The mapping of processes in a campus of the Federal Institute of Education, Science and Technology in Brazil: a case study

O mapeamento de processos em um campus do Instituto Federal de Educação, Ciência e Tecnologia no Brasil: um estudo de caso

El mapeo de procesos en un campus del Instituto Federal de Educación, Ciencia y Tecnología de Brasil: un estudio de caso

DOI: 10.55905/oelv22n8-041

Receipt of originals: 06/28/2024
Acceptance for publication: 07/19/2024

Rafhael Batista Vaz dos Santos
Master in Educational Sciences, concentration area in Educational Administration
Institution: Eixo de Gestão e Negócio do Ensino Básico, Técnico e Tecnológico
Instituto Federal de Educação, Ciência e Tecnologia de Brasília (IFB)
Address: Brasília, Distrito Federal, Brasil
E-mail: rafhael.vaz@gmail.com

Pedro Costa Ramos
PhD in Philosophy, Economics and Business Management
Institution: Instituto Politécnico de Santarém
Address: Apartado, Santarém, Portugal
E-mail: pedro.mcramos@gmail.com

Tiago Santos Barreto Thomaz
Master in Educational Sciences, concentration area in Educational Administration
Institution: Curso de Administração do Ensino Básico, Técnico e Tecnológico
Instituto Federal de Educação, Ciência e Tecnologia de Roraima (IFRR)
Address: Bonfim, Roraima, Brasil
E-mail: tiagoduninthomaz@gmail.com

Lucas Socoloski Gudolle
PhD in Informatics in Education
Institution: Curso de Administração do Ensino Básico, Técnico e Tecnológico
Instituto Federal de Educação, Ciência e Tecnologia de Roraima (IFRR)
Address: Bonfim, Roraima, Brasil
E-mail: lucas.gudolle@ifrr.edu.br
Anderson Rodolfo de Lima
PhD in Production Engineering
Institution: Curso de Administração do Ensino Básico, Técnico e Tecnológico
Instituto Federal de Educação, Ciência e Tecnologia de Mato Grosso do Sul (IFMS)
Address: Coxim, Mato Grosso do Sul, Brasil
E-mail: anderson.hbo@gmail.com

ABSTRACT
This research analyzes the process mapping developed by the Business Process Mapping Commission (CMPN) in a Campus of the Federal Institute of Education, Science and Technology, a Brazilian Public Institution of Higher Education (IPES). From a documentary analysis, the history of management initiatives by processes of the rectory and the Campus object of study was presented. In the form of a case study, it was possible to identify, through a semi-structured interview with the members of the CMPN, the motivations, expectations, methodology and the main challenges faced in the implementation of the mapping of the processes that until the end of this work was in progress. Through the application of a questionnaire with closed questions, it was possible to assess that, in the perception of teaching, research and extension managers, the mapping of processes has a positive impact on the quality of teaching. Process management is an approach that can generate greater efficiency in the organization, however, it is perceived that the particularities of the Brazilian public sector create barriers for IPES initiatives to achieve the critical success factors found in the literature, requiring their own models.

Keywords: Process Management, Process Mapping, Teaching Quality, Public Higher Education Institution.

RESUMO
Esta pesquisa analisa o mapeamento de processos desenvolvido pela Business Process Mapping Commission (CMPN) em um Campus do Instituto Federal de Educação, Ciência e Tecnologia, uma Instituição Pública Brasileira de Ensino Superior (IPES). A partir de uma análise documental, foi apresentado o histórico das iniciativas de gestão por processos da reitoria e do Campus objeto de estudo. Na forma de um estudo de caso, foi possível identificar, por meio de entrevista semiestruturada com os membros da CMPN, as motivações, expectativas, metodologia e os principais desafios enfrentados na implementação do mapeamento dos processos que até o final deste trabalho estava em andamento. Por meio da aplicação de um questionário com perguntas fechadas, foi possível avaliar que, na percepção de gestores de ensino, pesquisa e extensão, o mapeamento de processos impacta positivamente na qualidade do ensino. A gestão por processos é uma abordagem que pode gerar maior eficiência na organização, no entanto, percebe-se que as particularidades do setor público brasileiro criam barreiras para que as iniciativas da IPES atinjam os fatores críticos de sucesso encontrados na literatura, exigindo modelos próprios.
Palavras-chave: Gestão de Processos, Mapeamento de Processos, Qualidade do Ensino, Instituição Pública de Ensino Superior.

RESUMEN
Esta investigación analiza el mapeo de procesos desarrollado por la Comisión de Mapeo de Procesos Empresariales (CMPN) en un Campus del Instituto Federal de Educación, Ciencia y Tecnología, Institución Pública de Educación Superior (IPES) brasileña. A partir de un análisis documental, se presentó el historial de iniciativas de gestión por procesos de la rectoría y del Campus objeto de estudio. En la forma de estudio de caso, fue posible identificar, a través de una entrevista semiestructurada con los integrantes de la CMPN, las motivaciones, expectativas, metodología y los principales desafíos enfrentados en la implementación del mapeo de los procesos que hasta el final de este trabajo se encontraba en curso. A través de la aplicación de un cuestionario con preguntas cerradas, fue posible evaluar que, en la percepción de los gestores de docencia, investigación y extensión, el mapeo de procesos tiene un impacto positivo en la calidad de la enseñanza. La gestión de procesos es un enfoque que puede generar mayor eficiencia en la organización, sin embargo, se percibe que las particularidades del sector público brasileño crean barreras para que las iniciativas del IPES alcancen los factores críticos de éxito encontrados en la literatura, requiriendo modelos propios.

Palabras clave: Gestión de Procesos, Mapeo de Procesos, Calidad Docente, Institución Pública de Educación Superior.

1 INTRODUCTION

The information age arises due to the great impact caused by technological development and information technology. Innovations in these areas have had consequences in society, modifying interactions, behaviors and the way of consumption.

This scenario of rapid changes and great uncertainties also hit organizations hard, which suddenly had to adapt to this new dynamic. With the valorization of information and knowledge, practices of the Industrial Age are being replaced by modern ones to adjust to the new reality aiming at greater efficiency and competitiveness. According to Drucker (2008, p. 102), "knowledge has become the main industry, the industry that provides the economy with the essential raw material and central source of production".

For Chiavenato (2014, p. 552), "the arrival of the Information Age brought a new context and an avalanche of problems to organizations. It caught most organizations..."
totally unprepared for the new reality." And he adds: "The solution? Resorting to extreme and rapid measures in the pursuit of survival. And excellence. Thus, fads began to emerge in the Administration."

In the search for solutions, several administrative approaches emerged, each with innovative proposals, proposing different methods for a more efficient management. These are emerging approaches that seek practical solutions that, unlike traditional ones, seek to quickly meet the needs of change such as benchmarking, organizational learning, empowerment, reengineering and process management.

Business Process Management (BPM) is a tool for workflow quality in organizations, a means of imprinting constant changes in their environments through a systematic approach.

According to Brocke and Rosemann (2013), business process management can continuously innovate and transform business and inter-organizational value chains in general, generating considerable improvements in both the performance and compatibility of a system. For Ellwanger and Pradella (2009), this moment is related to the search for sustainability and requires alignment between organizational objectives and market objectives.

The Business Process Management Common Book of Knowledge (BPM CBOK) is a Guide to Business Process Management that brings together the fundamental knowledge for professionals who work with Process Management. According to the CBOK manual (2013), process management breaks with the traditional view of performing operations according to functional structures, comprising instead the view of all the work performed to deliver the process product or service, regardless of which functional areas or locations are involved.

According to Laurindo and Rotondaro (2006), process management can be understood as an organizational development approach that typically aims to achieve qualitative improvements in process performance. In this way, Gonçalves (2000) adds that the customer is at the center of process organizations and the objective of these organizations is to offer more value to customers faster and at a lower cost.
The Public Administration is under constant pressure for the improvement and transparency of public services. With globalization, the growing demand for access, better services and the State's delay in responding, demonstrating the capacity to meet these demands, led to the emergence of solutions linked to the Liberal State model. The New Public Management (NGP) is a model of Public Administration focused on the efficiency, effectiveness and effectiveness of the State apparatus with a focus on results.

The New Public Management, or Managerial Revolution, deals with the adaptation in public administration of the management technologies used in private initiatives. In this new vision, the public servants of the State assume the role of service providers and citizens are now considered customers and users of public services. This management model "represents the fusion of management ideas from the public and private sectors" by using successful management patterns from the private sector, although applied to a typically public sector context (Ferlie et al., 1999).

According to Gulledge and Sommer (2002), the need for public organizations to adapt to new process improvement programs has been a constant in recent years. Process management, initially developed in the private sector, is also used in the public sector. In this sector, the relevance of business process management is perceived through the greater effectiveness and efficiency achieved from organizational restructuring, along with multifunctional processes.

In 2008, the Federal Network of Professional, Scientific and Technological Education was established through Law No. 11,892/2008, thus establishing the Federal Institutes of Education, Science and Technology. It is an autarchy with innovative characteristics, as they have a verticalized curriculum that offers, in addition to higher education courses, basic education, technical education and initial and continuing training.

Despite this singularity of verticalized offer, for legal purposes the Federal Institutes are considered Higher Education Institutions (HEIs), just like the Federal Universities, as stated in item 1 of article 2 of Law No. 11,892 (2008) "effect of the incidence of the provisions that govern the regulation, evaluation and supervision of higher education institutions and courses".
Since their creation, the Federal Institutes of Education, Science and Technology in Brazil (IFs) have had a rapid expansion until they are recognized as a Federal Public Institution of excellence in Teaching, Research and Extension in the field of Professional and Technological Education (EPT).

Rapid growth has its consequences, especially with regard to the consolidation of the structure and administrative activities. These limitations and the growth in the number of students, the number of employees and the turnover of occupants of management positions contribute to instability in the Institution's services.

The Institutional Development Plan (IDP) is the guiding document of the path to be followed by the Institution to fulfill its mission and achieve its objectives. As stated in Decree No. 5,773 of 2006, all HEIs must have their own Institutional Development Plan. According to Sant'ana et al (2017, p. 11):

> The IDP, prepared for a period of five years, is the document that identifies the HEI with regard to its work philosophy, the mission it proposes, the pedagogical guidelines that guide its actions, its organizational structure and the academic activities it develops and/or intends to develop.

