

**Analysis of the effectiveness of the managerial process in a federal institution of education, science and technology in Northern Brazil****Análise da efetividade do processo gerencial em uma instituição federal de educação, ciência e tecnologia do Norte do Brasil**

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## **ABSTRACT**

The managerial process is the process of planning, organizing, directing, and controlling applied by an organization to guarantee the supply of the needs of its operating environment. The more this procedure is practiced and known by an organization, the greater its effectiveness. This study aimed to assess whether the managerial process can be considered effective in a unit of a federal institution of education, science and technology that operates in the northern region of Brazil. It used the survey method in a sample composed of 50 professors and 50 administrative technicians, through a closed questionnaire containing the analytical categories of the managerial process, whose data were analyzed and interpreted through fashion, median and standard deviation, to understand the demographic characteristics of respondents and Student's T, Kolmogorov-Smirnov and Shapiro-Wilk tests to test the hypotheses that the managerial process is effective in the institution and that there are no evaluative differences arising from the respondents' demographic conditions. The results showed that the managerial process is not effective in the institution and that there is no difference in assessment between the different demographic strata of its employees. The conclusion shows that the institution does not have an effective planning, organization, direction, and control system.

**Keywords:** Managerial process, Planning process, Organization Process, Direction process, Control process.

## **RESUMO**

O processo gerencial é o processo de planejar, organizar, dirigir e controlar aplicado por uma organização para garantir o suprimento das necessidades de seu ambiente de operação. Quanto mais esse procedimento é praticado e conhecido por uma organização, maior a sua efetividade. Este estudo teve como objetivo avaliar se o processo gerencial pode ser considerado efetivo em uma unidade de uma instituição federal de educação, ciência e tecnologia que atua na região Norte do Brasil. Utilizou o método de levantamento em uma amostra composta por 50 docentes e 50 técnicos administrativos, através de um questionário fechado contendo as categorias analíticas do processo gerencial, cujos dados foram analisados e interpretados por meio da moda, mediana e desvio padrão, para compreender as características demográficas dos respondentes e os testes T de Student, Kolmogorov-Smirnov e Shapiro-Wilk para testar as hipóteses de que o processo gerencial é efetivo na instituição e de que não há diferenças avaliativas decorrentes das condições demográficas dos respondentes. Os resultados mostraram que o processo gerencial não é efetivo na instituição e que não há diferença de avaliação entre os diferentes estratos demográficos dos seus servidores. A conclusão mostra que a instituição não tem um sistema de planejamento, organização, direção e controle efetivo.

**Palavras-chave:** Processo gerencial, Processo de planejamento, Processo de Organização, Processo de direção, Processo de controle.

## **1 INTRODUCTION**

More and more, the operating environments of organizations become more uncertain and unstable, generating deep financial crises and imbalances (Abrucio, 1997). These new realities

demand that the public and private sectors seek to reformulate their organizational structures and dynamics to overcome the challenges that these critical environments present themselves to (Bresser Pereira, 1996; Almeida, 2002). In the quest to improve products and services, the public sector also needs to find ways to deliver to the population the supply of their demands.

The relationship between the organization and its environment is a customer-supplier type. The organization needs to supply the environmental needs so that, in return, it obtains the resources it needs to continue the supply process. This dynamic applies both to public and private sector organizations, with the difference being the source of resources only. This is true, therefore, for federal education, science, and technology institutions, such as the one that was the subject of this study.

The managerial process is the most common logical scheme applied by organizations internally to deal with the demands of the external environment. From the demands they can meet, they create their objectives and goals and define the path they will take to achieve them, in what is called planning (Ali, 2019; Tesfaye, 2019). Based on it, resources and people are defined in the organization process (Lettieri, E. et al., 2018), a management scheme with the right people in the right places (Koniukh & Yushchyshyna, 2018) is applied and accompanies each stage execution, correcting dysfunctionalities (Purwantini, VT, & Sutanto, 2018). The more this scheme is applied and known to all members of the organization, the more effective its managerial process can be considered. It is necessary to know whether Brazilian public institutions act like this. In this sense, this study aimed to assess whether the managerial process is effective a unit of a federal institution of education, science and technology that operates in Northern Brazil.

