

Effects of Process Standardization in the Human Management Process

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ABSTRACT: Process standardization for the execution of activities in both large companies and MSMEs, allows them to stand out from the competition, as it optimizes their performance in their economic activity in each of its areas. For the elaboration of this article, a company of the telecommunications sector located in the city of Bogota was chosen and the study is focused on the Human Management area, starting with an exhaustive review, the verification of the process, and its documentation. The methodological process is divided into 4 phases: diagnosis, documentation and establishment of indicators, time taking and impact evaluation.

In the documentation phase, a total of 42 formats, instructions and procedures were generated, 23 of which were created from scratch which help to reduce time, costs and avoids reprocessing within the area, improving the quality of its tasks. In the next phase, time taking, the process was carried out virtually, due to the sanitary emergency of COVID 19 of the year 2020 [1], such management was accomplished through scheduled meetings and the support of the company's collaborators in the teleworking modality [2].

Finally, to identify the possible positive and negative effects of the external factors on the managed issue, it was decided to use the Leopold matrix, the result was expressed quantitatively through graphs, in which a positive impact can be clearly identified by the management carried out since at the end of the study 70% of the same was already implemented.

KEYWORDS: Standardization, Process, Procedure, Times and Human Management.

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I. INTRODUCTION

According to Henry Ford "Standardization as that which reflects the best practice known today, but which will be improved, will go far tomorrow, but if standards are thought as something limited then the process will stop" [3].

The Information and Communication Technologies (ICT) sector is a dynamic sector of the colombian economy, as it has shown an increase in the use of its services, notably improving its indicators and yielding positive results [4]. Considering the increase in the implementation of these tools nowadays, it is used as an initiative for the research project scope in the standardization [5] of processes, which generates competitive advantages in organizations, elimination of idle time, productivity improvement [6] and cost reduction.

The research was focused on the standardization of procedures and documents in the Human Management area of a telecommunications company.

Initially, a diagnosis was made of the state of the area's procedures, for which open and closed question surveys were applied to the collaborators, which allowed to obtain a clearer outlook of the factors to be improved. For the analysis of the information, the SWOT and Vester matrixes were used to classify and prioritize the criteria found, according to the structure of the tools used, which are divided as follows: critical, passive, indifferent and active.

Subsequently, the human management process is documented to adjust it to the reality of the area and to improve the connection of the activities with the different areas of the company, evaluate tasks that do not add value and thus reduce execution times. Also, an adjustment is proposed in the indicators for the correct measurement of the established procedures, to position the company from the competition, thus generating strategies that strengthen the development of corporate goals and strategies, which were prioritized and analyzed through the characterization of the process.

The taking of structured times to all documented procedures was managed, considering the opinion and experience of two experts in the human management area, to have a comparative and a standard time that allows the establishment of opportunities for improvement. This was done this way due to the current situation of the COVID 19 sanitary emergency, which led to a change in the work modality, preventing physical contact in the company's facilities due to the new biosafety protocols [7].

II. METHODOLOGY

This study presents a descriptive scope, where the objective is the evaluation of some characteristics of a particular person or situation, describing the behavior or state of several variables [8].

This methodology allowed to have some guidelines to create and establish a step by step for the development of the activities that are executed in the Human Management area, detailing the characteristics and needs of the procedures and stakeholders.

Based on the above, the development of the project required the use of engineering tools to solve a concrete and real problem. To fulfill the specific objectives, the research is divided into 4 phases that aim to contribute to the continuous improvement of the operational processes that are used in Human Management.

Phase 1: Diagnosis

The Human Management process is the one that provides support to the company to select and maintain suitable personnel for the development of different activities, through the procedures of selection, hiring, labor issues, induction, training, among others [9]. The tool used to carry out the diagnosis was the SWOT matrix, which helps to identify the internal factors (strengths, weaknesses) and external factors (threats and opportunities) of the area, [10] a group of collaborators linked to the process was also selected, to whom a series of surveys were applied on how they identify the shortcomings of the activities they perform and the interaction with other areas, which allowed obtaining information about the current state of the process.

