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**Possibilities to Improve Risk Management in the Context  
of Implementing a Quality Management System**

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**Abstract**

*Nowadays, companies have to reinvent themselves to continue operating successfully. The purpose of this paper is to identify opportunities to improve risk management at the organizational level, in the context of implementing a quality management system in accordance with the international standard ISO 9001. In order to achieve the objective, the main risks were identified, the level of each identified risk was determined and actions to treat the identified risks were proposed. By applying this method, it was intended to ensure that the risk assessment serves as a basis for making sound decision on necessary actions to address the identified risks. According to the research results, the application of the method on the analysed organization had a positive impact. The method applied in this study can be used in any organization that aims to improve risk management by identifying the risks associated with the activities carried out and by correctly establishing measures to treat them.*

**Keywords:** Risk management, quality management system, risk assessment, risk matrix, organisation.

**JEL Classification:** L15, Q01

**1. Introduction**

Nowadays, the business environment is increasingly complex, requiring organizations to be able to quickly adapt to the evolving context. Therefore, a method based on the principles of risk management can improve business performance and support future researches on this topic.

Within organizations, risk management involves a decision-making process following which the results of risk assessment are integrated with economic,

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technical, social principles to generate risk management strategies (Aytasova et al., 2019). The main purpose of risk management is to facilitate the understanding of the risks to which the organization is exposed, so that these risks can be managed and the organization can achieve its defined objectives (Ścierski, J. M., 2012, Samani et al., 2019).

Risk management involves a wide range of rigorously defined and performed activities, which ensure the identification and analysis of risks, followed by the definition of measures necessary to manage their effects (eliminate / reduce / transfer / accept). These activities usually take place at all levels of the organization (Deysher, B., 2015).

During the planning phase, the ISO 9001: 2015 standard provides requirements regarding the identification of risks, their assessment and the definition of corresponding risk treatment. When within an organization's quality management system, the risks are properly managed, the degree of achievement of objectives is increased and the process of identifying opportunities and threats is improved, thus establishing a secure basis for decision-making and for the prevention of losses and incidents.

## **2. Literature review**

Within the organizations we must have a unitary approach in terms of risk management, an approach more important as risk management is a cyclical process that includes several stages. In a broad sense, risk management involves more interrelated processes, namely: systematic and continuous investigation of exposures to various risks or losses, assessing their nature, frequency, severity and potential impact, planning and organizing appropriate techniques for controlling risks to minimize losses and capitalize on opportunities, implementation of such techniques, both internally and externally (Ciocoiu, C. N., 2008).

From the point of view of risks, we must have a unified approach within organizations. In this context, the risk can be understood as a deviation from the desired state in both negative and positive effects. It is generally presented as a product of the probability of occurrence of the hazard and its effects. From the perspective of the organization's processes, the identification of risks is related to the specification of the dangers that an organization may encounter during the process of implementing a given solution. The process of identifying potential hazards is a key point in the context of the outcome of the risk assessment (Deptuła et al., 2015).

Within organizations, for financial or non-financial reasons, intentional neglect of risk is recognized as a risky strategy. Staying in a certain market requires that an organization has a high-risk strategy which, very often, also involves high costs (Firm, K. S., 2014).

There is a wide array of approaches to risk management. People used to manage risks through intuition or experience. The increasing complexity of the business environment and the adoption of a systematic approach to risk management have

led to the emergence of different standards and frameworks for risk management (Saleh, A., 2017).

An important aspect is the standardization of processes at the level of organizations, the clear definition of procedures and guidelines. Starting with 2010, the notions of “risk management” and “risk” appear in the international standards ISO 31000 and ISO 31010. The International Organization for Standardization (ISO), through Working Group ISO / TC 262, has developed the ISO 31000 series of standards on risk management, which help organizations to assess their risks and obtain the best results in relation to the established objectives. So far, ISO has published 4 standards in this series and another 5 standards are under development ([www.iso.org](http://www.iso.org)).

In the context of the facts presented above, the international standard ISO 31000 on risk management, revised in 2018, defines risk as "the effect of uncertainty on objectives, the effect being a deviation from what is expected." It can be positive, negative or both and can treat, create or lead to opportunities and threats. Also, within the mentioned standard, risk management is defined as coordinated activities to guide and control an organization in terms of risk. ([www.iso.org](http://www.iso.org)).

There is no generally valid approach to risk assessment performed by organizations. Several methods of risk assessment can be highlighted in the literature: Preliminary hazard analysis (PHA), Failure mode and effects analysis (FMEA), Failure mode, effects and criticality analysis (FMECA), Event trees, Fault tree analysis (FTA), Human reliability analysis (HRA) or Probabilistic risk assessment (PRA) (Ostrom, L.T., Wilhelmsen, C.A., 2019), but each organization decides which method to use and establishes its own procedure for identifying and assessing risks (Korshunov, G. I., 2019).