## **2 THE STEPS OF THE MANAGERIAL PROCESS**

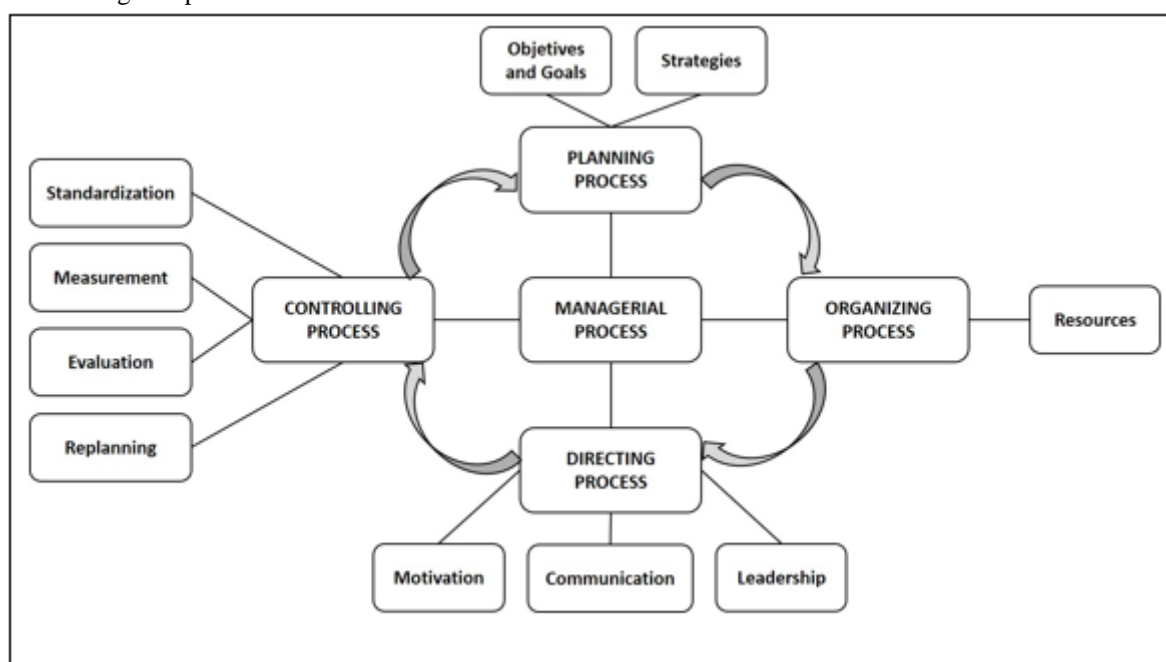
Organizations work by applying the managerial process. This process is a logical sequencing whose purpose is to make sense of the achievement of organizational objectives (Nascimento-e-Silva, 2012). Nastase and Gresoi (2013) suggest the definition of objectives, the determination of the resources to be used, the analysis of the results obtained and the comparison with the intended results as the stages of the managerial process. It is this logical sequencing that guides and leads the actions of the social body of organizations, as well as the physical and extraphysical resources available and to be obtained. When objectives and goals are determined and shared, they become organizational policies, which are the essence of the management system (Koniukh & Yushchyshyna, 2018).

The theoretical architecture of this study is contained in figure 1, which shows the managerial process consisting of four stages. Each step is a sub-process, which means that it is also

constituted by a process, logical sequencing that generates a by-product. The first step is the planning process, which specifies the objectives and the strategy to be followed. The second is the organization process, which deals with resources. The third is the directing process, which is applied to the social body of the organization, in terms of motivation, leadership and communication systems. And the fourth and final step is the control process, the purpose of which is to determine standards, measure, evaluate and replanning organizational results. This scheme determines both the decision-making process and the execution of the decisions taken (Ribeiro, 2011).

The first stage of the managerial process is planning. Planning is to decide in advance the most appropriate way for the organization to achieve its objectives. It is a process of choices (Rizani & Hatta, 2019) about what, how, when, where and even who should do certain activities (Tesfaye, 2019). This requires the manager and his collaborators skills to organize the behavior of people and determine the sequence of activities to be followed (Sanchez-Rivero et al., 2020). Thus, rationality and non-rational resources, such as instinct, are combined to unite thought and action in the construction of the desired future (Sujanto, 2019).

Figure 1. Managerial process



Source: elaborated from Nascimento-e-Silva (2011; 2013; 2016).

The entire planning process can be summarized in the choice of objectives and goals, which are what the organization intends to achieve, and the paths that will lead to them, called strategy. Along this path, which marks the passage of time, the organization allocates physical, extraphysical and human resources (Elraheem, Shikhin and Kouzalis, 2019) to build the desired future. Thus, any

planning scheme is a practice of organizational change from the achievement of the intended goals (Ali, 2019). To plan is to change. It is to build a future different from the present. The products of the planning process are plans, programs and projects.

The second stage of the managerial process is the organization process, which deals with the resources necessary to achieve the objectives and goals defined in the planning process. The allocation of resources is related to the chosen strategy, which evolves over time. Here the structure and processes are defined (Lettieri et al., 2018; Lestari, Budiarti & Krisnaresanti, 2017; Kısa, Özdemir & Turan, 2016)), people are organized (Lee, 2020; Ghavifekr et al., 2017)), the work and activities to be performed (Nababan, Dewi and Akhmad, 2017) and information (Shehata, 2019).