The analysis of the information collected is based on the SWOT matrix, where the main problems are prioritized, and the Vester matrix and the Ishikawa diagram are applied, which made it possible to know the current status of the Human Management process.

Phase 2. Documenting and establishing indicators

As a second phase, once the characterization of the Human Management process was completed, management indicators were generated along with the company's managers, to set goals, verify the good performance of activities, make decisions and propose strategies in time to obtain good results for the company. For the structuring and definition of the indicators, the affected variables, technical criteria, and periodicity of measurement are taken into account.

Information was collected from each of the owners of the process, which includes the registration of the activities assigned to the collaborators with the used documentation. The documents are verified against the work performed, which allows them to be updated. Next, the results are delivered with the adjustments of the tasks within the process for validation by all the people in charge and the top management.

Finally, a flow chart of each of the approved procedures is drawn up using a software called Bizagi, which allows creating, designing, and visualizing the activities established with the people responsible for each one, thus facilitating the fulfillment of their functions by the collaborators.

Phase 3. Time taking

The information provided by the company where the project was executed was used as a basis for the time taking. Subsequently, the experience of two experts in the area of Human Management was compiled to determine and calculate a standard time in which the organization should develop its procedures and meet the goals established in the search for continuous improvement. [11]

Phase 4. Impact evaluation

Finally, to assess and know the impact of the developed project, the Leopold matrix, which systematizes the cause-and-effect relationship between the actions to be implemented in the execution of a project and its possible effect on the Pestel components, was used [12]

III. RESULTS

In order to indicate the results of the management carried out, what was previously described in the methodology chapter was taken into account:

Diagnosis

It was considered essential to make a diagnosis of the Human Management process, to know its status, and identify which are the most important factors to be solved; for this purpose, the following tools were chosen:

- Surveys with open and closed questions
- SWOT matrix
- Vester matrix
- Ishikawa or Fishbone Diagram

Table 1. SWOT matrix of the human management area

INTERNAL	EXTERNAL
STRENGTHS	OPPORTUNITIES
1. Integration of the area, willingness to work as a team, leadership, accompaniment.	1. Existence of new technologies to provide a timely response to personnel, reducing time for timely service.
2. Well-defined labor policies	2. Change in the regulatory framework
3. Compliance with established regulations and policies by adjusting its staffing to the client's needs.	3. Generate support in the areas that are most delayed in their execution.
4. Seeks to reduce staff turnover	4. Process options for expansion and innovation
	5. Generate training or meetings where the guideline is communicated to all employees of the company.
WEAKNESSES	THREATS
1. Massive hiring	1. Lack of tools such as software, which competitors use to facilitate some of their procedures.
2. Low volume of employees in the administrative area	2. Solid support in the training of human resources that makes processes and procedures more efficient.
3. Lack of training and induction in the different procedures.	3. Risk of non-compliance in providing the service due to the massive hiring of personnel.
4. Lack of standardization of processes	
5. Adjustments in technological aids	
6. Reprocessing	

Source: Authors of the project, 2021

Once the information from the surveys was collected, Figure 1 and Table 1 were established, in which the aspects for improvement are characterized and prioritized and the main cause that generates certain negative effects in the process is determined.

This is a tool used for the formulation and evaluation of strategies, identifying the internal factors (strengths, weaknesses) and external factors (threats and opportunities) of an organization, individual, or product, to analyze and obtain a diagnosis and thus be able to propose improvement strategies to follow [13].

Table 1, shows in general that the human management process, presented within its strengths compliance with the legal requirements, a determined process for the realization of the activity, the disclosure of procedures, and timely response to the requirements and requests of its internal customers, which allows considering that it has a good service.

