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Development of Risk Management System for the Administrative Office in a Colombian Oncological Institution

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ABSTRACT
This article explains the development of risk management system for the Administrative Office in oncological institution. It focuses on events that may affect the operation of the organization and processes are performed. It draws on the NTC ISO 31000: 2011, using methodologies like What if ?, risk matrices, multi-criteria analysis scenarios and Leopold method in order to identify and address risks.It is evident that the most critical factor is the lack of culture focused on this issue. The results show that it can be implemented in any organization since none are exempt from having generated risks and controls safeguard the human being and the institution.
KEYWORDS*: Decision making, institutional objectives, institutional risk, management, overview of risk, process management,semi qualitative methodologies,*

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I. INTRODUCTION

Currently, risk management is gaining strength in organizations because of the constant changes experienced by economic sectors. Mohamed Ali & Tam (2009) state that the application of methods of identification, evaluation and control support Risk Management System (RMS) that helps reduce the likelihood of failure in making strategic and operational decisions, tactics because of the complexity of existing internal and external variables and organizations that may be harmful to them.

Hermansson (2012) defines risk as something negative that may happen in the future, therefore, it is important for organizations to manage it correctly to ensure permanence in the competitive sector in which they operate and strengthen its relations with the parties interested increasing reliability and perception.

To have a theoretical basis for the development of the project, a literature review where it is evident that there are few studies on risk management within the health sector is made more representative study was developed by Rubio and Soto (2013) where they use methodologies proposed by the NTC ISO 31010: 2013 for analysis, evaluation and risk assessment, in the same way, that project demonstrates that adequate risk management supports compliance with the objectives and mission of the organization.

From the theoretical bases established, this project, where the methodology used and the results obtained in the development of the RMS for the Administrative Office in a Colombian Oncological IPS that for reasons of confidentiality requested not to be named in the document is displayed starts and will be referred to it as an institution, which is a non-profit nationwide whose purpose is to implement actions of education, prevention and early diagnosis of cancer; economic activity is based according to the 8699 ISIC code in other activities of human health care. The focus of the study focused on the Administrative Office consists of 1. Accounting, 2. Human Resource, 3. Conventions, Portfolio and Treasury, 4. Information Technology and 5. Internal Control.

At the start of system development, the diagnosis is performed to determine the current status of the institution against NTC compliance with ISO 31000: 2011. As a result, opportunities for improvement where the main issue is to ensure that this is part of the organizational culture are identified. In order to set the stage RMS identification and risk assessment to determine the level of exposure that has areas to make plans, controls,and strategies for improvement is made.

Finally, to demonstrate the importance of implementing the RMS, the adaptation of tools such as scenario analysis and Leopold method for validating the positive changes it brings to the Institution is done.
The project covers the design of controls and validation scenarios and impact (see figure 1) so that the institution is responsible for implementing the system from the results.