In the PDI (2009 - 2013) of the Federal Institute studied in this work, it is possible to find the objective of "Standardizing and standardizing administrative and educational processes". The objective in question shows the Institution's predilection to seek to develop greater efficiency in the provision of services using concepts of Process Management, a process management approach that, when successfully implemented, provides advantages such as: better understanding of the organization's processes, cost reduction, agility in the execution of activities, synergy between people and sectors of the organization, among others.

In 2019 there was an initiative on the Campus, object of study of this work, when a Business Process Mapping Commission (CMPN) was constituted with the objective of identifying, standardizing, increasing publicity and improving the way procedures are carried out.
2 RESEARCH OBJECTIVES AND OBJECT OF STUDY

The general objective of the investigation is to analyze how the identification, analysis, mapping, implementation and monitoring of process mapping is being developed in a Campus of the Federal Institute of Education, Science and Technology, in Brazil, and the impact of process mapping on the quality of teaching. With the derived objectives it is intended to identify, through a historical retrospective, if there were institutional initiatives, and at the level of the Campus, for the implementation of Process Management; Point out the main aspects of the implementation of the process mapping that is being developed on the Campus; To assess the perception of teaching, research and extension managers of the impact of process mapping on the quality of teaching on the Campus and, considering the analysis of the results obtained in the investigation, to propose a strategy for improving processes on the Campus.

The object of study of the investigation takes place within the scope of the Federal Institute of Education, Science and Technology, in Brazil. The name of the Federal Institute, as well as of the Campus, for confidentiality reasons, is chosen to remain anonymous. In this way, all research participants were kept anonymous.

3 RELEVANCE OF THE STUDY

The need for public organizations to adapt to new process improvement programs has been a constant in recent years. Process management, initially developed in the private sector, is also used in the public sector. In this sector, the relevance of business process management is perceived through the greater effectiveness and efficiency achieved from organizational restructuring together with multifunctional processes (Gulledge & Sommer, 2002).

Although it is possible to find examples of public administration bodies that have implemented process management concepts, these become scarce when we look at Public Institutions of Higher Education (IPES) and even less when we talk about public institutions of Professional and Technological Education (EPT).
In 2005, the Ministry of Education (MEC), through its Secretariat of Professional and Technological Education (Setec/MEC), created the Expansion Plan of the Federal Network of Professional Education to expand the presence of these institutions throughout the national territory.

According to data from the Ministry of Education (2011), more than R$ 3.3 billion were invested between 2011 and 2014 in the expansion of professional education. Of the 208 new units planned for the period, all started operating, totaling 562 schools in activity. There are 38 Federal Institutes present in all Brazilian states, offering qualification courses, integrated high school, higher technology courses and licentiates.

This growth, however, was not accompanied by a plan to efficiently meet the new demand, leaving to the civil servants the challenge of serving a heterogeneous group of students, demanding from society for efficiency in the provision of services and quality in teaching to justify all the amount invested by the government.

The study is justified by presenting, in Process Management, a way to increase the efficiency of public service in a little-explored context that is EFA. The standardization and improvements in processes from the application of process analysis and mapping is a form of successful management for the development of the performance and results of organizations.

According to Biazzi (2007), in the specific case of Public Higher Education Institutions, the initiative to adopt a vision by processes, mapping them and improving them results in an enormous administrative benefit. The systemic view of this office in relation to the organization's processes allows for a more effective analysis, generating and coordinating suggestions for improvement that benefit a given process as a whole.

4 HYPOTHESIS BOARD

In this section, hypotheses elaborated based on the main problems identified in the literature review and the research objectives are presented. The hypotheses listed will be tested at the end of the work, that is, they will be confirmed or refuted based on the data collected.
H1. The different approaches to the implementation of a process management project on campus fail due to bureaucratic barriers.

H2. The growth of the current structure hinders the development of creativity and strategic thinking of its human resources for the sake of the quality of the institution.

H3. Process mapping has an impact mainly on the reduction of work overload, due to greater standardization of activities, optimization of processes and increase of service levels.

H4. The mapping of processes is felt at the level of greater agility, operational efficiency and service of the different stakeholders, freeing them for activities of educational value.

5 CHAPTER I - LITERATURE REVIEW

5.1 THE EVOLUTION OF PUBLIC ADMINISTRATION MODELS IN BRAZIL

According to Bresser-Pereira (1996), Brazil has undergone three public administration reforms. In 1936, the first so-called bureaucratic reform took place. The second, from 1967, was an experiment in decentralization and debureaucratization and, because it was reversed, is not always considered a reform. And the third reform, proposed by Fernando Henrique Cardoso in 1995, supported by managerial public administration, in response to the great crisis of the State of the 1980s and the globalization of the economy.

According to Barreto (2007, p. 23), most of the public administration reforms were mechanistic with a focus on the organizational structure and legal instruments for the creation of bodies, entities, plans, careers and routines if "it were not for the declared purpose of some changes, many of them would be nothing more than simple internal reorganizations of the State apparatus".

The bureaucratic reform is a milestone in public administration because it represents the implementation of bureaucratic public administration in Brazil.
Two aspects should be highlighted in the 1930 reform: first, because it is focused on the process, that is, on the way of doing things, the agent of this process was highlighted: the public servant. It was a reform with an emphasis on human resources policy. The Administrative Department of the Public Service – DASP – is the icon of this reform. The second aspect refers to the weight of the ingrained values of both the public administration itself (patrimonial values) and the government (populist practices) that have led to the talk of public administration reform that eliminates these values and practices (Barreto, 2007, p. 19).

Although the bureaucratic reform has been of great importance in the Brazilian public administration, transforming, in part, the administrative culture and aiming at greater efficiency, the bureaucratic dysfunctions – excessive control, attachment to paper, files and slowness in the decision-making processes and provision of services – caused initiatives to be taken to reduce the excess of bureaucracy, that is, made it more efficient until it culminated in the developmental reform of 1967.

The 1967 reform focused on the State, but made considerable changes in public administration, such as the system of entry into the public service and the redesign of the State's organizational structure based on autonomy and managerial optimization (Barreto, 2007, p. 22).

For Martins (1997) and Barreto (2007), an ambitious reform of state structures and bureaucratic procedures was carried out, such as the decentralization of the federal public administration and greater control of public spending and accountability, giving greater flexibility and autonomy to the public administration.

Unlike the 1967 reform, the National Program for Debureaucratization (1979) was the first proposal to reorient public administration towards the citizen. According to Beltrão (1984), the main formulator of the Program, it was necessary to re-establish in the consciousness of administrators the concept, sometimes forgotten, that public service means serving the public.

The Debureaucratization Program is innovative in trying to combat bureaucratic dysfunctions without focusing on the State, but on the citizen. It was not intended to improve the functioning of the administrative machinery, but to ensure respect for people's dignity and credibility and to protect them against bureaucratic oppression (Beltrão, 1984).
However, despite the success of these reforms seeking simplification, debureaucratization and citizen service, this success has certainly been undone over time, either by the force of entrenched practices, or by public administration agents and citizens (Barreto, 2007).

From 1990 to 2005 there was a trajectory of strategic construction of change in Brazilian public management, from processes to the management system, from total quality to excellence in management, qualitatively superior in relation to previous administrative reforms (Barreto, 2007).

From 1990 to 1995 the focus was on the quality of administration with awareness and training of civil servants and on the analysis and improvement of processes with the use of quality tools. In 1990 the Brazilian Quality and Productivity Program was created, so due to lack of support and indifference from the high public administration, it was not a program that succeeded and fell by the wayside.

From 1995 to 1998 was a period marked by the establishment of the Master Plan for the Reform of the State Apparatus (1995), which aimed to carry out the reform in three dimensions: institutional-legal, cultural and managerial.

However, despite innovating in the cultural and managerial dimensions, the Master Plan for the Reform of the State Apparatus became entangled in bureaucracy and legalism, failing to get rid of the formalist heritage that it aimed to change. Very affordable, however, due to the new values and managerial practices intended to be implemented, they do not happen through the legal route (constitutional amendments, decrees and ordinances), which is why they invested heavily in the legal dimension (Barreto, 2007).

In the context of management reform, total quality management has gained new life. Quality control in public administration gained legitimacy and became an official managerial strategy for the implementation of the reform. Thus, the Program for Quality and Participation in Public Administration (PBQP) was created, as the main instrument for the change from a bureaucratic culture to a managerial culture, responsible for promoting the revolution in the values established in the political-philosophical plan, necessary to establish a new model of State: participation, recognition of the potential of
the public servant and his importance in the productive process, equal opportunities and the option for citizenship; and is associated with educational processes that lead to a renewed vision of the world (Brasil, 1997).

The program's strategy for the period between 1995 and 1998 was modified. According to Lima (2013), the PBQP reoriented its way of acting, leaving the emphasis on techniques and tools and started to work objectively in the institutional dimension. The focus, which at first was on servers and processes, shifted to organizations and their management system. In 1999, the program was strongly impacted by the extinction of the Ministry of Federal Administration and State Reform and transferred to the Ministry of Planning, Budget and Management, being practically abandoned and with low adherence by public organizations.

In 2000 the name of the Program was changed to the Public Service Quality Program, thus pointing to a focus on a greater involvement of civil servants in the improvement of processes, improving the quality of public service and greater involvement of citizens in relation to public services are the great challenges in search of a more participatory public administration, transparent and results-oriented (Barreto, 2007).

However, despite the increase in memberships and representation in the states, the program has suffered from serious threats. For Lima (2013), the main threats were: ostensible rejection of self-assessment; rejection of the national dimension of the programme; and dismissal of motivated civil servants involved in the program and obstruction of the holding of annual ceremonies of the National Public Management Award.

Due to the change in the conditions of execution, the Program had to undergo a restructuring and, in 2005, this restructuring culminated in Decree No. 5,378, of February 2005, which instituted the National Program for Public Management and Debureaucratization – Gespública.

According to Barreto (2007), the technical and political changes proposed by Gespública lead to a public management model where administrative efficiency and
effectiveness are part of a chain whose final link is effectiveness translated into social gains.