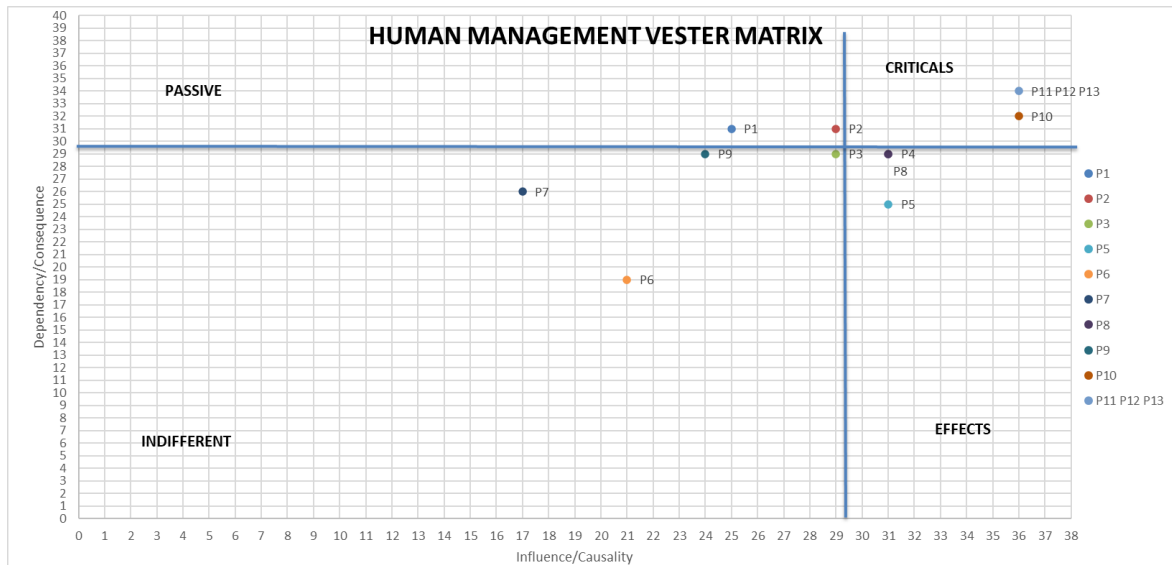
The weaknesses detected were the following: Deficiency in the communication between procedures, deficiency in the use of technology, high personnel turnover, reprocesses in activities already performed, shortcomings in the training of its workers, undocumented procedures, non-compliance in tasks, and the non-standardization of Human Management, which generates inconsistencies in its development.

On the other hand, regarding external factors, there are opportunities for the process to improve the quality of its service and administrative activities: updating and use of new technologies such as software and databases, training to collaborators to facilitate their activities.

Finally, the main threats to which the company is exposed were analyzed, one of which is the use of advanced technological tools and the standardization of its procedures by the competition, which allows for a better response to the needs of the Human Management process in other organizations.

Subsequently, the construction of the Vester matrix is carried out by making a list of problems, from the general to the specific of the Human Management process, taking as input the results obtained from the internal factors of the SWOT. Next, a weighting was assigned indicating the influence that one problem has on the other, this classification and score was obtained in joint work with the Manager of the process based on a rating scale from 0 to 3, where 0 means no effect and 3 is the maximum value of dependence. [14]

Figure 1. Vester Matrix. Human Management



Source: Authors of the project, 2019

In Figure 1, a total of 13 problems evaluated can be observed, of which only 4 are classified as critical, these are:

- Lack of functions manual
- Reprocesses
- Lack and/or modification of documents, instructions, and formats
- Lack of standardization of the Human Resources process.

The 4 problems mentioned above are caused by:

- Responsibilities and functions that are not well distributed to the existing positions.
- Deficiency in the communication between procedures
- Lack of training for employees

Solutions to these problems can be provided to improve them, such as the modification or elimination of activities through short, medium, and long-term plans and strategies based on the causes that generate them.

Therefore, the effects generated by the problem are:

- Non-compliance with the time stipulated for mass contracting.
- Non-compliance in the execution of procedures due to the intervention of third parties.

Additionally, in the matrix, three factors are considered as indifferent, which means that in reality, they do not seriously affect the execution of the entire Human Management process, but even so, they are elements that cannot be overlooked:

- Delays in the results of medical examinations and EPS responses.
- Poor efficiency in technology
- Delays in the execution of the closing of the disciplinary process.