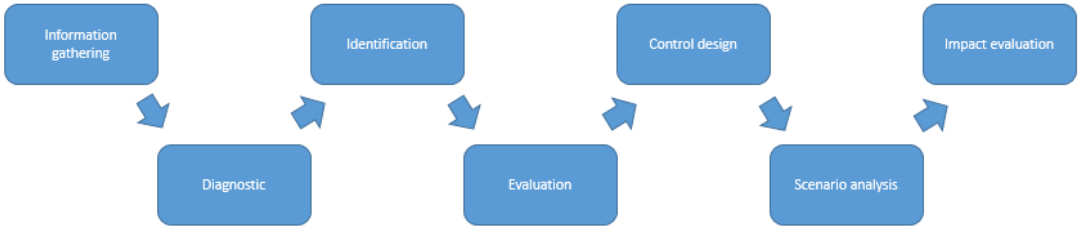

Figure 1. Methodology. Source: Self made

Initially planning meetings involved in the process of each of the areas is carried out, it is important to establish in order to obtain information about their procedures and daily activities for compliance with the raison d'etre of the institution. Process management is essential in the development of the SGR; as mentioned in the latest update of the ISO 9001: 2015 focusing on this issue as it has been considered by several authors as one of the activities gaining increasing importance, since it measures the level of business efficiency (Velásquez -Restrepo PA, Velasquez Restrepo SM-Velasquez-Lopera M, Villa-Galeano J, 2017). Similarly, its constant evolution is attributed to the fact that in its beginnings it was only considered as an approach or tool framed within other management systems, however, nowadays its relevance and generalizing character make that little by little they acquire their own personality (Hernández Nariño, 2010).
Subsequently, a checklist is made focused directly on the NTC ISO 31000: 2011 and paragraphs four and five in the rule are evaluated: then a checklist focused directly on the NTC ISO 31000 is performed. It is designed from a series of questions based on each of those paragraphs should be given four assessment criteria contained in met, not met, partially met and does not apply.
Following the methodology, qualitative tools that respond to the needs identified in the institution (PMI, 2017) are designed. The methodology What if? Lets you set through a series of questions, the worst scenario that could occur in case of erroneous execution of a process obtaining the risks of each area under study. risks identified by the impact generated in the Institution (see table 1) are classified.

Table 1. Risk rating

Type of risk
Internal fraud
External fraud
Labor Relations
Customers
Damage fixed assets
Technological failures
Executing and managing processes
Legal
Reputational
Financial / Economic

Source: Self made

Once sorted, Likert scales are used to assess risks, each under parameters ranging from financial, technological, reputational, legal, among others describing the likelihood and impact, these variables because they are specific to the object of study and They must be defined with experts in the treatment area (WBA, 2016).
The product of probability and impact severity inherent risk is obtained, this result is qualified by plasma in a low, moderate, high and extreme areas which allow for an overview of risks and likewise generate control plans matrix.
Once identified, classified and assessed risks proceed to design controls (see table 2); for it is based on criteria that must be met fully so that they are effective (Administrative Department of Public Service, 2018).

Table 2. Design controls

Variable	Criterion	Qualification
Responsable	Yes	one
	Do not	0
Kind	Preventive	3
	Corrective	3
Nature	Manual	two
	Automatic	3
	Dependent on IT	two
Periodicity	Yes	one
	Do not	0
Documentation	Yes	one
	Do not	0
Suitable	> =	7
Inadequate	<	7

Source: Prepared based on Administrative Department of Public Service, 2018

To determine whether the controls are well structured takes into account a minimum score of 7 points and a maximum of 9 as shown in the table above.
Subsequently, the viability of the system is determined by a multi-criteria analysis that seeks to analyze possible scenarios that may occur given future decision-making that takes place. They reflect different assumptions about the evolution of current trends, the influence of critical factors and the definition of new factors (Marinoff, Martin 2016). This tool is combined with an analysis of aspects PESTEL and weighting factors as this is used in strategic planning (Diaz, 2013) measuring the impact of the macro factors in the organization (Cervantes, 2015) and similarly, allows a quantitative overview of information.
Finally, use of the Leopold matrix originally used to determine environmental impacts of a project on different aspects is, therefore, became imperative to adapt this tool to an internal and external environment across aspects PESTEL against benefits it brings development risk management presented by the NTC ISO 31000: 2011.

II. RESULTS AND DISCUSSION

The results presented below are not shown in full, due to the treatment and use of confidential information of the institution. By applying the checklist the results shown in Figure 2 are obtained.