The organization process generates several products. The organization of people produces organization charts and functional charts; of work, daily worktables; of processes, flowcharts; of materials, the bill of materials (BoM); of physical space, physical arrangements (layout); financial resources, budgets; and so on. To organize is, therefore, to combine people, activities, and resources with the intended objectives (Robbins, 2002; Cardoso, 2013).

The third stage is the directing process, focused on the challenge of managing people to fulfill the company's objectives. This is done in accordance with the organization culture (Marques, 2015), based on motivational and communicational schemes around an adequate leadership system. In a sense, directing is leading, a practice that involves the ability to guide, decide and motivate (Verma & Mehta, 2020), alone or in groups. It requires communicational power and trust from colleagues, and subordinates (Vikneshan et al., 2020), so that it can exert influence over them (Slamti, 2020), since influence is a typical characteristic of the power to lead. Leadership is consolidated by directing the individual's ability to converge the efforts of his followers to achieve objectives and goals (Saini & Burton, 2020).

The power to lead keeps people energized to do what the organization expects of them. Motivation, as a leader's skill, is this internal unity (Yılmaz et al., 2020) that directs the actions of individuals and gives them meaning. It is a state of excitement (Huang, 2020), both cognition and emotion, physical or intellectual (Yildirim, 2020), which takes individuals to action, in search of the materialization of objectives and goals (Lakerveld et al., 2020; Truong & Le, 2020). The manager's challenge is to accumulate these energies based on the conditions of the workplace (Setiawan, 2020) and other intrinsic and / or extrinsic schemes to the individual.

Communication is a fundamental tool for maintaining people's energy and reinforcing the influence of the leader on his followers and superiors. Communication is a coordinating function of efforts (Hbous, Masry & Shamma, 2020) of different individuals who execute different processes,

materializing the interaction between them (Gwinji et al., 2020; Slijepčević, Bovan & Radojević, 2018). It is through communication that there is the coordination of activities, transferring and receiving information, providing understandings and new interpretations of the organizational reality (Novianto, Noor & Mindarti, 2018). In the case of academic institutions, they are the link for transforming internal and external reality from the production of knowledge, as shown by the study by Green and Courtney (2016).

The fourth and final stage of the managerial process is control. Its focus is on results, organizational performance, and never people's behavior, as common-sense imagines. There are individual, group, departmental, organizational and interorganizational results. The control systems achieve the individual results, when foreseen, but with a motivational and learning purpose (Carbonell & Rodríguez-Escudero, 2011), pedagogical. As it is linked to performance (Manolescu, Roman & Mocanu, 2011), its focus on nonconformities leads to the reduction of failures and continuous improvement, if focused on what is being done properly. In this sense, standardization becomes the central point of the entire control process, as shown by the study by Purwantini and Sutanto (2018). The control process has its stages, of course. It starts with standardization, which is the determination of the attributes of the intended results; it continues with the measurement, which is the measurement of what was performed, in accordance with the attributes; proceeds with the evaluation, which is the comparison of what was produced with the attributes of the results; and ends with the replanning, which are the determinations and applications of corrective measures. Controlling is comparing what has been or is being carried out with what was foreseen, and correcting, when necessary, is measuring results (Santander, 2018).

### **3 RESEARCH METHODOLOGY**

This study aimed to assess whether the managerial process is effective in a federal institution of education, science and technology that operates in Northern Brazil. Effectiveness is defined as the perception that in the institution the planning, organization, direction, and control process works and is known by its social body. Here it will be detailed how each result was generated.

The methodology used in this study was the survey, which is characterized by collecting data from a part of the population (sample), analyzing the data, and generating valid results for that entire population. It focused on the study of individuals' perceptions (individual analysis unit), so that they could understand the reality of the entire organization (level of organizational analysis) of which they are part, portraying it statically (perspective of synchronous analysis). For this, the methodological path consisted of a) construction of the theoretical framework of reference, b) transformation of the

theoretical framework into a data collection instrument, c) testing and adjustment in the data collection instrument, d) determining the sample size, e) data collection and f) analysis and interpretation of results.