Finally, the results of the matrix showed that the greatest opportunity for improvement lies in the standardization of Human Management processes.

Documenting and establishing indicators

After having identified the main causes of the problem, the procedures to be documented are defined in Table 2 below:

Table 2. Procedures to be documented

Name of the procedure to be documented
Knowledge Management
Design and/or Revision of Positions
Personnel selection
Recruitment of personnel
Induction of personnel
Workplace Wellness

Performance Evaluation
Disciplinary Procedures
Job Reinstatement

Source: Authors of the project, 2021

Having established the above, a document compiling all the procedures developed in the Human Resources area called "characterization of the process" was elaborated, consisting of a general structure of the activities carried out there, together with their risks, opportunities, and indicators.

The quality indicators are a measurement tool that allows monitoring the processes for continuous improvement, thus allowing verification of compliance with the objectives set and detecting possible significant deviations between expectations and results to establish the respective modifications [15].

For the development of the Human Management process, several formulas were generated to measure the documented procedures, which are indicated in the characterization document, allowing the identification of any possible condition or factor that may alter any activity through the indicators expressed as a percentage.

The indicators will allow informing, alerting, and guiding the Human Management process towards the improvement action [16] and immediate correction of the nonconformity presented or the opportunity for improvement; a section of the sheet established for the measurement of the indicators can be seen in Table 3, where the relevant information for their calculation is identified.

Table 3. Example of an indicator tab section

Indicator information	
Indicator name:	
Scope:	
Objective of the indicator:	
Calculation formula:	
Responsible:	

Source: Authors of the project, 2021

Based on the characterization of the process, the collection of information for each of the procedures was made, for this purpose, scheduled meetings with the people in charge of executing the corresponding activities were held, websites for examples of the necessary guidelines for Human Management that gave the required approach and the current regulations corresponding to the subject of research were consulted. These references were included in the final documents delivered to the top management.

The recording of the information was carried out in parallel to the execution of the procedures, which allowed consistency in the activities performed by the employee and what was recorded in the documents, based on the guidelines and regulations consulted.

Finally, the pertinent adjustments were made to the procedures, unnecessary activities were eliminated, formats that were not being used were eliminated and adjusted to make them more functional together with their flow charts, and new activities were established with their corresponding documents.

A total of 42 documents were generated, including formats, procedures, and instructions, thus consolidating the Human Management process and enabling it to carry out its activities satisfactorily with greater control and follow-up.

The summary of the results retrieved from the management performed can be seen in Table 4.

Table 4. Human Management documents

Type of document	New		Updated / Modified		Total
	Number of documents	Name of process and/or activity	Number of documents	Process name	
Characterization	1	Human Management			1
Procedures	4	Knowledge Management, Job Design and/or Review, Workplace Well-being, Staff Induction	7	Personnel Training, Personnel Selection, Personnel Hiring, Performance Evaluation, Disciplinary Procedures, Termination of Employment	11

Instructions	4	Use of the company's application, update of the organization chart, staff provisioning, management of resumes.			4
Formats	14	Knowledge Management (5), Recruitment and Hiring (1), Job Design and/or Review (1), Personnel Training (3), Personnel Induction (2), Labor Welfare (1), Performance Evaluation (1)	12	Recruitment and hiring (7), Position design and/or review (1), Personnel induction (1), Personnel training (1), Probationary evaluation (1), Labor Disengagement (1)	26
TOTAL DOCUMENTS					42

Source: Authors of the project, 2021

Time Study

The study of time and motion is a tool for the measurement of work used successfully since the late nineteenth century when it was developed by Frederick Winslow Taylor father of scientific management and/or industrial engineering. Over the years such studies have helped to solve a multitude of problems and cost reduction within companies, being a method of analysis to establish an allowable standard time to perform a given task, based on the measurement of the work content of the precise method, with due consideration of fatigue, personal delays and unavoidable delays [17].

- The most relevant objectives of the time and motion study are:
- Minimize the time required for the execution of work.
- To conserve resources and minimize costs
- To provide a product that is increasingly reliable and of high quality.