On the other hand, in order to comply with the international standard ISO 9001: 2015 for quality management systems, organizations must plan and implement risk management actions, in order to increase the effectiveness of the quality management system, to achieve improved results and to prevent the negative effects of risks (Gunasekaran et al., 2019).

### **3. Research Questions/Aims of the research**

The main objective of the study conducted by the authors was to identify opportunities to improve risk management at the organizational level, in the context of implementing a quality management system according to the international standard ISO 9001, in order to achieve the established goals.

### **4. Research Methods**

In order to achieve the mentioned objective, the study was carried out on the example of a sports club in Romania which has a quality management system implemented and certified according to the ISO 9001: 2015 standard. The core business for this sports club is the organization and provision of swimming lessons for children, as well as the organization of sports activities and competitions for a

wide array of customer segments: children, adults, professional and amateur athletes. The customer base includes both private beneficiaries and preschool and primary education institutions and organizations. (kindergartens, after-school centres). The team consists of 8 instructors who are former professional athletes, professionally certified, selected by the club management based on professional criteria as well as on their skills and abilities for communicating and interacting with children and adults.

In case of this organization, risk management is a process in which all personnel takes part and involves the identification of risks in the activities carried out, their assessment, treatment, monitoring and periodical re-evaluation.

In order to identify the risks, the first step is the analysis of the sources of risk, the areas of impact, the events, as well as the causes of the risks and their potential consequences. The purpose of this stage is to generate an exhaustive list of risks based on those events that could stop or delay the achievement of objectives.

The general manager of the sports club is the risk manager, and the other employees are part of the risk management team. The risk manager coordinates the activities of risk identification and analysis, manages the status of risk management measures application, promotes the idea of encouraging employees to get involved in risk avoidance processes within the organization, and estimates the risks-related budget. Team members help to identify, analyse and monitor risks, propose measures to reduce / eliminate risks and inform the risk manager about new risks when they appear.

In the study, data on risk identification within this organization was obtained based on information provided by persons involved in similar businesses, obtained as a result of assessments made by authors including during training / swimming lessons and taking into account the applicable legislation. Risk identification was performed through brainstorming sessions, taking into account the business activities performed with an emphasis on the critical assets of the organization. All identified risks were recorded in the Risk Register (Table 4).

The identified risks analysis provides input for risk assessment, for decision-making on the need to treat risks and the most appropriate method for risk management. The analysis of the identified risks was performed over a period of 6 months, and after this period monthly monitoring of the evolution of risks took place. Team members met three times to develop and review estimates of identified risks, ensuring that the list of critical risks was periodically updated.

In this study, the probability and the impact of the identified risks were estimated on a scale of 1 to 5, according to Tables 1 and 2. The analysed risks were revised and the estimates were adjusted, where necessary.

**Table 1. Risks impact**

<b>Level</b>	<b>Impact</b>	<b>Description</b>	<b>Values</b>
1	Insignificant	does not impact reputation, financial losses are very small or non-existent	1
2	Minor	does not cause significant problems and involves low financial losses	2
3	Moderate	can cause operational problems, but can be solved by allocating appropriate financing	3
4	Major / critical	creates difficulties in achieving the company's strategy or in achieving the project objectives and can cause significant financial losses	4
5	Catastrophic	endangers the company's strategy or project objectives, its financial situation or even people's health	5

*Source:* author's own development

**Table 2. Risks probability**

<b>Level</b>	<b>Risk probability</b>	<b>Description</b>	<b>Values</b>
1	very rare	it can occur very rarely	1
2	rare	it can occur sometimes	2
3	moderate	almost equal chance of occurrence vs non-occurrence	3
4	probable	it occurs quite often	4
5	almost certain	occurs very often	5

*Source:* author's own development

Based on Risks impact and Risks probability, the members of the risk team completed the risk matrix, presented in Table 3, and decided that all risks with values lower than 5 are reduced risks, between 5 and 15 are moderate risks and those with values higher than 14 are critical risks. The value of each risk is calculated as the product of probability and impact.

**Table 3. Risk matrix**

<b>Probability</b>	5	moderate	moderate	critical	critical	critical
	4	reduced	moderate	moderate	critical	critical
	3	reduced	moderate	moderate	moderate	critical
	2	reduced	reduced	moderate	moderate	moderate
	1	reduced	reduced	reduced	reduced	moderate
		1	2	3	4	5
<b>Impact</b>						

Source: author's own development

The purpose of risk assessment is to serve as a basis for decision-making in terms of the measures to address these risks. Critical risks were addressed immediately, followed by moderate and reduced risks.