To achieve the objective of the investigation, two hypotheses were tested, based on the theoretical framework presented in the previous section. These hypotheses were as follows:

### 3.1 RESEARCH HYPOTHESES

H1: The managerial process is effective in the researched institutional unit

H2: There is no difference in the assessments of the managerial process practiced in the institutional unit by demographic category

### 3.2 POPULATION AND SAMPLE

The population of this research consisted of all professors and administrative technicians linked to a Campus of a federal institution of education, science and technology that operates in the North of Brazil, as defined by Martins (2010), a characteristic that all respondents have in common. Thus, the population consisted of 92 teachers and 94 administrative technicians, totaling 186 civil servants. The sample consisted of 50 teachers and 50 administrative technicians chosen at random, totaling 100 respondents. Regarding the sex of respondents, 67% was men, and 33% women.

Of the total respondents, 64% are aged 35 or over, which constitutes a staff that can be considered mature. Those who are under 25 years old represented only 3% of the sample, while those who said they were 55 or more years old totaled 13%. It is important to draw attention to the fact that the modal class comprises the ages between 25 and 34 years, totaling 33% of the surveyed employees. If the following class is added to this age group, the total reaches 51% of young servants and young adults.

There is, therefore, stability in the age group of individuals who make up the researched organization. In other words, the young (under 35 years old), mature (between 35 and 54 years old) and experienced (over 54 years old) civil servants are in a certain balance, although the latter group is much smaller in number. This seems to indicate that the organization under analysis has been able to implement a continuous flow of composition of its staff, not allowing the age group to rise and, at the same time, incorporating individuals with younger ages. In general, this discovery seems to show that the organization is mature, with a tendency for the predominance of young adults with mature employees.



Regarding working time, 38% of respondents have up to five years of effective service in the organization, followed by the class of 6 to 10 years, with 27%. These two classes account for 65% of all survey participants. The third most frequent class was the one with more than 20 years of service, with 19%, while the one between 16 and 20 years old represented 14% of the participants. These results indicate that the researched organization is made up of a majority of servants who are new to the public service, but also with a highly significant number of mature professionals, with many years of service, generating a balance of maturity in the services they perform.

Regarding the degree, the modal class is formed by specialist professionals, with 37%, followed by masters, with 26%, and graduates, with 14%, totaling 77% in this range from undergraduate to master. It is worth mentioning the existence of 11% who only have high school education and 12% with a PhD.

### 3.3 DATA COLLECTION INSTRUMENT

To conduct the study, a questionnaire containing 15 closed questions was produced and validated. The questions were divided into demographic and explanatory. Demographic questions aimed to characterize respondents in relation to age, sex, position, length of service and higher academic qualifications. The explanatory questions were concentrated on the analytical categories of each stage of the managerial process, called the analytical dimension, as shown in Table 1.

Table 1. Dimensions and analytical categories of explanatory questions

<b>Analytical dimensions</b>	<b>Analytical categories</b>
Planning	My sector has goals known to all your servers My sector has clear strategies to achieve its goals
Organization	My sector has the resources necessary to achieve its goals
Direction	My sector has the right leadership to achieve its goals My sector practices an appropriate motivation scheme to achieve its goals My sector has a communication system suitable for its operation
Control	My industry has its own control standards My industry has a performance measurement scheme My sector has a system for evaluate its objectives My sector has a system for replanning its objectives

Source: elaborated by the authors.

The planning analytical dimension presented two questions (related to objectives and strategies), organization was contemplated with one question (resources), direction was composed of three (motivation, leadership and communication) and control by four (standardization, measurement, evaluation and replanning). In practice, these 10 questions are the organization of the theoretical framework of reference in an instrument capable of evaluating them empirically.



Demographic questions had a nominal measurement level, in which respondents could choose only one answer from those presented. The explanatory questions were all rational: each question was evaluated with marks from 0 (lowest evaluation) to 10 (highest evaluation).

### 3.4 DATA COLLECTION AND ORGANIZATION STRATEGY

Respondents were approached personally and asked if they were interested in answering the questionnaire. At this point, the instrument was presented to them and the form was filled out. If they did not want to answer, they returned the questionnaire. If they were willing to participate, they could take it to complete the questionnaire and return it on another day. All questionnaires were completed anonymously to ensure a higher degree of fidelity in the responses.

The data were organized with the aid of an electronic spreadsheet. However, before the data was entered, all responses were duly criticized. All that were erased, with multiple markings and blank were excluded from the calculation. These exclusions were recorded in the spreadsheet with code 99, meaning no response (NR). All demographic issues were recorded from their position in the order of the alternatives: the first alternative received code 1, the second received code 2 and so on; the explanatory questions had their data recorded as evaluated, with 0 to 10. After all of them were digitalized, the answers to the questionnaires were transformed into a numerical spreadsheet, ready, therefore, to move on to the next step, of generating the results, with the consequent analysis and interpretation of results.