Be focused on results and demands of society by moving away from the logic of a public service attached to the norms of bureaucracy, so that efficiency and effectiveness are evaluated by the capacity of public management to improve the quality of life of citizens;

Consequently, according to the Gespública Service Charter (2009), the actions of the Program are developed mainly in the space where the public organization relates directly to the citizen, either as a service provider or as an executor of the state's action, and are divided into three processes – Management Evaluation; Simplification of Processes and Service Management.

According to the Reference Document (2009, p. 10), Gespública is a public policy "formulated for management, which is based on a unique public management model that incorporates the social dimension, until then, restricted to the political dimension, to the technical dimension, proper to administration". The main premises are: excellent and public public management, focus on results and the demands of society with efficiency and effectiveness, and federative and republican character.

It is clear, then, the dialogue between Gespública and the managerial administration with the use of administrative instruments and techniques from the private sector adapted to the public sector, thus seeking greater efficiency and effectiveness in the services demanded by society.

According to Pereira (2006), managerial public administration, by combining orientation towards the citizen and obtaining results, must be modernized. To encourage the innovative and enterprising behavior of civil servants, management contracts would be the most efficient means to manage the State and the performance of managers.

In 2009, the Ministry of Planning, Budget and Management (MPOG) published the guidelines of the Model of Excellence in Public Management:

1. managerial excellence (leadership, strategies and plans, citizens, society, information and knowledge, people, processes and results);
2. applied management technologies (Citizen Services Charter, satisfaction surveys, process management guide, administrative simplification guide and the continuous management evaluation tool);

3. management practices that serve as a reference for modernization actions;

4. continuous initiatives to innovate the model, its communication with society and ensure its maintenance.

At the heart of Gespública is the objective of being guided by the demands of citizens and implementing management by results to achieve goals defined by public organizations.

Thus, a permanent process of improving the quality of the service provided to the citizen was initiated, because, by establishing and disseminating quality standards, the organizations were committed to the excellence of the service, making it increasingly accessible to the population.

The current scenario of organizations makes them seek more agility, efficiency and also a more responsive posture in the face of the contemporary, more complex, diversified and dynamic society. This moment is related to the search for sustainability, which requires alignment between organizational objectives and market objectives.

This situation highlights that change processes are inevitable for organizations that intend to continue existing. In view of this, several proposals for organizational change have emerged, from the adoption of management technologies to new management models, among which process management stands out (Pradella, 2009).

However, after more than 12 years of activity, Gespública was formally closed in 2017, with the publication of the decree establishing the National Committee for Debureaucratization.

To remedy the overlap of programs and monitor the various efforts to improve public management, the revocation occurred by Decree No. 9,094, of July 17, 2017, which provides for the simplification of the service provided to users of public services, ratifies the exemption from notarization and authentication of documents produced in the country and institutes the User Services Charter, aiming, among other guidelines, at
simplifying processes and procedures that serve users of public services, through the application of technological solutions (Brasil, 2017).

According to de Albuquerque and Santa Rita (2019, p. 129), "Decree No. 9,094/17 brought an advance to the provision of public services, not leaving aside the precepts of Gespública, but incorporating all the experience acquired to the simplification of processes to improve the quality of services, according to the precepts of process management".

5.2 PROCESSES

There are several interpretations of the concept of process that end up converging on the same vision. For Harrington (1993), a process is any activity that receives an input, adds value to it and generates an output for an internal or external customer.

Hammer and Champy (1994, p. 24) define the process as "a set of activities with one or more kinds of input that creates an output of value for the customer". We can identify that the process is characterized by an input of resources that go through a series of activities, adding value, resulting in the output of the delivery of a product or service to a customer.

Processes are not a new concept, they have always existed, although not with the same understanding as today. Adam Smith and, later, with the popularization with the Scientific Management of Frederick Taylor, factory and industrial work were decomposed into elementary tasks, seeking the specialization of workers in the execution of that task.

For two centuries businesses have been built around Adam Smith's discovery that industrial labor must be broken down into its simplest and most basic tasks, a technique that became known as the division of labor. The world, however, has undergone great transformations and the division of labor no longer supports the new reality of organizations. Hence the emergence of approaches with the idea of reunifying these tasks into processes focused on customer needs.
According to Pradella et al. (2009, p. 10), "the idea of process is not new, but the understanding that the business needs to serve customers, in order not to put the survival of the organization at risk" is new.

According to Hammer (1997), organizations that adopt a process focus do not create or invent their processes. They have always existed, however, in a fragmented state, without a name, without an owner and often without management, because the employees involved were not aware of the existence of the processes due to the fact that they were focused only on the activities and routine of the day to day.

According to Hammer and Champy (1994), companies should stop organizing their work around the division of labor and organize work around processes. According to Gonçalves (1990), the use of the concept of process occurs precisely in the search for companies to modernize themselves in the application in the office environment of the techniques for improving work that were developed for the industrial environment.

By adopting a process view in an organization, you emphasize the way work gets done. According to Davenport (1994, p. 6):

A process is a set of structured activities and measures designed to result in a specified product for a particular customer or market. It is a specific ordering of work activities in time and space, with a beginning, an end, and clearly identified inputs and outputs: a framework for action.

According to the CBOK BPM Guide (2013), a process is an aggregation of activities and behaviors performed by humans or machines to achieve one or more results. It is a defined list of activities or behaviors performed by people or machines and has one or more results that can end in the closure of the process or in a handoff to another process, with the purpose of achieving one or more goals.

In a more simplified definition, "process is any activity or set of activities that takes an input, adds value to it, and provides an output to a specific customer" (Gonçalves, 2000, p. 7). Processes use the organization's resources to deliver objective results to its customers (Harrington, 1991).

For Harrington (1993), a process is any activity that receives an input, adds value to it and generates an output for an internal or external customer. We can then visualize
organizations as a set of processes where numerous activities are carried out, in different departments (functional areas) by different people, each one seeking a certain goal and achieving different results.

Figure 1 shows the structure of a process that begins with the entry of resources, a set of interrelated activities and decisions (processes) that add value to resources and transform them into the product and/or service provided by the organization.

![Figure 1 - Structure of a process.](image.png)

A business process is a set of activities whose objective is to transform inputs (inputs), adding value through procedures, into goods or services (outputs) that will be delivered and must serve customers (Cruz, 2003).

The expression business process is the translation of the English term Business Process - BP, used to differentiate the procedures that produce goods and services from other types. A business process, then, is a job that delivers value to customers or supports/manages other processes. This work can be end-to-end, cross-functional, and even cross-organizational (BPM CBOK, 2013).

The first important feature of processes is interfunctionality. Although some processes are carried out entirely in one functional unit, most of the important business processes (especially business processes) cross the boundaries of functional areas.

For this reason, they are known as transversal, cross-organizational, cross-functional or interdepartmental processes. They are also known as horizontal processes since they develop orthogonally to the vertical structure typical of functionally structured organizations (Gonçalves, 2000).
According to the CBOK BPM Guide (2013, pp. 36–37), business processes can be divided into:

1. **Primary Process**

   Also known as business process. According to Cruz (2003), primary processes are those directly linked to the production of products or services that the organization aims to make available to its external customers.

   They are often referred to as essential or finalistic processes, as they represent the essential activities that an organization performs to fulfill its mission. These are processes that involve more than one department (cross-functional) and may even involve more than one organization (inter-organizational), always adding value directly to the customer (BPM CBOK, 2013).

2. **Support Process**

   Support processes, also called secondary processes (or organizational processes), are all those that provide support to the primary processes as well as to other support processes, providing the necessary support for them to exist (Cruz, 2003, p. 80).

   As described in the CBOK BPM Guide (2013), support processes exist primarily to provide primary processes, however, they can also provide support to other support processes (second-level, third-level, and successive support processes) and management processes. The crucial difference between the primary process and the support process is that the support processes deliver value to other processes while the primary ones deliver to the external customers.

   According to Gonçalves (2000, p. 56), "organizational processes generally produce results that are imperceptible to external customers, but they are essential for the effective management of the business".

3. **Management Processes**

   Gonçalves (2000) describes managerial processes as processes whose actions managers must perform to support primary processes. These actions such as measuring, monitoring, controlling activities and managing the present and future of the business, thus providing information that will guide decisions.
Management processes are of great importance as they ensure that a primary process, or supporting process, achieves its operational, financial, regulatory, and legal goals (BPM CBOK, 2013).

To understand Business Process Management, it is necessary to know how to distinguish terms such as process and activity, and between process flow (often cross-functional) and workflow (intra-functional). Thus, for a correct understanding of Process Management, the concept of terms commonly used in the literature is presented in Table 1.

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<th>Term</th>
<th>Concept</th>
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<td>Process</td>
<td>Set of activities carried out to achieve a certain goal.</td>
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<tr>
<td>Activities</td>
<td>Set of tasks required to deliver a specific, definable part of a product or service</td>
</tr>
<tr>
<td>Task</td>
<td>Decomposing activities into a set of steps or actions to accomplish work in a given scenario</td>
</tr>
<tr>
<td>Process Flow</td>
<td>Cross-functional set of activities.</td>
</tr>
<tr>
<td>Workflow</td>
<td>Set of intrafunctional activities.</td>
</tr>
</tbody>
</table>

Source. Own elaboration.

According to Gonçalves (2000), work processes tend to gain more relevance as organizations become increasingly intellectual, moving away from the factory floor model. In service companies, the processes necessarily become relevant, since the series of activities is not always visible, mainly by the customer. Such as Educational Institutions.

5.3 BPM METHODOLOGY

In order for business processes to be managed, there must be a continuous cycle to maintain their integrity and enable transformation. This includes a set of activities, such as modeling, analysis, design, performance measurement, and process transformation (BPM CBOK, 2013).

There are several methodologies with process lifecycles that describe the management approach in a continuous cycle. For Baldam et al. (2008), although there is a whole specialized literature that presents several models to guide the management of
business processes, none will correspond exactly to the reality of the company, since the model serves only for practical guidance, and it is up to the people who operate BPM to make all the difference in its application.

In this work we will follow the BPM methodology proposed in the CBOK BPM Guide (2013). In this methodology, the life cycle consists of the following phases: planning, analysis, design, implementation, monitoring and refinement. To describe and map these phases, Deming's PDCA (Plan, Do, Check and Act) cycle is used.

Oliveira (2012) explains that the BPM cycle was inspired by traditional management theories, especially Deming's well-known PDCA cycle adjusted to align the steps involved in a complete business process management project.