The above method of analysis divides and breaks down the task into a reasonable portion of operations. In this way, it is better understood how the task is executed and thus serves to unify an operative method for all those involved in execution [17].

Initially, for each procedure, two external experts from outside the company on which the research project was carried out, who had the same documented activities and similar behavior in personnel turnover were contacted.

Next, the times corresponding in minutes to the procedures of each expert were taken to calculate a standard or average time that they should have in optimal conditions.

Finally, the times obtained for each procedure were recorded in a data table for their respective analysis, to know the current state of execution for the development of the Human Management procedures, compared with the other experts and especially with the standard times, to know which of these specific activities should be improved at the time of their execution.

Having made this study of times and comparison with other companies (experts) allows to have a better overview of the performance status in the Human Management process around other organizations that are within the same market or have similar conditions; according to the previous analysis of each table, the project company is positioned within the best standards, since in most of the procedures a competitive time is obtained.

Also, thanks to this and the calculated average, there are standard times that can be an improvement guide for some specific activities that require it within Human Management.

Having said the above, Table 5 shows the result of the times taken for each procedure, where the optimum time in which the experts are executing their procedures is denoted in yellow, taking into account that the company under study had better results in the performance and development of its activities.

On the other hand, the second analysis consists in identifying which of the experts in their procedures has more development time, this is denoted in blue color and it's observed that the expert with the highest time is the second and this is followed by the first expert, and finally, the company where the management was carried out is found, which has two procedures to improve.

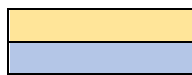
The final analysis was based on comparing the times corresponding to each expert with the standard times obtained, from which it is observed that most of the organization is below the standard, that is, that the way in which it is currently executing its activities is optimal, except for the activities of performance evaluation and disciplinary procedures, which means that these are procedures on which the organization should focus to improve. The expert who does not comply with the standard times, exceeding the established limits, is the

second one, followed by the first expert, for which it is advisable to establish strategies that are functional to speed up and improve their execution times, taking as a guide the standard time established in Table 5.

Table 5. Overall Time Results

GENERAL TIME TABLE				
NAME OF PROCEDURE	COMPANY	EXPERT 1	EXPERT 2	STANDARD TIME
SELECTION	3700	4920	6655	4823,5
HIRING	1655	5072	6260	4155,5
DESIGN AND/OR REVIEW OF POSITIONS	4335	4475	4820	4522,5
INDUCTION	205	1285	620	653,5
TRAINING	610	2760	2195	1730,5
PERFORMANCE EVALUATION	28335	17320	3270	20511
DISCIPLINARY PROCEEDINGS	8433	6750	6865	7457,7
TERMINATION OF EMPLOYMENT	540	740	615	622,5