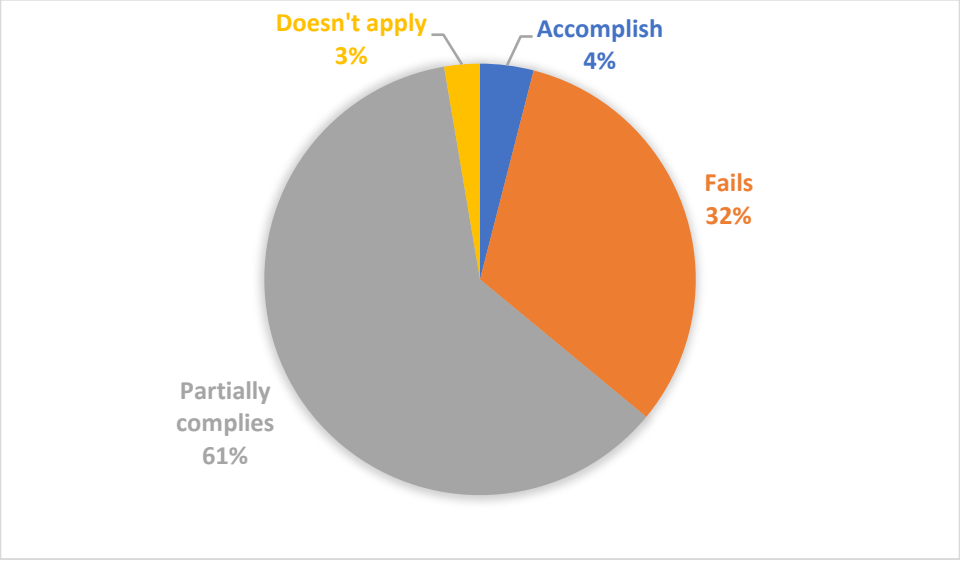

Figure 2. Diagnosis result of the NTC ISO 31000. Source: Self made

61% partial compliance refers to different types of controls established by the execution of processes are involved, they helped boost the design stage and evaluation of controls. The level of non-compliance is high and it is necessary to structure the whole RMS.
Then they raised an average of 50 questions per area from the processes and procedures for the implementation of What if? The results of this stage group allowed all risks identified according to the classification presented in table 3.

Table 3. Distribution by type of risk

Type of risk	Frequency
Executing and managing processes	28.5%
Financial / Economic	23.0%
Internal fraud	15.2%
Legal	13.3%
Labor Relations	6.5%
Technological failures	3.3%
Reputational	3.3%
External fraud	2.3%
Customers	2.3%
Damage fixed assets	2.3%
Total	100%

Source: Self made

80% of institutional risks relate to legal areas, internal, financial/economic nature and processes; thanks to the RMS that develops, the institution is clear about the level of severity of risk to which it is exposed in different areas (see table 4).

Table 3. Distribution of the severity of the inherent risks identified

Risk severity	Frequency
Extreme	32%
High	40%
Moderate	25%
Low	3%
Total	100%

Source: Self made

As shown, 97% of the risks are between extremely high and moderate severity, therefore, action plans have a greater focus on the controls designed to prevent in the future involvement in the development of processes and image Institution, the remaining 3% must be in constant monitoring.
Comparing the results of inherent risk (see table 4) with waste (see table 5) shows that the percentage of extreme, high and moderate decreases by 21% so that should generate treatment plans for these, which They developed by the institution once the RMS is implemented these focus as mentioned above avoid, reduce, transfer or eliminate the risk.

Table 4. Distribution of the severity of residual risk

Risk severity	Frequency
Extreme	7%
High	41%
Moderate	28%
Low	24%
Total	100%

Source: Self made

Moreover, the risks of low severity, so to perform monitoring plans for these. As a result, it is indispensable to implement the RMS Institution therefore to reinforce the idea ofthe need to carry out proceeds with the application scenario analysis (see table 6).

Table 5. Multi-criteria analysis scenarios

Appearance	**Item**	**Unimplemented system**	**system implemented**
Politician (25%)	Regulatory rules	Generation of non-conformities for breach of regulations in force	Alignment of regulatory standards to the achievement of corporate goals
Economic (fifteen%)	Planning and implementing optimal resource	Lack of resources to carry out the planned activities for each area of the institution	Optimal allocation of resources for each area of the institution to avoid mishandling of these
Social (10%)	Stakeholder confidence	Loss of confidence of current and potential stakeholders in the institution	Increased confidence of stakeholders through proactive management in each process performed in the institution
Technological (fifteen%)	Technological capacity institutional	Inability to detect obsolete equipment which leads to a lack of institutional	Possibility of improvement in the institutional technological

		technological capacity	capabilities focused on achieving goals
Environmental (10%)	Environmental regulations	Generation of non-conformities in audits for non-compliance with current environmental regulations	Compliance with environmental regulations regarding the handling of cytotoxic waste
Legal (25%)	Control agencies requirements	Failure of the institution to third parties responsible for monitoring normal operation	Comply fully with the regulations that apply to the operation of the institution

Source: Self made

As a result of the analysis process scenarios together with the application of weighting factors radial graph where the comparison between the results implement and does not implement the Risk Management System to analyze the behavior of the factors involved it is shown in is performed each of the scenarios (see figure 3); the economic aspect has improved the planning and execution of the available resource, generating particularly proactive management in the institution.