The BPM cycle proposed by Baldam (2009) will be described below, based on the model suggested by BPM CBOK. The cycle has the following phases: planning BPM, modeling and optimizing processes, deploying processes, and controlling and analyzing processes.

5.3.1 Plan BPM

The main purpose of this phase is to ensure the alignment of the business process context and process design with the organization's strategic objectives. BPM activities that will contribute to organizational goals will be defined.

Business process management (BPM) needs to be aligned with organizational strategy. Only this close alignment ensures that business process management is important and contributes fundamentally to long-term corporate priorities. Strategic alignment does not have to be carried out in the usual sense, where BPM strategy is based on corporate strategy. Successful process management can also shape corporate strategy and make process performance improvement an opportunity to create competitive differentiation (Brocke & Rosemann, 2013).

In this phase, the selection of critical processes, prioritization of activities, team building and control of selected activities will be carried out. According to Baldam (2009), this phase is composed of the following activities:
1. Understand the external and internal environment and organizational strategy;
2. Establish strategy, objectives and approach to promote change;
3. Understand, select and prioritize BPM tools and improvement techniques;
4. Define action plans for implementation;
5. Select and prioritize processes;
6. Identify the main weaknesses of the processes in use in the organization;
7. Define the key processes for the organization's strategy;
8. Estimate costs and deadlines for the execution of process modeling projects;
9. Generate the guidelines and specification for the modeling work;
10. Define the work teams for the specific processes;
11. Plan and control the activities necessary for the implementation of process projects in the organization.

It can be seen that, at this stage, the focus is to ensure that all activities inherent to process management are in tune with the organizational strategy, that is, to adjust how process management will be implemented in the specific context in which it is situated.

5.3.2 Model and Optimize Processes

One of the key steps of Business Process Management is process modeling. Process Modeling deals with the identification, mapping, analysis, and redesign of processes. The goal of process modeling can be defined as: better understanding of the functioning of an organization; use and explain the knowledge gained and experience for future uses (lessons learned); optimize the flow of information; optimize the flow of information; restructure the organization (functional, behavioral, structural, among others), controlling and coordinating it (Limberger et al., 2010).

For Pradella et al. (2006, p. 17), the objective of process modeling is to create a representation of the process that describes it accurately and sufficiently for its development.

According to Pradella et al. (2006), the importance of modeling is due to its function of recording, standardization and historical documentation of the organization,
due to the fact that learning is built on the basis of past knowledge and experiences. The use of a standard allows different companies and professionals to share knowledge and understanding about how common process rules work. Organizational improvement and control aid in decision-making, thus supporting management.

The standardization and sharing of knowledge avoids, for example, the organization being "hostage" to a person who has all the knowledge for the operation of certain operations and who, for various reasons, may leave the job. In order to carry out process modeling, it is necessary to follow a methodology and the use of administrative tools.

In this phase, the following is carried out:

1. Modelagem AS-IS e TO-BE; II. Análise de processos; III. Simulação; IV. Melhoria de processos.

AS-IS and TO-BE modeling are two distinct moments, although they are related. In the first moment, the processes will be identified, since the processes are not always visible and known. At this point, process mapping is usually carried out.

According to Villela (2000, p. 65), "process mapping begins with the objectives of the process, and the next step is the decomposition of the objective into activities and tasks". Process maps provide an understanding of the main components of the process, which can vary from a higher to a lower degree of detail according to the needs of the organization. This understanding of the process in its current state refers to AS-IS modeling.

AS-IS modeling is the moment where the set of activities that make up the processes will be identified. Once a new process has been established, or an existing process has been updated, an understanding of its current state (AS-IS) and its alignment with business objectives must be created. Provide an understanding of the process activities and the results of these activities and processes in relation to their ability to meet the intended goals, as well as analyze the bottlenecks that interfere with the performance of the process (Villela, 2000).

This moment of understanding the activities of the process, its results in relation to the intended goals and the bottlenecks that interfere with performance is the analysis
of the process, it is the moment where a whole common understanding of how the work is done is created. This step is carried out through various techniques, including modeling, interviews, simulations, among others.

Process analysis is the basis for process design, which is a way of representing, through the use of certain techniques, the transformations applied in the process to meet goals and operationalize organizational strategies. Process design is a way of understanding and communicating the change in a business process.

According to BPM CBOK (2013), process design is the formal definition of objectives and deliverables, and the organization of the activities and rules necessary to produce a desired result. When more detailed, it includes the planning of activities, the identification and association of skills, equipment and support needed to carry out the activities.

Another important aspect of this moment is that, based on the understanding of the process in its current state, it will be analyzed, designed and, subsequently, improved to an improved version of the TO-BE. The relationship is that, in the simple act of executing the AS-IS process, the opportunity to think about the future process is created.

However, process analysis becomes essential as it shows whether the business is satisfactorily achieving its objectives from the understanding of how work is being done in the organization. This understanding eventually becomes a way to measure the effectiveness and efficiency of the process.

Simulation, on the other hand, is mainly used to contribute to the understanding of complex systems. According to Ball (1996, p. 367), "in an organization, processes are subject to great variability, dependence, and complexity, making it difficult to predict their performance. In this way, the construction of a model helps to predict their behavior in different situations over time." Thus, a simulation, according to Banks et al. (2005), is the imitation of an operation of a real process or systems.

The activities of this phase are involved in the evidence of generating information about the current process (AS-IS) and/or proposal for future process (TO-BE). The main activities of this phase are:
1. **Model the processes in the current situation:**

   Compreender os processos atuais; II. Documentar os processos; III. Definir e priorizar soluções para os problemas atuais; IV. Modelar os processos na situação futura.

2. **Methodology to optimize process:**

   2.1 Do simulations, innovations and redesigns;
   2.2 Define changes in new processes; Generate specifications for deployment, execution and control; IV. Feed back into BPM planning.

5.3.3 **Deploy Processes**

   According to Baldam (2009), the activities that will support the implementation and execution of the processes are:

   1. Coordinate the testing and/or pilot of the solution; II. Execute technology transfer plan (when necessary); III. Training; IV. Assisted production; V. Make short-term changes or adjustments; VI. Establish criteria for providing data for process control and analysis.

5.3.4 **Control and Analyze Processes**

   According to Baldam (2009), the following recommended activities require resources and methods of choice by the organization to generate information and feed optimization and planning activities:

   1. Record the performance of processes over time; II. Perform benchmarking with internal and external references; III. Conduct audits of the process in use; IV. Provide feedback data from Process Planning, Modeling, and Improvement.
5.4 PROCESS MANAGEMENT VS. PROCESS MANAGEMENT PROCESS MANAGEMENT

In this work, the distinction between Process Management and Process Management will be important, since the studied Commission works to implement concepts of Business Process Management without, however, restructuring the departments, that is, it has no plans to transform the functional departmentalization to the end-to-end model characteristic of process management (Jesus & Macieira, 2014).

Process management and process management are similar terms, but they have a big difference in practice. Process management aims to restructure the organization of the functional model for an integration of all process-based areas, thus presuming a new management model. Process management, on the other hand, is based on identifying, mapping, and redesigning processes without, however, getting rid of functional departments.

Although both models seek to satisfy the customer's needs through process improvements, Jesus and Macieira (2014) explain that while process management will define efforts throughout a given process, process management has a basic characteristic, in addition to an organizational change, a way of thinking and acting in organizational processes. however, it foresees greater maturity for implementation.

Process management requires greater maturity because it involves the entire organization and, according to De Sordi (2008), changing the entire structure of the organization, disregarding hierarchies and the organizational chart. In process management, on the other hand, it is simpler because it does not involve major changes in structures, only in the way tasks are performed.

According to BPM CBOK (2013), the cycle can be applied to end-to-end business processes where the creation of value for the customer is recognized by the optimized interaction of multiple functional areas. It can also be applied separately to business processes in a given functional area, for example, from specific process improvement initiatives. This is what happens in process management and does not require a high degree of maturity from the organization in this managerial approach.
Thus, Baldam et al. (2014) explain that process management treats processes in isolation, while process management treats them according to a strategic vision that manages the company as a whole.

In this study we will adopt the terminology process management, because in the educational institution object of our study, typical activities of this management model will be developed with a focus on the execution of activities of each functional area without, however, changing the structure of the organization.

5.5 PROCESS MAPPING

Although modeling is commonly referred to in the literature as mapping, it is important to show that there is a distinction between the terms. As we saw in the topic of BPM Methodology, process mapping represents one of the 4 phases of process modeling. An organization is made up of people who perform tasks and who organize themselves into departments. Process mapping allows "the institution to analyze workflows from the most comprehensive processes to the least comprehensive," a top-down view of the process flow, which makes it easier to identify "the macro processes, sub-processes, and activities involved in the entire flow" (de Paula & Valls, 2014, p. 141).

According to the ideas of Alvarenga Netto (2004), the most important element for Process Management is its mapping, as it facilitates determining where and how to improve it, as well as eliminating activities that do not add value, as well as reducing the complexity of processes. It allows you to get a broad view of the organization.

The mapping also helps the institution to clearly distinguish the strengths from the weaknesses (which need to be improved, such as: complexity in the operation, reduce costs, bottlenecks, integration failures, redundant activities, low value-added tasks, rework, excess documentation and trials), in addition to being an excellent way to improve the understanding of the processes and increase the performance of the business.

According to de Melo (2008), the choice of mapping as an improvement tool is based on its concepts and techniques that, when used correctly, allow documenting all the
elements that make up a process and correcting any of these elements that are having problems, being a tool that helps in the detection of non-value-adding activities.

One of the most common techniques is process mapping in the form of a flowchart, which graphically describes an existing process or a proposed new process, identifying each event in the sequence of activities through symbols, lines, and words (Harrington, 1996).

Although processes exist in every organization, they are not always known or visible. In this way, the technique of mapping the processes is about identifying the entire set of activities that make up the processes. By mapping the processes of a department, for example, the main processes (those that add more value to the customer) and the activities that compose them will be identified. It is a management tool that consists of building a model that demonstrates the relationships between the activities, people, data, and objects involved in the production of a given good or service. Therefore, it allows us to know how operations, business and activities are carried out in the organization.