Source: Authors of the project, 2021



Optimal time between the 3 experts
Longest time taken among the 3 experts

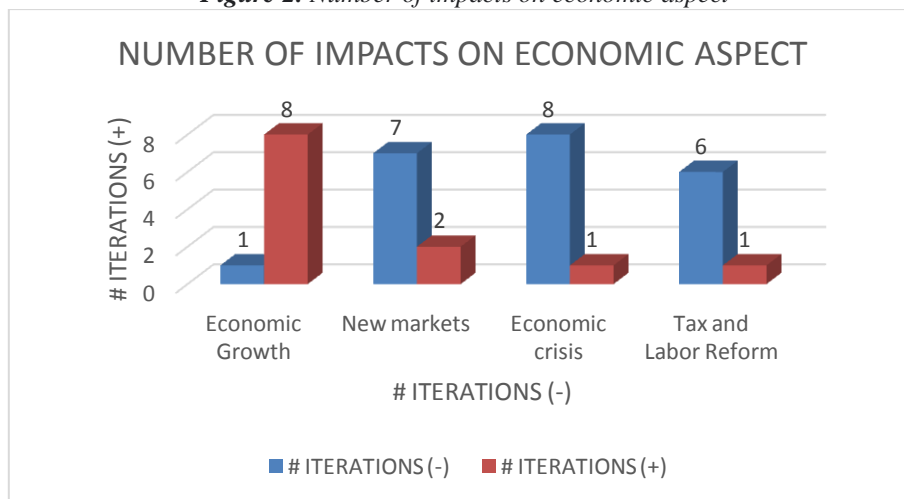
Impact Evaluation

The Leopold matrix is a simple way of summarizing and ranking the impacts of different aspects of the environment and concentrating effort on those that are considered to be the greatest. The advantage of the matrix is its reminder of the full range of actions, factors, and impacts. To the extent possible, the assignment of magnitude should be based on factual information. However, the assignment of importance may leave some room for the subjective opinion of the evaluator. [18]

To evaluate the impact of the research project, the Leopold matrix was used, which is divided into two sections, on the horizontal axis the Pestel factors are found, which are those where influence is had, and on the vertical axis are the procedures that were documented.

One of the aspects evaluated within the matrix was the impact that the economic factor would have on the management carried out in the company under investigation, which can be identified in Figure 2, this being one of the factors that have the greatest risk in affecting the procedures in the Human Management process due to the country's economic fluctuations.

Figure 2. Number of impacts on economic aspect

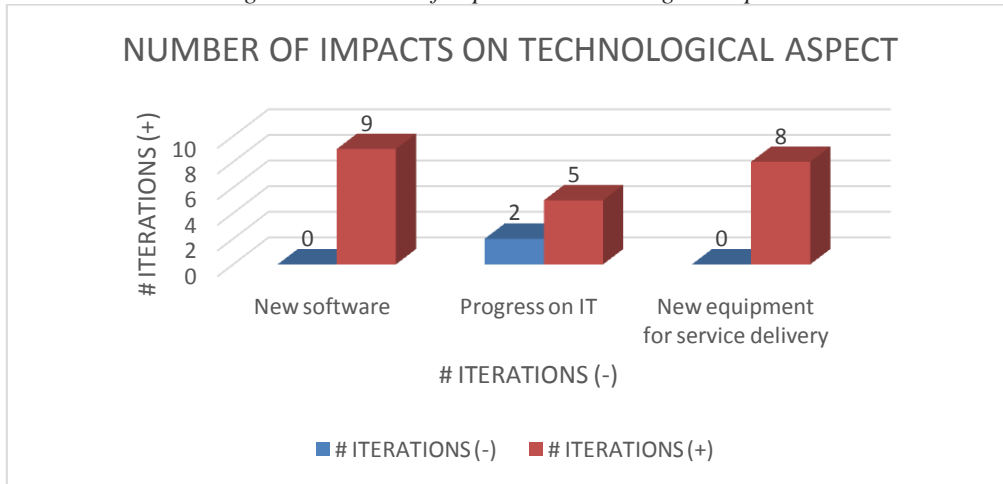


Source: Authors of the project, 2021

Another Pestel factor to highlight is the technological impact of the management carried out in the organization by making use of new platforms and technological tools, migrating activities that were performed manually to digital, which allows achieving optimal results, with the correct handling of internal customer requests, reducing time and providing a good service. On the other hand, the legal area is considered, the company knows the great importance of compliance with the legal aspects defined by the government, leaving

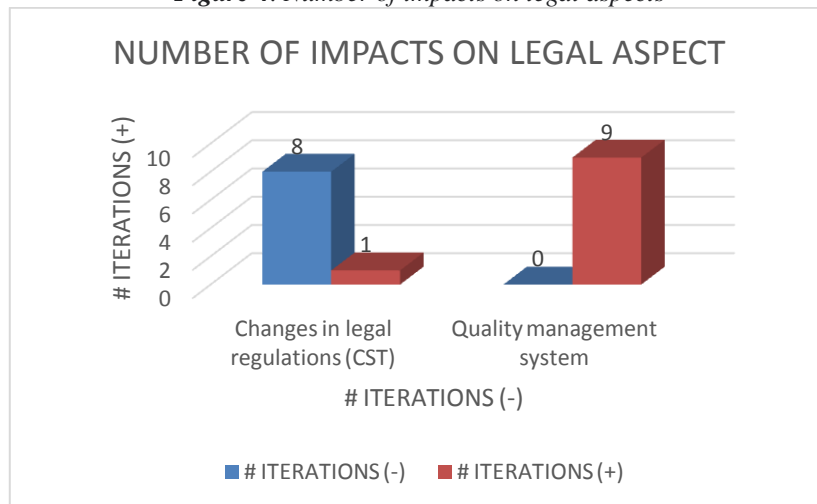
established the necessary strategies in the documentation for development in a correct and timely manner, working hand in hand with the quality management system for the improvement of the process. The above is summarized in Figure 3 and 4.