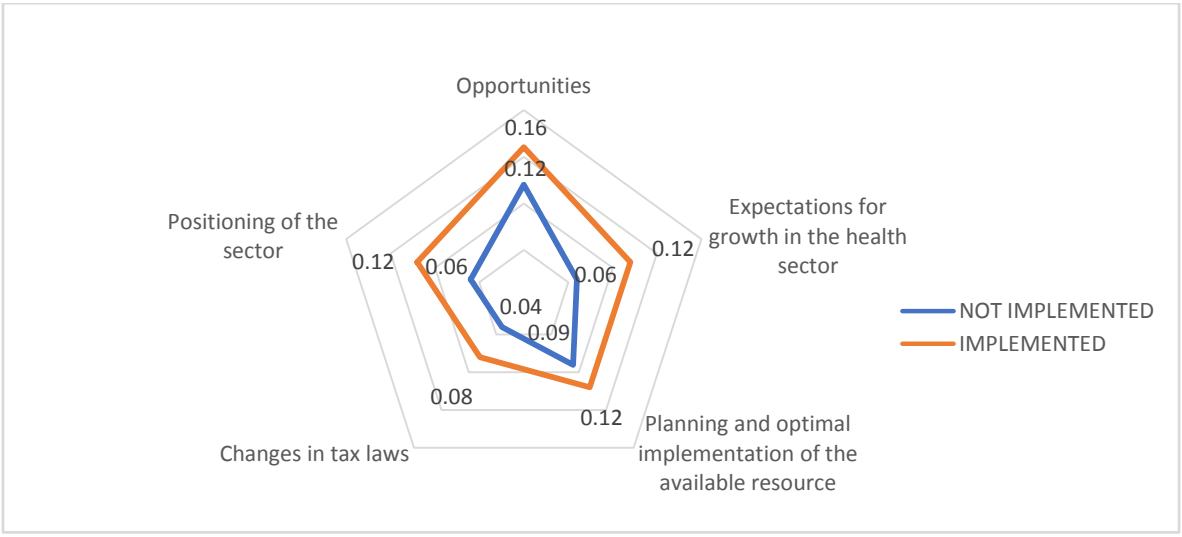

Figure 3. Comparison on the economic of the implemented risk management aspect vs not implemented.
Source: Self made

Generally speaking, the change with the RMS implemented from a social aspect can increase the confidence of stakeholders and improve other aspects such as reliability and other organizations have control entities within the health sector. Similarly, the technological aspect would help discover weaknesses in the ability of technology, failures in computer security and information management. Components such as environmental and legal would benefit on the issue of declining non-conformities for breach of the normativities force, representing the institution an improvement in the quality of information, processes, and services offered to interested parties. Along with scenario analysis, application matrix adapted Leopold can prove the positive impacts that the Risk Management System brings with its implementation. Figure 4 shows the results obtained with their implementation.