This distinction between the terms was necessary so that we could, in addition to avoiding misunderstandings, relate it to the work of the CMPN studied in this research. CMPN proposes to implement a Process Management (and not Process Management) in a Campus of the Federal Institute. This means that the objective of the Commission is not to restructure the Campus, giving up the functional structure for a process-based one, but the application of process management concepts while maintaining the functional structure. In the first moment, as will be explained later in this work, the focus is on implementing what corresponds to the Process Modeling phase (phase I) in the BPM methodology.

5.6 PROCESS MATURITY

Although there is a consensus on the importance of processes and the benefits that the organization would gain by successfully implementing process management, many initiatives wear out over time because they do not present the expected results that justify all the investment made.
According to Siqueira (2005), many failures result from confusing and unrealistic objectives or from the choice of techniques that are incompatible with the organization's stage of managerial maturity. Despite the varied offers of approaches, the results do not always correspond to the promises and expectations.

Maturity is the extent to which the process is explicitly defined, managed, measured, controlled, and effective. While mature organizations do things systematically and achieve their goals consistently, immature organizations, on the other hand, have unpredictable and inconsistent results, and when they do achieve their results, it is thanks to the heroic efforts of individuals using approaches that they create more or less spontaneously (Siqueira, 2005).

Although little explored, process maturity models are used to assess and define the maturity of the process based on certain criteria and, from there, define actions aimed at higher levels of maturity.

The process office of the Federal Institute of Sergipe (IFS) (2018) in its Process Management Manual explains that assessing and understanding the maturity in processes in the organization will help in defining the levels of analysis in preparation for a broad transformation of processes. As the organization moves to higher levels of process maturity, the BPM approach will drive strategic or expanded use of technologies.

According to Siqueira (2005), the process maturity model provides a disciplined approach to identifying critical processes and defining improvement actions aligned with the strategic objectives of the business and consistent with the maturity stage of its processes.

There are several process maturity models, usually they have a scale ranging from level 1 to 5, with 1 being the lowest maturity level and 5 being the highest maturity level.

According to Araújo and Rodrigues (2011), among specialists and researchers in the area, there is no unanimity in the selection of a specific model for assessing maturity. For these authors, the choice is based on the instrument that allows an understanding of the reality studied.

Based on the CBOK, IFS (2018) developed a process maturity model, represented in Figure 2, with 5 maturity levels. Level 1 represents the initial maturity level, where the
environment is disorganized and processes are uncoordinated. As the organization acquires maturity, it goes through the known, standardized and managed levels, levels 2, 3 and 4 respectively, until it reaches level 5 (optimized) when it can enjoy all the benefits of high maturity in process management.

Figure 2 - Process Maturity Model

![Process Maturity Model](image)

Source: Authors

Instituto Federal de Sergipe (2018, pp. 18-20), describes the 5 levels of maturity and lists the most common characteristics at each level:

1. **Initial Level** – At this level, the organization is incipient in process management, showing itself to be completely unstructured and with uncoordinated processes. The main institutional challenges at this level are:
   I. Punctual problem solving; II. Work based on individual efforts and not an integrated routine; III. Disorganized and unconsolidated use of methodologies, techniques and tools; IV. Poorly organized or limitedly used BPM initiatives; V. Low engagement of professionals; VI. Employees mostly focused on mitigating damage and operational failures.

2. **Known Level** – Processes are improved by making investments in capabilities that support process planning and definition and detailed process design, creation and implementation. At this time, indoor drives use similar strategies to troubleshoot everyday problems. However, they lack a structure for communication and dissemination of work standards, with responsibility being handled individually. It is also possible to notice:
   I. Increased awareness and understanding of what the work process is, how it relates to value delivery, and how it connects to operational-level procedures; II. Investment in the development of standardized and repeatable work processes, as well as support in methods and tools for improving management; III. Progression
from rudimentary drawing in two dimensions to the use of more sophisticated modeling tools; IV. Emergence of roles in processes, such as process owner, process modeler, and process specialists; V. Reduction of redundancy of initiatives.

3. **Standardized Level** – At this point, the internal routines are already standardized and documented. In addition, training has already been carried out, making its application easier and simplifying activities. However, it is possible that there is not yet a great concern to increase the level of quality of the procedures. At this stage it is common to:

I. Increased awareness and understanding of what process performance management is and why it is important; II. Investment in tools and techniques to set efficiency and effectiveness targets for end-to-end work processes and the organizational commitment to measure them regularly; III. Development of formal structures and methods to facilitate cross-functional collaboration and communication.

4. **Managed Level** – Automation is already part of the routine. Management support tools are used to improve work processes. In addition, work standards are established at all levels.

According to BPM CBOK (2013), when, why, how and by whom of large portfolios of work processes cannot be done in fullness without a dedication to information, knowledge management and investment in automation.

At this level, it is already possible to define finalistic, support and managerial processes in the value chain, as well as the correlation of these processes to workflows and activities necessary for the delivery of a product or service. The interrelationship between processes and the relationship of processes with users and stakeholders is also clear, using performance indicators of processes and information systems.

Automation comprises *web services, web* applications, databases, networks, processing devices, and communication in sync to ensure immediate availability of data.
5. **Optimized Level** – In this last stage, the organization starts to enjoy all the benefits of a process management maturity model, playing a strategic role in the creation of routines and project planning, enabling the definition of policies. Here, working methods are established at all levels, as is the use of automation solutions. Process lifecycle management will be continuously optimized, reducing the number of operational failures and creating space for the adoption of new strategies, using a high level of institutional synergy.

Organizations that practice proactive work process management can control change at various levels of the organization instead of becoming victims of change. A high-performance routine becomes visible, as a systematic of structural procedures is implemented to provide support to the phases of the continuous improvement cycle in process management.

5.7 PROCESS MANAGEMENT IN PUBLIC HIGHER EDUCATION INSTITUTIONS (IPES)

In Brazil, there was a strong incentive for the adoption of Process Management in public administration, especially during the National Program for Public Management and Debureaucratization (Gespública) and the Federal Government Quality Program, when a Guide for the Management of Government Processes (2011, p. 5) was even launched, to assist in its implementation after "finding that the various initiatives conducted in the Government related to the management of business processes lack integration, hindering or making it impossible to share results along the lines of intra- and inter-institution value chains."

However, as Biazzi (2007) points out, despite the administrative reforms faced by Brazil, its organizational structure still presents highly bureaucratized characteristics, departmentalization in the way work is organized, and a strong resistance to change.

The management reform made Brazilian public institutions seek to "adopt the new management models applied in private companies in order to improve the quality of their services" (Cunha, 2012, p. 7). In this context, for Vaz (2008, p. 3), process management
appears as an "excellent instrument to reverse the trend towards the constitution of self-centered bureaucracies in the public sector". However, Motta (2013) points out that typical characteristics of the public sector such as: the existence of rigid hierarchies; Political and cultural changes are factors that hinder the application of models adopted by the private sector and are the main barriers encountered for effective change.

According to Biazzi (2007), the organizational structure presented by Brazilian public institutions effectively contributes to the functional vision, bureaucracy, aversion to formalized controls and centralizing behavior. Usually, the model used is functional, which, according to Paim et al. (2009, p. 125), presents "characteristics of silos, with low coordination capacity and, mainly, with unknown processes".

Among the Brazilian public institutions are the Public Institutions of Higher Education (IPES), whose constitutional principles are the inseparability of teaching, research and extension and the fulfillment of the needs of society (Fernandes, 2009). Among the IPES, the Federal Institutes of Education, Science and Technology (IFs) stand out, which, under the terms of Law 11.892 (2008), are equivalent to universities with regard to the regulation, evaluation and supervision of higher education institutions and courses.

As a generator of knowledge and know-how, Brazilian higher education institutions, in particular universities, have faced constant management challenges and the search for more efficient and effective ways of acting caused by changes in the environment. Among the drivers of change are aspects related to educational policy, the demands of the productive sector, fluctuations in the demand for courses, and the renewed needs and expectations of students (Pascucci & Mangolin, 2012).

Managing a public educational institution is not reduced to the application of a few methods and techniques, often imported from companies that have nothing to do with educational objectives. If to administer is to rationally use resources for the achievement of certain ends, to manage the school requires the permanent impregnation of its pedagogical purposes in the way to achieve them (Paro, 2000).

There is much discussion about the quality of education offered in schools, especially public schools, and their ability to meet the demands demanded by society.
This pressure led schools to adopt models of business administration and management that disregarded the specific cultural dimensions of the school environment (Torres & Palhares, 2009).

Initiatives aimed at changing the management model must consider the particularities of management in this type of institution where it is necessary to harmonize the interests of the various groups existing in the school environment (students, teachers, administrative staff, those responsible for students, the community, government officials). According to Biegelmeier et al. (2015), human potential is the differential for any organization and maintaining the satisfaction of those involved in the educational process increases the commitment to organizational objectives.

These institutions have been facing a challenging reality, being the target of reflections such as: equity of access to higher education; the institutional evaluation process; quality with a focus on university management; commitment to teaching, research and extension; vocational training and university autonomy. Therefore, the search for excellence is one of the paths of transformation of IPES in the improvement of academic and administrative processes (de Carvalho & Sousa, 2015).

According to Pessoa (2000), IPES have a systemic approach, as they are a set of processes fed by inputs (information, knowledge, resources) resulting in outputs (scientific production, professional training) in a constant feedback loop, influenced by the external environment.

According to Vieira and Vieira (2004), Brazilian federal universities excel in extremely bureaucratic organizational structures both in the administrative and academic fields, making the three dimensions of university academic activity – teaching, research and extension – hostage to bureaucracy, submitted to often unnecessary norms and dependencies produced by pyramidal support structures.

In the case of Federal Institutes, according to Fernandes (2009), the need for a new management paradigm is notorious, considering their organizational structure and breadth of education levels, in addition to the articulation of teaching with research and extension. In addition, in this context, it is necessary to manage your processes in a way that adds value to the student, being your customer.
In practice, the proposal of the Federal Institutes comprises a structuring of an organization composed of several organizations, a situation typical of large institutions, which are supported by hybrid structures, and it is therefore unfeasible, in their management, to apply a single type organizationally. In this reality of systemic focus, the Federal Institute becomes a set of Units with interdependent management between the campuses and the rectory, integrated by strategic institutional principles, including a single political-pedagogical project, with a focus on social justice and equity (Fernandes, 2009).