### 3.5 DATA ANALYSIS AND INTERPRETATION OF RESULTS

Data analysis was done in two ways. The first was applied to demographic issues, using simple statistics, more precisely, simple frequencies and percentage frequencies. The purpose of this procedure was to create a kind of characterization of the sample, defining the profile of the respondents, which would facilitate the analysis and interpretation of the results of the hypothesis tests. Like all categorical analysis, fashion was the main measure of central tendency worked, both in absolute and percentage terms.

The second procedure was used to generate the results of the explanatory questions. Statistical tests were applied here, more precisely Cronbach's alpha (whose value was 0.92), to measure the normality or not of the data, the Student's T test, to test the previously formulated hypotheses and the tests association of Kolmogorov-Smirnov and Shapiro-Wilk. The normality test is necessary to know if the data are close or distant and, from then on, use the mean or median in the analyzes. The hypothesis test was used to find out if the statements (every hypothesis is a statement or provisional

explanation) could be considered true or false. Results with p-value less than 0.05 were considered “No”, equal to or above that value, like Yes. It does not mean to refute the null hypothesis; Yes, accept it. To test the hypothesis of the effectiveness of the managerial process at the institution, the Kolmogorov-Smirnov and Shapiro-Wilk tests were used. The analysis procedure was like the T test, evaluating each p-value.

The interpretation of the results considered the mathematical nature of the statistical analyzes. As demographic questions used fashion to synthesize the results for each variable (sex, age, title, position, and length of service), the interpretation presented sought to answer the following question: “what does fashion represent in this context”. Then explanations were outlined as to how and why it would have happened.

On the other hand, the interpretation of the results of the explanatory questions was based on the theoretical framework of the study. It is to be expected that every organization presents proximity in its functioning with what can be considered normal in management: that it is satisfactorily planned, organized, directed, and controlled. Thus, when all the categories of a dimension pointed out results named in the tables as “It is true”, the most satisfactory was considered. If all the results of a dimension had the results “It is true”, that dimension would have been interpreted as satisfactory. Conversely, the more results of a dimension presented nominations of “It is not true”, the less satisfactory would be its management.

The reason for this procedure is that “It is not true” or “It is true” were two ways to present the test result of each hypothesis in a synthetic way, mainly for those unfamiliar with statistical tests. In mathematical terms, “It is not true” means p-value less than 0.05 and “It is true”, equal to or greater than 0.05. In logical terms, “It is not true” represents rejection of the null hypothesis and “It is true”, its acceptance.

To evaluate the effectiveness of the managerial process, the median was used, since the data were not considered normal, and the standard deviation. The value of the standard deviation was subtracted from the median value. As the median measures the center of the distribution and the standard deviation is the dispersion of the data, with this procedure it was possible to identify the lowest score that 67% of the respondents attributed to the entire data set. For example, to evaluate the statement “My sector has objectives known to all its employees”, the median was 7 and the standard deviation, 2.41. The result was 4.59 (median - standard deviation = 4.59). The same procedure was used to generate the extreme of the evaluation: median + standard deviation.

## 4 RESULTS AND DISCUSSIONS

The results presented here are organized as follows: first the test of the effectiveness of the managerial process, followed by its evaluation; then, comparative analyzes of effectiveness from the respondents' demographic categories. At the end of each analysis, the empirical results are compared with the theoretical reference framework.

### 4.1 EFFECTIVENESS OF THE MANAGERIAL PROCESS

When the managerial process is effective, it is perceived by its social body. In practice it means that, although they do not have management training, they are able to show the plans and explain the strategy that the institution has followed to achieve the objectives proposed there. Objectives and strategies are the components of the planning dimension, in accordance with the theoretical model of this study. The results contained in table 2 present the results obtained for the hypothesis that “The managerial process is effective” on the researched institution's campus. Being effective means existing and being perceived by your membership.

The hatched and blank regions in table 2 are the analytical dimensions of the study and their respective categories. The results show all p-values less than 0.05, which leads to the rejection of each statement. This means that the study respondents disagree with any of them. As each of them represents the stages of the managerial process, these results show that there is, in fact, no managerial process so perceived by the employees and teachers participating in the research.

Table 2. Tests of hypotheses related to the effectiveness of the managerial process

Analytical categories	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
My sector has goals known to all your servers	,173	100	,000	,935	100	,000
My sector has clear strategies to achieve its goals	,149	100	,000	,944	100	,000
My sector has the resources necessary to achieve its goals	,110	100	,005	,969	100	,018
My sector has the right leadership to achieve its goals	,178	100	,000	,887	100	,000
My sector practices an appropriate motivation scheme to achieve its goals	,141	100	,000	,941	100	,000
My sector has a communication system suitable for its operation	,206	100	,000	,898	100	,000
My sector has its own control standards	,135	100	,000	,944	100	,000
My sector has a performance measurement scheme	,183	100	,000	,925	100	,000
My sector has a performance evaluation system	,146	100	,000	,915	100	,000
My sector has a system for replanning its objectives	,170	100	,000	,929	100	,000

Lilliefors Significance Correction

Source: data collected by the authors.

