difficulties in the process of endorsement, delays

Source: Original

The risk treatment measures and the opportunities identified and proposed for each of the stages are:

**Stage I. Project financing**

Risk treatment measures:

- Contracting a company specialized in consulting and project management

Opportunities:

- Seeking alternative sources of financing (e.g. bank credit).

**Stage II. Initiation of the project**

Risk treatment measures:

- Formal definition of the project based on a market analysis
- SWOT analysis of the project
- Analysis of project deliverables market trends; identification and effective analysis of all interested parties

Opportunities:

- A specialised company involvement (in marketing and advertising) in order to carry out a market analysis as conclusive as possible and a SWOT analysis as objective as possible.

### ***Stage III. Planning of the project***

Risk treatment measures:

- Consultation with all interested parties when determining the stages of the project, the timetable of the activities, costs or other resources involved;
- Setting the timetable for the analysis, verification, validation and approval phases of the project so as to achieve the intended results of the project;
- The effective assigning of the project team responsibilities for each stage of the project, including for the analysis, verification, validation and approval of the project;
- Determination of inputs and outputs expected for each stage of the project management plan (clear definition of results to be achieved);
- Drawing up a list of all applicable legal or regulatory requirements and compliance evaluation of the project deliverables;
- Comparison of functional and performance requirements set for project deliverables with standardized requirements of similar products/services (product standards, product technical specifications);
- Documentation of the criteria and selection method of suppliers for the goods and services involved in the project;
- The estimation of the budget taking into account the inflation rate, possible exchange rate differences;
- The continuous, progressive update of the project plan and its communication to the relevant interested parties.

Opportunities:

- The use of information from similar projects (internal or external);
- Benchmarking;
- Timely analysis of legislative changes, other regulatory requirements, proactive attitude;
- The identification of at least two suppliers for each type of procurement planned in the project;
- Timely, proactive and transparent communication can strengthen the organization's relationship with regulatory authorities and other interested parties involved in the project.

### **Conclusions**

Risk management for new projects brings a number of advantages for the organization, namely:

- Determining precisely the external and internal factors that could influence the achievement of the intended results of the project;
- Accurate determination of the external or internal stakeholders of the project and their relevant requirements in order to achieve the intended results of the project;
- Identification of undesirable effects for each stage of the project and thus minimizing unexpected costs;
- Improvement of control over project-specific processes;
- The allocation and efficient use of the organization's resources necessary to implement and complete the project;
- Making informed decisions in order to achieve the objectives of the project, including by taking advantage of the opportunities.

The effective and efficient implementation of a new project ensures that the integrity of the management system is maintained, the improvement of the organization's overall long-term performance, sustainable success (through increased labour productivity, economic growth, safe and decent work environment, responsible resource consumption and environmental protection).

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