IPES are going through a period that requires changes capable of making them more agile and flexible in order to fulfill their social function efficiently. There needs to be a proper relationship between society and higher education institutions, where the organization is flexible enough for it to adapt to changes and adjust to social needs.

According to Pessoa (2000), it is necessary that they be adjusted to the new forms of management and administrative practices, which meet the need for information and knowledge created by political, economic, social and technological transformations. Adopting the current paradigm of public administration focused on results, the management of processes oriented to the achievement of results configures the organization's commitment to quality, since after establishing the desired results, the institution develops and applies tools that aim to achieve these ends.

In this way, the processes represent an instrument that allows the approximation of the strategic guidelines of those who perform the work in public institutions, allowing the achievement of objectives (Gespública, 2011). We can then state that the success of process management is conditioned by how it is related to the organization's objectives. The institution's processes must be continuously reviewed so that the focus is not lost on the result.

According to Fiel Filho (2010), because these are organizations that work with few resources and many social demands, greater management capacity is required. Thus, it is necessary to manage processes, so that they can generate products/services that meet the expectations and needs of citizens.
Although Process Management in public administration is not new, we have few reports in public educational institutions and even less in a public institution of professional and technological education such as IFES.

The focus of this research is to monitor the work of a Process Mapping Commission on the Campus of a Federal Institute and to measure the perception of teaching and research and extension managers on the impact of process mapping on the quality of teaching on Campus.

5.8 QUALITY OF EDUCATION IN PUBLIC SCHOOLS

It is complex to talk about the quality of education in Brazil. The word quality is polysemic, has several meanings and can be analyzed from different angles. The concept can vary to the extent that it is influenced by different values and interests of the actors involved in education, which are often divergent and contradictory.

It is possible to conclude that, during the last decades, the quality of education has fluctuated in the midst of multiple influences. The plans incorporated, to a greater or lesser extent, the economic substratum that sustained the different national development projects. Quality, in turn, has been legitimized by the restricted horizon of competitiveness, the measure of which is the good placement in the ranking of external evaluations (Fonseca, 2009).

For this reason, even among specialists, it is difficult to arrive at a notion of what quality of teaching is. The concept of quality of education was incorporated into Brazilian legislation from the Federal Constitution of 1988, however, it was not incorporated in a precise way, detailing what it would consist of or what elements would make up the quality standard of Brazilian education (Oliveira, 1995, 1999).

From a historical point of view, in Brazilian education, three distinct meanings of quality have been constructed and circulated symbolically and concretely in society: the first, conditioned by the limited supply of schooling opportunities; a second, related to the idea of flow, defined as the number of students who progress or not in a given
education system; and, finally, the idea of quality associated with the measurement of performance through large-scale tests (Oliveira & Araújo, 2005, p. 8).

The first indicator was conditioned by limited supply. This means that the first notion of quality with which Brazilian society learned to live was that of the school, whose access was insufficient to serve everyone, since education was organized to meet the interests and expectations of a privileged minority (Beisiegel, 1986).

If the first indicator of quality incorporated into the Brazilian school culture was conditioned by the limited supply, one of its main effects was the policy of expanding the supply by expanding the school network. On the other hand, the expansion of the population's schooling opportunities generated obstacles related to the continuation of the studies of these new users of the public school, since they did not have the same cultural experiences as the groups that had access to the school previously, and the school was not restructured to receive this new population. In this way, the obstacles to the democratization of education were transferred from access to successful permanence within the school system (Oliveira & Araújo, 2005, p. 9).

At the end of the 1970s, a second quality indicator was incorporated into the educational debate in Brazil. From the comparison between the entry and exit of students from the education system, the quality of the school was measured. If the output was too small in relation to the input, the school or the entire system would be of poor quality. Based on this difficulty, Brazilian education has been incorporating a third quality indicator indicated by the cognitive capacity of students, measured through large-scale standardized tests (Oliveira & Araújo, 2005).

Although CF 88 and LDB have not established a concise model to be followed for teaching quality, a set of categories of analysis were defined that involves, in addition to cognitive performance, the meaning of school practices and the values adopted and conveyed in a public school and should be present in its Pedagogical Political Project – PPP.

In Brazil, the Political Pedagogical Project (also called Pedagogical Project or Pedagogical Proposal) was born after the Constitution of 1988, to give autonomy to
schools in the elaboration of their own identity. It is governed by articles 12, 13 and 14 of the Law of Guidelines and Bases – LDB No. 9,394/96.

For Libâneo (2005, p. 345), "the project is a document that proposes a political and pedagogical direction for school work, formulates goals, foresees actions, institutes procedures and instruments of action".

Therefore, the concept of quality in IPES should be based on values aimed at citizenship education based on the guidelines established in its pedagogical project. A pedagogical project of a public school should not, for example, have as a quality parameter the number of approvals of its students in the entrance exams because it contradicts such values.

It is easy to assume that, in a pedagogical project guided by this end, the extensive contents of the entrance exam, the best techniques for the student to do well in the exam, are emphasized. It is also not difficult to imagine that a certain number of students subjected to teaching for this purpose, presenting greater learning difficulties or not having an ideal time to study, would risk being considered disposable, or being marginalized, until they achieve the goal desired by the school.

It is imperative, therefore, not to dissociate the issue of "quality of teaching" from the purposes of a public education, whose practices must be consistent with the values that animate them (Silva, 2009).

The adoption of objectives that observe democratic values, aimed at the formation of citizens and the circumstances in which they should be taught, seems essential. If, in the work that the public school must perform, particular values have been imposed, such as those of a privileged economic class or of any political-partisan group, the school may lose the characteristic that distinguishes it from other schools, being precisely its public character (Silva, 2008).

By assuming the ideal of training for citizenship, emphatically endorsed by the current LDB as a legitimate principle from which the quality parameter expected of a public school can be established, the discussion about what role it would play in society is advanced. This is because the idea of a quality standard easily succumbs to the temptation to disregard social differences and inequalities faced by public education systems or the assumption that schools
should have the same pedagogical organization or the same type of management (Silva, 2012, p.23).

5.9 THE EVALUATION OF THE FEDERAL INSTITUTES OF EDUCATION, SCIENCE AND TECHNOLOGY

According to item VI of Article 15 of Decree No. 9,235/2017, the institutions of the Federal Network "are equivalent to federal universities for the purpose of regulation, supervision and evaluation". It also defines universities as parameters of academic, administrative and organizational organization to be followed by other Higher Education Institutions.

The Federal Institutes of Education, Science and Technology have innovative characteristics, distinguishing them from federal universities, as they have a curricular verticalization of education that stems from the specificities of their institutional identity. Thus, in addition to offering higher education courses, federal institutes offer basic education, technical education, and initial and continuing education.

According to Pacheco (2011), verticalization goes beyond the simultaneous offer of courses at different levels by allowing a constructive dialogue between trainings, giving the curriculum of the Institutes specific organizational and dialogical characteristics, so that teachers have freedom to develop their teaching activities.

This complexity creates the need to differentiate itself from universities, as these specificities produce its unique identity. However, as we can see in the Decree cited above, the provision of basic education does not guarantee such differentiation, due to the fact that they have the prerogative to, like the university, offer undergraduate and graduate courses. FIs are evaluated in the same way as universities, and there are currently no instruments in the evaluation that meet their specificities, the same ones that give them this unique identity.

Currently, the National System of Evaluation of Higher Education (SINAES) is the policy that evaluates and regulates institutions that offer higher education. Created by Law No. 10,861 of April 14, 2004, SINAES comprises the evaluation of institutions, courses and student performance.
According to a guiding document prepared by the National Institute of Educational Studies and Research Anísio Teixeira (INEP) to support the on-site evaluation committees, the evaluation aims to foster the qualification of the offer of higher education in the country and ensure that institutions contribute to the advancement of art, science and justice, thus promoting the improvement of the quality of life and the integral formation of citizens. Whatever the nature of the HEI, it must be understood as a signatory to a public commitment to the quality of education (Brasil. Inep, vol.5, 2015, p. 30).

To achieve these objectives, three articulated evaluations constitute Sinaes: Institutional Evaluation, Evaluation of Undergraduate Courses and National Exam for the Evaluation of Student Performance (Enade, 2015).

The institutional evaluation is developed internally (self-evaluation) and externally from committees that use, among other documents, the self-evaluation report. In this way, internal and external evaluation is complementary.

In the evaluation of the course, the teaching offered is evaluated by assessing the following dimensions: didactic-pedagogical organization, faculty and physical facilities. Enade is applied every three years, initiating the Sinaes evaluation cycle. Enade aims to assess the performance and learning of undergraduate students in relation to the syllabus, their skills and competencies (Brasil. Inep, vol.5, 2015, p. 30). Thus, providing an adjustment to the demands arising from the evolution of knowledge and its competences to understand themes outside the specific scope of its profession, linked to the Brazilian and world realities and to other areas of knowledge (Brasil. Law No. 40,861, 2004, art. 5, § 1).

Enade (2015) includes several instruments: Enade test, student questionnaire, perception questionnaire about the test, course coordinator questionnaire. These generate subsidies that can be used by professors, managers and the entire academic community to promote actions to improve the quality of undergraduate courses. These should be classified by administrative category, academic organization, municipality, state, and region.
There are also 3 other complementary instruments: the Indicator of Difference between Observed and Expected Performance (IDD), the General Course Index (IGC) and the Preliminary Course Concept (CPC).

According to a technical note from Inep, the IDD is a quality indicator that measures the value added by the undergraduate course to the development of graduating students, considering their performance in the National Student Performance Exam (Enade) and their development characteristics when entering the undergraduate course evaluated (Technical Note No. 8, 2022, p. 1).

On its website, the Ministry of Education explains the IGC as an instrument built on the basis of a weighted average of the grades of the undergraduate and graduate courses of each institution. Thus, it synthesizes in a single indicator the quality of all undergraduate, master's and doctoral courses at the same educational institution.

Finally, the CPC evaluates the course, on a scale of 1 to 5. For the calculation, the following are considered: Enade Concept (students' performance in the Enade test); IDD; faculty (information from the Higher Census on the percentage of masters, doctors, and work regime) and students' perception of their training process (information from the Enade Student Questionnaire).