At least two possibilities open for understanding these results. The first is the lack of understanding by the respondents of what the managerial process and its dimensions are, making it

difficult to perceive them in their daily lives. The second is the failure of the manager who has no managerial training: he can even put into practice management tools, procedures, and tools, but without his social body being aware of it. When the manager has technical management training or knows management and his subordinates too, the managerial process is easily unraveled, that is, the objectives and strategies (planning) are known, the resources (organization) identified and worked on, the leadership process elaborated and implemented, communications and motivation (leadership), and a control system is effectively implemented through standardization, measurement, evaluation, and replanning by everyone known and applied. If, perhaps, subordinates do not know the managerial process, it is normal for the manager who knows it to instruct them so that they can know and apply it. And this, as the results of this study show, does not happen in the researched organization.

Planning is also a way of organizing people's behavior, as shown by the study by Sanchez-Rivero et al. (2020). As members participate in the decision-making process, they learn to choose more appropriately, as inferred from the research by Rizani and Hatta (2019). It is from this decision-making process that the perspectives of perception of what resources will be needed for this are opened (Elraheem, Shikhin & Kouzalis). The resources, of physical and extraphysical nature, give meaning and order not only to what was planned, but to the whole organizational dynamics (Lettieri, et al., 2018; Ghavifekr, S. et al., 2017). As they are people who operate everything that exists in the organization, they lack leadership and motivation, extraphysical resources that, associated with communications, need to be effectively managed. For each step of the process, standards, measures, and evaluations are necessary to detect flaws and make corrections (Santander, 2018). This dynamic is not clear in the researched institution.

Analyzing this result more closely, using the median, which represents the representative score of each analytical category for each dimension, and considering their respective standard deviation, the adequacy of the results of the hypotheses in table 2. The employees disapprove the possibility of an effective managerial process in the analyzed institutional unit, as shown in the results contained in table 3. In all management functions and their elements, the final grades were less than 5.0. In any rating system from 0 to 10, 5 is considered the lowest score for a positive rating. The highest score obtained, which corresponds to the best evaluation, was in relation to the planning function (objectives and strategies, with values equal to 4.59 and 4.07, respectively) and to leadership and communication, which correspond to the direction function, with notes equal to 4.99 and 4.56, respectively. The worst performance was related to the control function, with scores lower than 3.0.

In other words, the respondents disapprove of the managerial process applied in the unit where they work.

Table 3. Evaluation of the managerial process by respondents

<b>Analytical Categories</b>	<b>Median</b>	<b>SD</b>	<b>Results</b>
My sector has goals known to all your servers	7,00	2,41	4,59
My sector has clear strategies to achieve its goals	6,50	2,43	4,07
My sector has the resources necessary to achieve its goals	6,00	2,29	3,71
My sector has the right leadership to achieve its goals	7,50	2,51	4,99
My sector practices an appropriate motivation scheme to achieve its goals	6,00	2,54	3,46
My sector has a communication system suitable for its operation	7,00	2,44	4,56
My sector has its own control standards	6,00	2,42	3,58
My sector has a performance measurement scheme	5,00	2,73	2,27
My sector has a performance evaluation system	5,00	2,93	2,07
My sector has a system for replanning its objectives	5,00	2,71	2,29

Significance level of 0.05%.

Source: data collected by the authors.

These results seem to indicate that planning and direction are the least bad managerial functions. This generally means that the unit under analysis may have difficulty in reaching its objectives and goals, identifying, allocating, using, and evaluating the use of resources (people and materials) and, above all, applying any control system. It is important to note that managerial functions are cyclical, dynamic, and interactive, if one of them is inefficient it will possibly affect the others (Nascimento-e-Silva, 2013; 2016). This is probably because the unit lacks training in the managerial process (tools, procedures, and techniques) that can establish and measure the performance of the unit under analysis.

#### 4.2 COMPARATIVE ANALYSIS

The results obtained in relation to the evaluation of civil servants on the application of the managerial process, considering the age group, as shown in table 4, showed a similar perception in almost all analytical categories. There were only three disagreements: those who said that the unit does not have the necessary resources to achieve its objectives, has no scheme for measuring performance and no replanning system. There is a unity of perception among the employees of different ages about the managerial process. This reinforces the observation that the managerial process is not effective in the institution.

Table 4. Evaluation of the managerial process, by age.