Risk management involved selecting one or more options for treating the risks (Avoid - eliminate risk by avoiding or rethinking the activity, Mitigate - reduce the probability or the impact of risk, Transfer - transfer of risk, for example by insurance, Acceptance of risk - without risks, the level of risk is considered acceptable) and implementing those options. The risk management plan documents how the risk scaling options will be implemented and contains information on responsibilities, deadlines and resources.

Following the brainstorming sessions, the most important risks were assigned to the team members so that they could recommend treatment measures. For each risk, treatment measures which acted either on the probability of occurrence or on the impact of the risk were recommended. Each member of the risk assessment team proposed measures for the assigned risks and forwarded them to the risk manager. The risk treatment action plan integrated all the risks analysed.

It is recommended that monitoring and reviewing risks be a planned, recurring activity with clearly defined responsibilities. At this stage, the effects of the risk management measures are assessed and updated for the risks where no favourable effects have been found.

Risk monitoring involves tracking the risk management plan throughout the activities implementation period. The study aimed to review and improve the risk management plan by constantly updating the data included in the plan and by routine controls carried out in order to identify new risks or observe previously identified risk factors.

The probability of occurrence and the impact of each risk are reassessed and modified whenever necessary. If a new risk is identified, it is analysed and included in the list of risks in order to establish appropriate treatment measures.

## 5. Findings

As a result of the study carried out within the selected organization (sports club), the risks and prevention methods were identified. The Risk Register (Table 4) presents the risks associated with the activities of the sports club, identified at the beginning of the research. For each identified risk, treatment measures, responsibilities, deadlines and resources were established, and the information was documented in the Plan of measures for risk management (Table 5). These measures were implemented during a calendar year.

**Table 4. The initial register of risks, at the beginning of the research by the authors, within the organization**

<b>Risk no.</b>	<b>Identified risk</b>	<b>Probability</b>	<b>Impact</b>	<b>Risk level</b>	<b>Risk category</b>
1	Sickness of the athletes	3	5	15	critical risk
2	Sickness of instructors	2	5	10	moderate risk
3	Injuries of athletes	2	5	10	moderate risk
4	Death by drowning	1	5	5	moderate risk
5	Dissatisfaction of athletes due to lack of professional training and behaviour of coaches / instructors	2	3	6	moderate risk
6	Fire / emergency situations	1	5	5	moderate risk
7	Increasing number of competitors (other clubs, associations)	4	3	12	moderate risk
8	Loss / reduction of activities premises (termination / modification of leases)	2	5	10	moderate risk
9	Loss of reputation caused by third parties, club members, coaches / instructors or members of athletes' families	3	3	9	moderate risk

*Source: author's own development*

**Table 5. Measures plan regarding the treatment of risks**

<b>Risk no.</b>	<b>Possible risk management measures</b>	<b>Responsible</b>	<b>Deadline</b>	<b>Resources</b>
1	Carrying out the activity only in heated, air-conditioned, ventilated and properly arranged locations, clean and equipped with all the necessary facilities to ensure health and safety	General manager	immediate	Financial resources
1	Including in contracts the obligation of the owner / administrator of the premises to perform water analysis periodically, as frequently as possible, and to present all the analysis bulletins to the sports club management	General manager	immediate	Human resources
1	The parents signing declarations on their own responsibility regarding the child's state of health and the possible risks associated with the sport she/he will practice and submitting a medical certificate confirming that she/he is fit for sports	instructors	immediate	Human resources
1	Performing mandatory medical examinations for all athletes in performance groups	instructors	monthly	Financial resources
2	Carrying out the mandatory annual medical checks for all the employees of the club, according to the legislation regarding the health and safety at work	instructors	annual	Financial resources
3	Carrying out the activity only in properly secured spaces	General manager	immediate	Financial resources
3	Permanently accompanying kids under 10 years old in locker rooms, on hallways and stairs, on the edge of the pool;	instructors	permanent	Human resources
3	Interdiction of playing games or running on the edge of the pool	instructors	permanent	Human resources
3	Interdiction of wearing inappropriate footwear inside the premises for sports	instructors	permanent	Human resources