Sinaes evaluates all aspects that revolve around these axes: teaching, research, extension, social responsibility, student performance, physical facilities; Didactic-pedagogical resources, the management of the institution, the teaching staff and several other aspects.

5.10 MANAGEMENT AND QUALITY OF TEACHING IN PUBLIC HIGHER EDUCATION INSTITUTIONS (IPES)

The constitutional principles of the IPES are the inseparability of teaching, research and extension and the fulfillment of the needs of society. The challenging reality of these institutions places them as the target of reflections such as equity of access to higher education, the institutional evaluation process, quality focusing on university management, commitment to teaching, research and extension, professional training and
university autonomy. Therefore, the search for excellence is one of the paths of transformation of IPES in the improvement of academic and administrative processes (de Carvalho & Sousa, 2017).

By analyzing the guidelines, goals and strategies of the National Education Plan (PNE), as well as the aspects evaluated by Sinaes (National System for the Evaluation of Higher Education), it allows us to infer that the quality of teaching in IPES is measured by a set of factors that interfere in the performance of teachers and students with a view to improving quality and promoting equity and efficiency in teaching. The development of these factors involves professional training and updating of teachers' knowledge, workload consistent with the activities, enabling the permanence of students, among other aspects.

The more difficult or reduced the working conditions in a school unit, the more difficult it will be to improve its quality. Such conditions refer, first of all, to the necessary autonomy of the school units for the execution of their own project, based on some elements that proved to be indispensable, such as: power of choice of the teaching staff by the school institution; guarantee of a minimum of hours of collective work and with ample possibility of choosing specific forms of internal pedagogical organization (Silva, 2012, p. 20).

Management plays a fundamental role for the school institution, which is responsible for the organizational structuring and planning of the actions that will be carried out in the school. For Libâneo et al. (2012, p. 438), "management is, therefore, the activity through which means and procedures are mobilized to achieve the organization's objectives, involving, basically, the managerial and technical administrative aspects".

Thus, it is clear that the performance of the entire management is crucial for the development of the quality of teaching, which develops the planning based on the Institutional Pedagogical Project, with the main objective of promoting a constant improvement in the quality of teaching and training of students.

In this way, after mapping the processes of the departments of the Campus of the Federal Institution, object of study of this work, we will assess through a quantitative
questionnaire, the perception of the teaching managers and the managers of research and extension of the mapping of the processes in the quality of teaching.

6 CHAPTER II - METHODOLOGY

In this section, we intend to explain the decisions made for data collection throughout the research. For Gil (2010, p. 1), "research can be defined as the rational and systematic procedure whose objective is to provide answers to the problems that are proposed". Thus, it was sought, from the application of techniques and research method, that this investigation would lead to the achievement of the proposed objectives.

6.1 RESEARCH DESIGN

In this research, it was decided to carry out a case study, because it is a research on a current phenomenon, aiming to produce specific knowledge in this real context. For Yin (1984), a case study is an investigation of an empirical nature. It relies heavily on fieldwork or document analysis. It studies a given entity in its real context, taking full advantage of multiple sources of evidence such as interviews, observations, documents, and artifacts.

In this way, the case study is the ideal type of research to understand the object of study considering the context in which it is situated, as well as the personal perceptions related to specific situations, that is, the management of processes in a Brazilian public institution of professional, technical and technological education, thus involving all the complexity of the context.

Regarding the nature of the research, the qualitative-quantitative approach was chosen. The qualitative method in function of the objectives of the study was to describe and analyze the work of the Commission to implement the mapping of processes in a Campus of the Federal Institute (IF). According to Flick (2013), in general, the qualitative nature is the most appropriate for research whose objective is to offer a detailed description or evaluation of some continuing practices.
In addition, it is the method that values personal perceptions and descriptions, contextual situations in their interactions, thus responding more satisfactorily to the questions of the problem that the researcher proposes to investigate in the context where the phenomenon occurs. In this way, according to Minayo (2004), it will seek to answer particular questions at a level that cannot be quantified.

According to Bogdan and Biklen (1994), qualitative research in education has five fundamental characteristics, which we will have as a path. They are:

1. the direct source of the data is the natural environment and the investigator is the agent of data collection;
2. the data are descriptive;
3. the researcher is more interested in the process itself than in the results;
4. data analysis is done inductively;
5. Understanding the data, the meanings that participants attribute to their experiences, is of fundamental importance.

As for quantitative research, according to Falcão and Régnier (2000, p. 232), it states that "information that cannot be directly visualized from a mass of data may be so if such data undergoes some kind of transformation that allows observation from another point of view". They conclude by stating that "quantification encompasses a set of procedures, techniques and algorithms aimed at helping the researcher to extract from his data subsidies to answer the question(s) that he has established as the objective(s) of his work".

Thus, the choice to use qualitative and quantitative methods allowed us to enrich the research with information that would not be possible to obtain with one of the methods alone.

The data collection instruments were: bibliographic research, document analysis, semi-structured interviews and a questionnaire with closed Likert scale questions. The document analysis will be carried out to become aware and structure which initiatives have been carried out for the implementation of Process Management in this unit of the IF and, more specifically, in the Campus object of study. It will serve to analyze the rules,
statutes and other institutional documents such as the management report and notices to analyze the initiatives aimed at process management.

Documents are standardized artifacts, as they usually occur in particular formats: notes, case reports, drafts, death certificates, observations, diaries, statistics, annual reports, certificates, judgments, letters, or expert opinions (Wolff, 2004, p. 284).

For Quivy and Campenhoudt (2005), this method is suitable for objectives such as: Analysis of change in organizations or study of ideologies, value systems and culture in its broadest sense. In this way, the data collected in the documents textually are used in various types of analysis and, in particular, in the historical analysis itself and in the analysis of content. In addition, the methods of interview and observation are often accompanied by the analysis of documents related to the groups or phenomena studied.

The interviews were conducted with the members of the Process Mapping Commission, following the script elaborated, Appendix A, to identify the main aspects of the implementation of the process mapping, identify factors that contributed and hindered the formation of the Commission, in addition to other information from the experience of the interviewees that subsidized the research. According to Flick (2003), the purpose of the interview is to obtain the interviewees' individual views on a topic. Therefore, the questions should start a dialogue between the interviewer and the interviewee.

In an interview, open-ended questions are indicated to obtain information about the interviewee's experience, allowing him or her to speak freely about a certain subject. Focused questions, on the other hand, are to obtain information about a specific subject. Thus, the option for a semi-structured interview is aimed at making the interviewee touch on topics that he or she would not have mentioned spontaneously.

According to Quivy and Campenhoudt (2005), in the semi-directive or semi-directed (semi-structured) interview, the interviewer usually has his or her guiding questions with the purpose of receiving information from the interviewee. However, it will not necessarily follow the order of the questions, letting the interviewee speak openly in the words they wish and in the order that suits them.

Regarding the questionnaire, according to Flick (2013), it aims to receive comparable responses from all participants. Thus, according to Quivy and Campenhoudt
(2005), it is an appropriate method for the analysis of a social phenomenon that is believed to be able to better apprehend information related to individuals in the population in question, in addition to enabling correlation analysis.

The questionnaire was applied, via the Google Forms platform, with the team of teaching, research and extension managers, finalistic activities of the Federal Institutes of Education, Science and Technology, to verify their perception of the impact of the mapping of processes in their respective sectors on the quality of teaching on the Campus.

6.2 RESEARCH STEPS

The first stage consisted of bibliographic research to acquire a theoretical basis for the development of the research, as well as the elaboration of the interview script and the questionnaire.

In the second stage, a documental analysis of institutional documents of open access available on the institution's website and search engines was carried out.

In the third stage, interviews were conducted with the members of the Business Process Mapping Committee.

The fourth stage comprised the application of questionnaires to the teaching, research and extension managers of the Campus. The last stage consisted of the elaboration of a proposal for the improvement of teaching, research and extension processes, based on process maturity models and research results.

6.3 SAMPLE

The research was carried out with the participation of 6 members of the Commission in the first semester of 2022, comprising: 3 professors, 1 technical-administrative and 2 students. There were also 4 managers: 2 from the teaching area and 2 from research and extension. Thus totaling 8 public servants and 2 students.
6.4 DATA COLLECTION

The bibliographic research was carried out mainly in books, articles, scientific journals, dissertations and theses that addressed the following: process management, process management in the Brazilian public sector, process management in public institutions of higher education in Brazil, official publications, public education in Brazil, quality of teaching and evaluation of IPES.

In the document analysis, it was decided to use only documents of public access. As it is a federal agency, it is required to carry out transparent management and disclose on its website and facilitate access to documents, ensuring the development of social control of the public administration in compliance with the Access to Information Law 12.527/2011.

Rules, regulations, decrees, ordinances, public notices, the Institutional Development Plan (IDP) and, above all, management reports were consulted. The PDI is the document that subsidizes the development of institutional planning and is prepared for a period of 5 years. The Management Report is an annual accountability that public bodies are required to present under the terms of article 70 of the Federal Constitution (1988) and in accordance with the provisions of the Normative Instruction of the Federal Court of Accounts (TCU) No. 84/2020.

Broad priority was given to the Management Reports, since they provide annual information on the results obtained by the institution and its campuses, considering the objectives and goals planned, as well as the actions planned for the next year, meeting the objective of this analysis.

Documents from 2008, the first released by the institution, to 2019, the year in which the CMPN was established, were analyzed. The main terms searched were: Process, Mapping and Work Process, as they were the most used terms to refer to Process Management practices in the unit.

The interviews took place in person on campus and by video call through the google meets platform. The audio of the interviews was recorded, with the authorization...
of all interviewees, for later transcription. The interview time ranged from 40 minutes to 1 hour. The transcriptions were carried out with the aid of the 'otranscribe' website.

Regarding the questionnaire, due to the lack of availability of the managers, it was decided to apply it through the google forms platform. The questionnaires were only applied to managers whose sectors and processes had already been mapped by the Commission.

7 CHAPTER III - ANALYSIS AND DISCUSSION OF RESULTS

In this section, the analysis of the collected data will be presented. For a better understanding, the section follows in the following order: Initiatives for the implementation of process management until 2019, interview with CMPN members and perception of the impact of process mapping by education managers.

7.1 ANALYSIS OF PROCESS MANAGEMENT IMPLEMENTATION INITIATIVES

The information and records found were compiled and organized, as shown in Table 2, in chronological order covering the period from 2009, when the first management report was published, to 2019, when the CMPN was established.