<b>Analytical Categories</b>	<b>Sig.</b>	<b>Results</b>
My sector has goals known to all your servers	0,872	It is true
My sector has clear strategies to achieve its goals	0,406	It is true
My sector has the resources necessary to achieve its goals	0,040	It is not true
My sector has the right leadership to achieve its goals	0,367	It is true
My sector practices an appropriate motivation scheme to achieve its goals	0,650	It is true
My sector has a communication system suitable for its operation	0,925	It is true
My sector has its own control standards	0,105	It is true
My sector has a performance measurement scheme	0,008	It is not true
My sector has a performance evaluation system	0,062	It is true
My sector has a system for replanning its objectives	0,033	It is not true

Significance level of 0.05%.

Source: data collected by the authors.

Evaluations differ with respect to available resources. One part says they are available while another statistically significant part says otherwise. This shows that managers need to work on this issue more, mainly through participatory actions or internal or total transparency schemes (extended to the external environment). Regarding the categories related to performance measures and replanning, it is necessary for the institution to disclose its standards and forms of measurement, but fundamentally the way in which the employees can correct what is outside the institutional standards (Purwantini & Sutanto, 2018; Manolescu, Roman & Mocanu, 2011).

From a gender perspective, the results achieved showed unanimity. All variables showed a p-value greater than 0.05%, as shown in the data in Table 5. This means that both men and women have the same view and evaluation of the managerial process applied in the unit where they work, which can be a promising indicator that gender issues have not interfered.

Table 5. Evaluation of the managerial process, by sex.

<b>Analytical Categories</b>	<b>Sig.</b>	<b>Results</b>
My sector has goals known to all your servers	0,390	It is true
My sector has clear strategies to achieve its goals	0,671	It is true
My sector has the resources necessary to achieve its goals	0,674	It is true
My sector has the right leadership to achieve its goals	0,671	It is true
My sector practices an appropriate motivation scheme to achieve its goals	0,574	It is true
My sector has a communication system suitable for its operation	0,385	It is true
My sector has its own control standards	0,480	It is true
My sector has a performance measurement scheme	0,188	It is true
My sector has a performance evaluation system	0,570	It is true
My sector has a system for replanning its objectives	0,885	It is true

Significance level of 0.05%.

Source: data collected by the authors.

Table 6 contains the findings related to the evaluation of the managerial process based on the positions held by the respondents (teachers and administrative technicians). The results indicate a view of adequacy in the application of the managerial process in the studied unit. With the exception

of the hypothesis that “my sector has the adequate leadership to achieve its objectives”, all calculated p-values were greater than 0.05%, the maximum margin of error allowed to accept the null hypothesis, that the managerial process is properly applied. Evidently, the lack of adequate leadership is a factor that needs to be considered in the direction of any organizational unit (Vikneshan et al., 2020; Slamti, 2020); however, it does not compromise the effectiveness of the managerial process, according to the perspective of the positions that the respondents occupy.

Table 6. Evaluation of the managerial process, by position (teachers and technicians)

<b>Analytical Categories</b>	<b>Sig.</b>	<b>Results</b>
My industry has goals known to all your servers	0,303	It is true
My industry has clear strategies to achieve its goals	0,072	It is true
My industry has the resources necessary to achieve its goals	0,537	It is true
My industry has the right leadership to achieve its goals	0,009	It is not true
My industry practices an appropriate motivation scheme to achieve its goals	0,226	It is true
My sector has a communication system suitable for its operation	1,000	It is true
My industry has its own control standards	0,839	It is true
My industry has a performance measurement scheme	0,402	It is true
My industry has a performance evaluation system	0,214	It is true
My sector has a system for redesigning its objectives	0,841	It is true

Significance level of 0.05%.

Source: data collected by the authors.

There was a single divergence among respondents, which occurred in the question "My sector has the appropriate leadership to achieve its objectives". This seems to say that there is some dissatisfaction on the part of the respondents in relation to those people who lead them. In a way this is direction's responsibility. When appointing your team, it would be interesting to establish leadership parameters for the occupation of hierarchical positions. Leaders need to command leaders in the formation of new leaders. And a leader is one who exercises influence over others so that they do things that, without influence, they would never do. And leadership is crucial for the effectiveness of the direction function in achieving goals (Verma & Mehta, 2020). And that the respondents differ in their effectiveness in the institutional unit surveyed.

Table 7 shows the results for the hypothesis test regarding the possibility of a difference between respondents or not, considering their years of service at the institution. The evaluations are equal in relation to the categories of planning, organization, and direction, but divergent in relation to the control process. This means that some professionals evaluate in a quite different way from the way in which others evaluate their performance measurement and evaluation, as well as their replanning.