<b>Risk no.</b>	<b>Possible risk management measures</b>	<b>Responsible</b>	<b>Deadline</b>	<b>Resources</b>
	activities			
3 and 4	Periodic training of instructors / coaches in first aid provision	General manager	half-yearly	Financial resources
4	Presence of at least 2 coaches / instructors for each group of athletes	instructors	permanent	Human resources
4	Presence of at least 1 instructor / coach in the water during the entire period of swimming lessons with athletes taking beginner courses	instructors	permanent	Human resources
4	Limiting the groups of children for the initiation courses to 8-10 children accompanied by 2-3 instructors	instructors	permanent	Human resources
4	Customizing the training program according to the level and skills of each athlete, as well as according to her/his capacity for effort	instructors	permanent	Human resources
4	Permanent equipping of instructors during training hours and during competitions with adequate equipment, allowing their immediate entry into the water when needed	General manager	permanent	Financial resources
5	Recruitment and selection of staff based on education, professional experience and professional certificates	General manager	permanent	Financial resources
5	Forming mixed teams of coaches, in which the most experienced member can ensure the continuous training of those with less experience	General manager	permanent	Financial resources
6	Periodical training of employees, according to current legislation	General manager	quarterly	Financial resources
6	Participation in simulations and tactical exercises organized in the locations where the activity takes place	General manager	half-yearly	Financial resources

<b>Risk no.</b>	<b>Possible risk management measures</b>	<b>Responsible</b>	<b>Deadline</b>	<b>Resources</b>
7	Maintaining good communication and collaboration between athletes and coaches	instructors	permanent	Human resources
7	Diversification of activities, involvement in new projects	General manager	permanent	Financial resources
8	Timely payment of the amounts due according to the contracts signed with the owners of the spaces where the activity takes place	General manager	monthly	Financial resources
8	Permanent search for new locations, which can offer better conditions or opportunities for expansion and development of the activity	General manager	permanent	Financial resources
9	Compliance with the rules of the Code of Conduct, the behaviour and attitude of the club members (coaches, parents and athletes)	instructors	permanent	Human resources
9	Designation of an authorized person to answer and discuss with third parties in order to immediately answer any questions or requests addressed on all communication channels (website, facebook, telephones)	General manager	immediate	Financial resources
9	Permanent maintenance by the general director of the club of good relationship with the owners / administrators of the spaces, with the state institutions, with the officials from the federations, with referees and delegates of the national or international forums	General manager	permanent	Human resources

Source: author's own development

One year after the initial identification of the risks and the implementation of the treatment measures established in the Plan of measures regarding the treatment of the risks, a risk reassessment was performed (Table 6).

**Table 6. Risk register after 1 year**

Risk no.	Identified risk	Initial		Probability	After 1 year		
		Risk level	Risk category		Impact	Risk level	Risk category
1	Sickness of the athletes	15	critical risk	2	5	10	moderate risk
2	Sickness of instructors	10	moderate risk	1	5	5	moderate risk
3	Injuries of athletes	10	moderate risk	1	5	5	moderate risk
4	Death by drowning	5	moderate risk	1	5	5	moderate risk
5	Dissatisfaction of athletes due to lack of professional training and behaviour of coaches / instructors	6	moderate risk	1	3	3	reduced risk
6	Fire / emergency situations	5	moderate risk	1	5	5	moderate risk
7	Increasing number of competitors (other clubs, associations)	12	moderate risk	4	2	8	moderate risk
8	Loss / reduction of activities premises (termination / modification of leases)	10	moderate risk	1	5	5	moderate risk
9	Loss of reputation caused by third parties, club members, coaches / instructors or members of athletes' families	9	moderate risk	2	3	6	moderate risk

*Source: author's own development*

## 6. Conclusions

The proposed paper aims to complement studies on risk management within organizations, highlighting the specificity of the risk-based approach in quality management. From a strategic point of view, the purpose of applying risk management in the processes of an organization is primarily to minimize the vulnerability of the organization, risk management becoming a shield of protection, maintained by the proactive attitude to risk.

The context of the organization is made up of the actions of all stakeholders, such as: coaches, professional organizations, beneficiaries, management, owners, etc. Each of them has its own interests, culture, actions on the organization and generates certain risks that the organization must identify, evaluate and address (keep under control). By implementing the quality management system, the organization must take into account all the requirements and needs of stakeholders and including the risks they generate. By integrating risk management into the quality management system, organizations easily manage their opportunities and threats, for achieving established goals.

Regarding our study, as a result of the risk reassessment one year after the start of the study, it is observed that out of the 9 risks initially identified, 2 were classified in a lower risk category than the initial one, as follows: a critical risk passed into the moderate risk category and 1 moderate risk was included in the reduced risk category. The remaining moderate risks remained in this category, however, at a lower risk level score.

We consider that the research contributed to the improvement of the performance of the sports club's processes by decreasing the impact of the risks associated with the activities carried out, as a result of the application of the risk treatment measures proposed and implemented.

The applied method in this study can be used in organizations in other fields that want to improve risk management by identifying the risks associated with the activities they carry out and by correctly establishing measures to treat them.

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