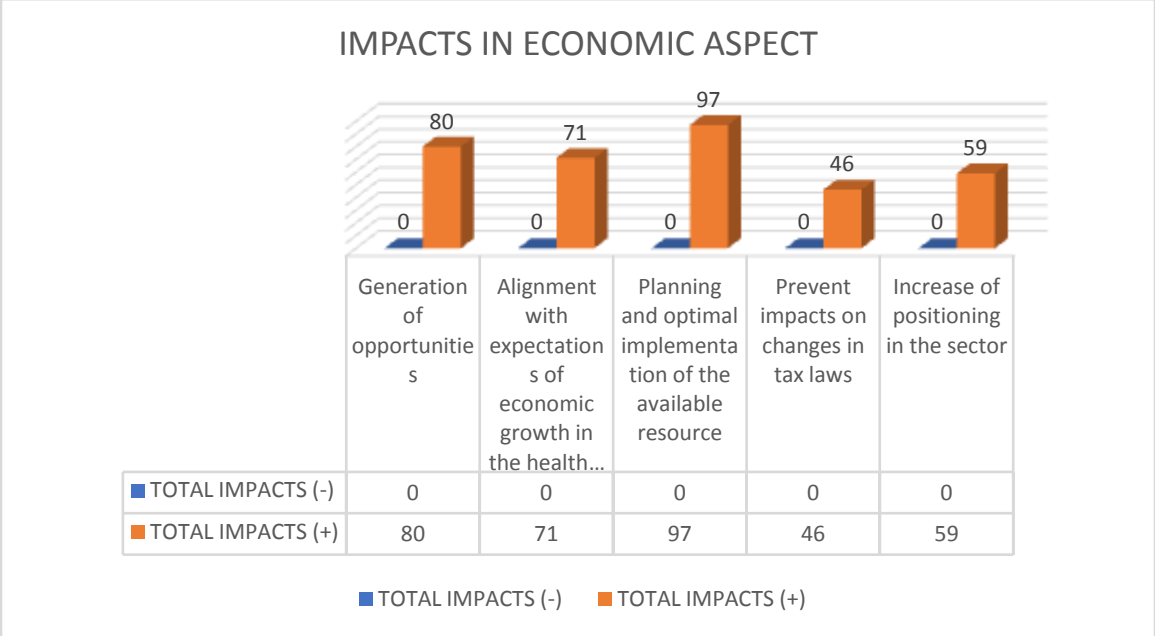

Figure4. Qualified in economic terms impacts. Source: Self made

Shows that the most favorable impacts are in the planning and implementation of optimal resource, this ensuresthe stability of institutions internally and externally.

On the other hand, other aspects of PESTEL favorable to the implementation of RMS results were obtained, increasing the likelihood of achieving corporate goals, proactive management at a general level where successfully improves the execution of processes and generates, therefore be increases compliance with requirements of control entities.

Within the health sector, there have been several works focused on operational risks and few aimed at the administrative part is the head of the company and where all decisions that affect all levels are generated. An example is a work done by Rubio and Soto (2013) who use the methodology brainstorming which is good to interact with the principals involved but does not consider in depth the existing processes and procedures so they can omit key details in identifying risks. To avoid information bias methodology What if ? which, compared to brainstorming, you get a greater focus on a particular object of study is used, moreover, there are methodologies that can also provide a perception of the state in which the organization is as worked by Puerto (2011) called Trigger Tool which is based on indicators alert for adverse events, this tool requires historical information for implementation so that the project was impossible to run similar schemes to develop a statistical analysis due to the lack of an RMS.

However, the major constraints in the implementation of the project focused on the analysis of qualitative results because areas that are interrelated, each has inputs, processes, and different outputs are managed, this creates a different perception of everyone involved direct the process towards risk, so it is necessary to triangulate the information obtained in order to reduce subjectivity and get a more objective view along with increased data reliability and thus have a stronger base, this is done in together with the deputy of each area, the assistant internal control and an external expert.

Another differentiating factor of the project developed is the subject of analysis of the feasibility of implementation and impact, this not only allows the institution to know the benefits of risk management can bring internal and external level but also allows clear scenarios probable, optimistic and pessimistic.

A consultation was held in databases in order to search for information related to feasibility studies management systems, the results are almost nil allowing the project developed open doors to future research to incorporate these processes analysis here They are set to determine the advantages and disadvantages that can generate implementation RMS.

III. CONCLUSIONS

Article performed shows the need for the implementation of the RMS to ensure greater permanence in the health sector by increasing the confidence of stakeholders. It is determined that a culture focused on risks under control allows the processes performed internally and externally ensuring that it is properly implemented, similarly, this system allows you to align corporate goals by facilitating their achievement.

As he mentioned, to ensure proper risk management is necessary to involve the process to each of the parties, starting from top management to the operational level, each of these provides relevant information to be analyzed and triangulated with to consider each and every one of the points of view of the process under study.
Moreover, the diagnosis allowed to demonstrate to senior management opportunities for improvement in the institution, reflecting the resources required to run the system and make changes in the organizational culture.
The identification and assessment of risks mostly involve a level of extremely high and moderate severity detect in the control areas such as Accounting, Internal Control, and Administrative Management, the need for its implementation to ensure proper functioning of processes taking place there.
The identification stage to analyze the frequency of the risks being the most representative type of administration and execution of processes, so it is necessary to generate monitoring and audit plans to reduce the likelihood of materializing.
Importantly, the use of the tool for scenario analysis allowed to see the proposed improvement to the implementation of RMS in the institution against the different areas that surround it and all the benefits that could be obtained with the process where the economic aspect was the most decisive for the institution as to implement the RMS allows you to have a more precise allocation and execution of resources in different areas.
In addition to this, the adaptation of the matrix of Leopold showed that a positive internal and external Institution representing an increase in compliance with the requirements of stakeholders impact is generated, which leads to better positioning and perception within the health sector achieving its strategic goals and meet the RMS is aligned with corporate policies and objectives.
Finally, it is expected that this research is established as one of the academic contributions that demonstrate the versatility and applicability of risk management in unconventional areas, and encourage more institutions regardless of their nature begin their implementation and adoption of the culture of risk management in order to prevent, mitigate, control or eliminate those events that impact and impair entities.

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