Table 7. Evaluation of the managerial process, by years of service

<b>Analytical Categories</b>	<b>Sig.</b>	<b>Results</b>
My sector has goals known to all your servers	0,459	It is true
My sector has clear strategies to achieve its goals	0,544	It is true
My sector has the resources necessary to achieve its goals	0,285	It is true
My sector has the right leadership to achieve its goals	0,503	It is true
My sector practices an appropriate motivation scheme to achieve its goals	0,156	It is true
My sector has a communication system suitable for its operation	0,235	It is true
My sector has its own control standards	0,124	It is true
My sector has a performance measurement scheme	0,048	It is not true
My sector has a performance evaluation system	0,024	It is not true
My sector has a system for replanning its objectives	0,040	It is not true

Significance level of 0.05%.

Source: data collected by the authors.

These results, combined with those found in relation to the respondents' age, seem to point out some dysfunctionalities of the control system of the researched institutional unit. There may be a control system, with standards, measures, evaluations, and formal replanning, but which may or may not be known by a substantial part of the functional body or its functioning is not so clear as to be considered effective. In any case, the institutional control system needs to be revised.

The results obtained for the hypothesis that tested the effectiveness of the managerial process considering the respondents' degrees also showed agreement, as shown in table 8. All hypotheses had a p-value greater than 0.05%, which prevents the refutation of the null hypothesis. In practice, doctors think the same way as high school students and graduates. And this is an interesting result because it can denote an effective possibility of reviewing the way the unit is managed and reformulating each stage of the process, especially the control mechanisms.

Table 8. Evaluation of the managerial process, by title

<b>Analytical Categories</b>	<b>Sig.</b>	<b>Results</b>
My sector has goals known to all your servers	0,431	It is true
My sector has clear strategies to achieve its goals	0,224	It is true
My sector has the resources necessary to achieve its goals	0,250	It is true
My sector has the right leadership to achieve its goals	0,133	It is true
My sector practices an appropriate motivation scheme to achieve its goals	0,070	It is true
My sector has a communication system suitable for its operation	0,123	It is true
My sector has its own control standards	0,684	It is true
My sector has a performance measurement scheme	0,060	It is true
My sector has a performance evaluation system	0,215	It is true
My sector has a system for replanning its objectives	0,096	It is true

Significance level of 0.05%.

Source: data collected by the authors.

The knowledge and practice of the managerial process has contributed to the development of many organizations, in the sense of preparing themselves adequately to face the challenges that their operating environments present themselves. The logical scheme seems simple (and it is):

organizations evaluate the behavior of the environment and choose the demands to be met. Around it, it defines objectives and strategies (planning), which need resources to be operationalized (organization) by capable people (direction) under certain standards of results (control). However, the internal institutional universe can divert managers' attention from this logical scheme to the bureaucratic routine, especially in public institutions.

In this study, the managerial process is not perceived as unanimously effective by the respondents. There is only disagreement in relation to some analytical categories, which may be the only ones that really exist in the institution, under the eyes of its social body. In summary, perhaps control is the most striking feature of the managerial process in the analyzed institution. And so, it is perhaps the target of disagreements.

## **5 CONCLUSION**

This study showed that the managerial process is not considered effective in a federal institution of education, science, and technology in Northern Brazil. This means that its social body, composed of professors and administrative technicians, does not consider the processes of planning, organization, direction, and control to function properly from its analytical categories, which are its component elements. Without the managerial process taking effect, the organizational objectives are compromised.

When this perception is analyzed in more depth, based on the respondents' demographic categories, the negative assessment is confirmed both in relation to sex, as well as by age, title, length of service and position held. Only in relation to the control process were there perceptual divergences, especially regarding measurement and evaluation of institutional standards, as well as in relation to replanning as an effort to correct flaws and dysfunctionalities.

In this sense, the organization is recommended to review its control process. You are probably disconnected from strategic, tactical, or operational objectives and targets since the control systems exist to ensure that the attributes or characteristics of the results to be achieved are clear and can be achieved by your staff. In addition, it is necessary for them to be disclosed internally and their operators trained in how to proceed in each measurement and evaluation step. It is the effective use of the measurement and evaluation mechanism that makes sense and reinforces the credibility of the control, which serves to focus results and performance, and never the individual's behavior.

Two other focuses need attention. The first is in relation to resources. Younger servers think differently from older ones about their willingness to achieve the goals under their responsibility. It is necessary to involve these professionals in the organization process or to increase transparency.

The second is related to leadership: it is necessary to develop new leaders, since professors and technicians think differently about the adequacy of current leaders in leading their units and their subordinates towards the future held or the goals under their responsibilities.

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