Figure 3. Number of impacts on technological aspects



Source: Authors of the project, 2021

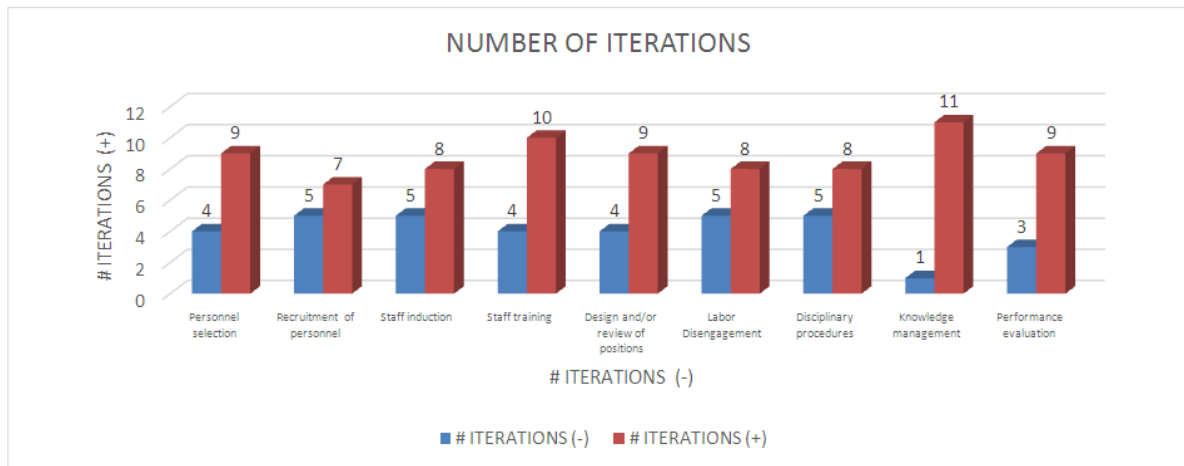
Figure 4. Number of impacts on legal aspects



Source: Authors of the project, 2021

The results obtained in the application of the matrix are shown in Figure 5, which represents the number of Pestel iterations established, it is evident that at a general level the development of the project has a positive impact on the external aspects that can influence or affect the Human Management process.

Figure 5. Number of iterations in impact assessment



Source: Authors of the project, 2020

IV. DISCUSSION

Once the development of the project was completed, it should be noted that the use of the four diagnostic tools allowed greater orientation and recognition of the state in which the Human Management process was found, having a greater focus on opportunities for improvement, presenting significant results as shown in Table 3 and 5, being very satisfactory both for the authors and for the employees of the managed company, since many of the tasks to be performed showed improvement thanks. Also, it allowed having better control of the records using the formats and templates established for each one of them.

When consulting on the subject, a text was found that corresponds to the standardization of processes in the Colegio Menno la Mesa, a project of the Universidad Libre of 2014, [19] in which engineering methodologies such as the Ishikawa diagram, the SWOT matrix, the PHVA cycle, surveys, and interviews were used to perform their respective diagnosis and the appropriate development of this, focused on quality standards to establish the parameters of documentation and identify possible improvements, through measurement tools.

One of the highlights of the project at Menno Mesa School was to have oriented its documentation in the organizational strategies and to generate a financial study to know the costs for the implementation of the project, acting following the provisions of the NTC ISO 9001:2008 and ISO 27001, which consists in the preservation of confidentiality, integrity, and availability, as well as the systems involved in its treatment, within an organization. [20]. Also, the methodology established consisted of assigning acronyms, consecutive numbers, and the version to the documents.

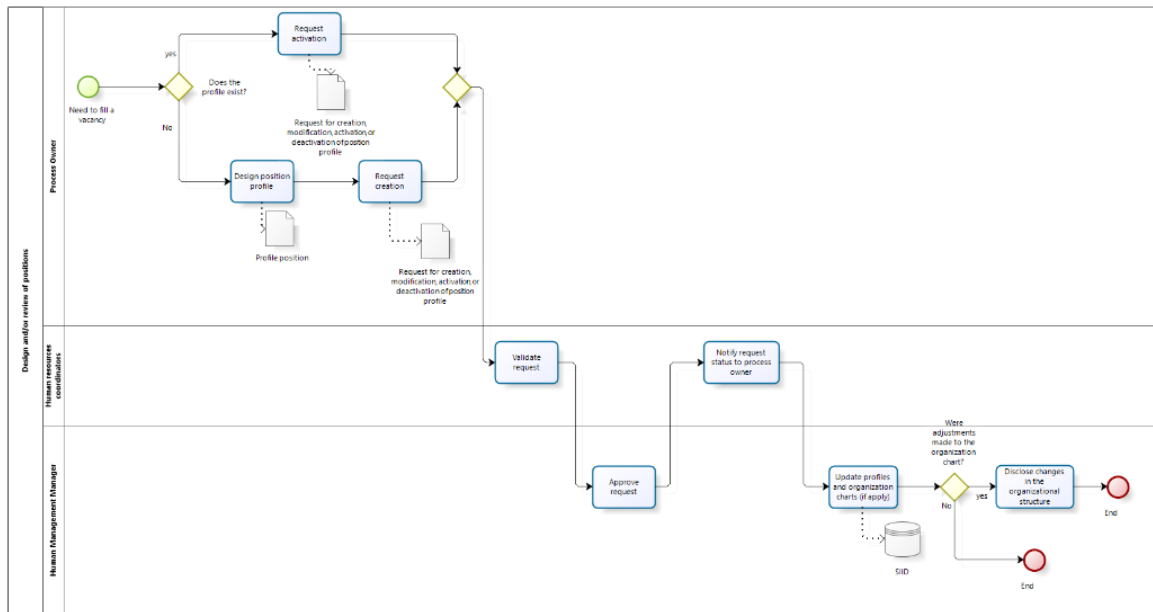
Finally, the impact analysis was based on giving percentages to the activities obtained in the diagnosis and documentation established, which allows the structure of the project to be solid and reliable.

On the other hand, regarding the project, it should be noted that within its process standardization, elements were used for the registration and control of activities, through an application to graphically capture the documented procedures, which allowed for greater clarity and understanding, as shown in Figure 6, together with the development of operation diagrams to specify the times taken.

Regarding the tools used for the diagnosis, it is considered that the use of the Vester matrix was fundamental since it allowed finding the root cause of the opportunity for improvement of the project and the Leopold matrix to know the final impact of the project giving both qualitative and quantitative results.

It is evident that the use of technological tools and the generation of diagrams facilitates the standardization process and that the time study can be carried out through structured times that allow adapting to the biosafety conditions established by the Covid-19 pandemic.

Figure 6. Example of procedure flow diagram



Source: Authors of the project, 2021

V. CONCLUSIONS

One of the support processes that have great participation in the competitiveness of companies is Human Management, which must ensure the right personnel for the development of different activities, therefore, identifying problems such as reprocesses and lack of documentation, resulting from the absence of standardization and compliance with current regulations becomes a priority for organizations, since analyzing and defining the flow between processes, their correct execution, the elimination of unnecessary or repetitive tasks and the active participation of all employees ensures the success and strategic positioning of the company.

Finally, it became evident that virtual platforms and technological aids allow optimizing resources and meeting the established goals.

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