Table 2: Process Management Implementation Initiatives

<table>
<thead>
<tr>
<th>Year</th>
<th>Records Found</th>
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| 2009 | In planning, the institution's management identifies, in the analysis of the internal environment:  
- Lack of standardization and standardization of administrative and educational processes;  
- Poor management training of managers.  
Among the strategic objectives of the fortnightly plan are:  
- Standardize and standardize educational and administrative processes (Institutional Dimension);  
- Map and control administrative processes (Administration).  
In the action plan, a training of civil servants was established to "promote the qualification and requalification of personnel with a view to the continuous improvement of work processes".  
In the critical analysis of the Report, management identifies a dissatisfaction with the excess of service and rework due to the processes that are being implemented and built. |
| 2010 | In the 2010 Report, the Institution takes some measures after receiving recommendations to adopt management procedures with a view to monitoring controls after an internal audit carried out by a control body. |
Measures have been taken by the rectory for the survey and mapping of processes in the rectory and on the campuses under the responsibility of a Pro-Rectory. The objective was to define the priority processes, automate the processes through a computerized system, in addition to publicizing the processes and training the servers.

2011
The dean's office is making efforts to map the processes of the institution's guiding documents, such as the General Regulations and the Institutional Pedagogical Project.

There is a new recommendation for internal audit, within the scope of the dean's office, pointing to the mapping of processes as a solution to several problems, in addition to providing greater effectiveness, transparency and visibility of the work carried out there.

2012
Efforts to map the processes of the guiding documents are perceived, with some advances.

The lack of process flows that facilitate the progress of routine activities in each sector is cited as an obstacle to the achievement of goals and actions.

2013
There were no mentions referring to process management initiatives at the Institutional level or in the dimension of the Campus object of study, only very specific activities and goals.

It is important, however, to point out a Pro-Rectory for the difficulty in carrying out activities related to process mapping due to the low training of personnel to perform activities at this technical level, in addition, the high turnover of servers would make activities that involve long-term planning unfeasible.

2014
A record of the mapping of the work processes of two specific coordinations in the rectory was found after the recommendation of the internal audit.

2015
Creation of a Commission in the rectory to discuss the management of processes in the institute and prepare a manual for process mapping.

The Commission was constituted by ordinance and formed by civil servants from the areas of teaching, research and extension, administrative and technology.

The justification for the creation of the Commission was the difficulty in finding technical personnel with knowledge in mapping and process improvement, which was causing an overload of work in the coordination in charge.

Commission proposal for the creation of its own coordination to deal with case management has been submitted.

The training program released by the institution to train its employees includes the Process Mapping course.

2016
Right in the presentation of this year's report, management difficulties are reported due to budget uncertainty that, as far as they can tell, did not cover all expenses. Thus, planned or desired activities were not conducted satisfactorily due to lack of resources.

Two indicators present in the report state that:
- All administrative and academic processes were identified and computerized.
- Of the percentage of Process Flow reviewed per year, in 2016 there was no progress.

2017
The Rectory launched a public notice to select a proposal for a methodology for mapping processes and respective risks, aiming at implementation in the main sectors of the Rectory.

Among the products of the public notice are: process mapping, risk report and process review and update plan.

The text of the notice states that the unit of the Federal Institute has launched a guide to management by processes. However, it was not found in the searches carried out on the search engine and on the Institution’s website.
At the end of the work, the team selected in the public notice delivered: mapping of the main processes (27 processes) of the areas covered (9 areas), a risk report containing mitigating measures and a plan to review and update these processes and their risks.

Plans to expand mapping and risk identification work to other areas of the Institution.

The goals of the management program include:
- Mapping of organizational processes;
- Training of managers in Process Management;
- Creation of Manual for procedures.

Source. Own elaboration.

7.2 ANALYSIS AND DISCUSSION OF INTERVIEWS

The analysis of the transcripts was carried out based on Content Analysis, a methodology developed by Bardin (2010), which has an essentially qualitative character. The methodology follows the following phases: i) organization of the analysis; (ii) coding; iii) categorization; iv) treatment of the results, inference and interpretation of the results (Bardin, 2010, p. 280).

After reading and systematizing the transcripts, categories were created in order to contemplate the objectives of the research. The categories created were: identification, origin, expectation with the mapping of processes, tools and artifacts, methodology, main challenges and feedbacks, self-assessment, next challenges, the mapping of processes in an IPES. The next step was to separate the interviewees' statements according to the categories created and, finally, to discuss the results. To create the categories and the discussion, the qualitative data analysis software NVIVO was used.

7.2.1 Identification of the Committee

6 members of the Business Process Mapping Committee (CMPN) were interviewed: three professors (E1, E2 and E3), one administrative technician (E4) and two students (E5 and E6).

Interviewee 1 (E1) is an engineer by training, with a specialization in management, a master's degree in logistics and a doctorate in administration. He has been at the educational institution for 9 years and presides over the CMPN. Interviewee 2 (E2)
has a master's degree in Information Systems and Knowledge Management, has been teaching for 8 years, 3 years in the current educational institution.

Interviewee 3 (E3) is a teacher of technical and technological basic education and has been at the educational institution for eight years, is a psychologist and has a PhD in social psychology of work and organizations. In addition to being a teacher, she holds the position of advisor for the Implementation of Special Projects and Distance Education, in addition to the Business Process Mapping Commission.

Interviewee 4 (E4) is an administrative technician who has been working at the school for ten years and has a degree in public administration. Interviewee 5 (E5) is a student of the 5th semester of the technological course in Internet Systems and has been at the Commission for almost 3 years. And interviewee 6 (E6) has a degree in philosophy from the University of Brasília and in Technology in Internet Systems, joined the Business Process Mapping Commission at the invitation of E2, who was also his advisor.

With the exception of E1, who occupies the position of president of the Commission, the other members do not have defined roles: "In the commission we do not have defined roles outside the president. We divide it into a team, we take the number that makes up the commission and divide it into teams."

In this way, E2 explains that "They form teams dividing the teachers and the technique: 2 for each side and bringing the students to be able to support both the interviews and the analyses made in the documents and flowchart and I stay in this role". E5 adds that "During the interview, the teacher conducts the interview and the students follow the interview and can ask questions.

The students are responsible for taking those interview answers and documenting them, transposing them into a word document that we call a business rules document and making the diagram", but depending on the situation "everyone ends up doing everything". E3 helps in the mapping of processes, however, due to the position it occupies, it plays a more political role, articulating with the general management and the other coordinators.
7.2.2 Origin of the Commission

The Business Process Mapping Commission was established through an Ordinance in 2019 and, since then, it has been extended with minor changes in the composition of students or technicians when necessary. The composition of the ordinance that was in force at the time of the interview was made up of teaching staff, administrative technicians and students of the institution.

Although inaugurated in 2008, the headquarters of the researched Campus was only inaugurated in December 2010 and underwent rapid expansion. According to the Institution's data platform, the number of students increased from 604 in 2011 to 5,587 in 2022, from 87 professors in August 2015 to 168 in 2022. With the expansion came the realization of the need for improvements in management to solve part of the problems. For Muscat and Biazzi (2011), the implementation of process management in IPES should be used to better plan and execute activities by properly defining responsibilities, using resources more efficiently, preventing and solving problems, eliminating redundant activities, increasing productivity, adding value to the provision of services to citizens.

Process management then emerges as an attempt to solve part of the problems. The Institution, however, had already had an unsuccessful experience of implementing process management. According to E3, there was a previous attempt to implement process management on the Campus, including the participation of a consulting firm from São Paulo. However, according to E3, the attempt "was unsuccessful. It seems to me that a person from an educational institution in São Paulo came here, talked and shared the experience, but did not go forward. A teacher we talked to and participated in the attempt attributed that they wanted to do a complete methodology, they here at our Educational Institution, in the way it should be, theoretically, the very big thing and nothing ended up coming out". Interviewee 1 (E1) believes that it may be "more a matter of you defining a methodology. In the field of methodology itself, it failed to put it into practice. People might not have had the ability to do a mapping."
We don't really know what to do here on campus. For example, we don't know what to do to ask for a Knowledge Recognition (RSC). Many times we make mistakes, we hit our heads a lot and this even interferes in the organizational climate. It seems to me that at that time the organizational culture was not really mature and the impression I had was that we went around headbutting. If the processes were mapped, we would have more security in knowing what should be done, what would be expected of us, and we would get into less conflict. One of the complaints has always been that the organizational climate of the Campus was not a good one. (Interviewee 3)

The current management of the Campus took over in 2019 and had as one of the objectives of the program the mapping of processes. According to Interviewee 3, current advisor to the general management, the management plan was built with the participation of technicians and professors and there was a consensus that there was a great deal of wear and tear on the Campus due to mistakes that should no longer happen for the little more than 10 years of existence. "The management people contributed a lot, the management collegiate and with this vision that we needed to get organized", and the objective in the management plan was to map the processes as an option to mitigate errors. Interviewee 2 adds that "some administrative issues, when we consider some administrative things, the process mapping comes in as a support, it will help to aggregate and achieve some objectives that are in the Institutional Development Plan". The E6 agrees that this strategic alignment "would be the modernization and the possibility of standardization that allow the scalability of the Campus community". This alignment made the management, at least on campus, take the initiative and encourage the work developed which, according to E1 "The management, from the beginning, was very available, gave all the support to the commission".

According to the interviewees, the lack of knowledge on how to perform certain procedures and the lack of standardization in execution is a tonic in this IF unit. Interviewee 3, who has been working on campus since 2014 and now occupies a strategic position, corroborates and adds the maturation of the organizational culture as one of the reasons for the previous attempt not being successful.

The objective of the management plan was put into practice at the initiative of the Advisory for the Implementation of Special Projects and Distance Education, a position held by E3, together with the general board. The training of the CMPN began after
teachers E1 and E2 accepted the invitation to join the Commission. Interviewee 2 mentions the initiative of the Advisory for the Implementation of Special Projects and Distance Education (ASSIPE), "E3 was invited by the director-general to take over ASSIPE and one of her initiatives was to try to work on the more administrative aspect, which is, in this case, the analysis of the Institution's processes". In addition to the two professors, the professor who participated in the previous attempt to implement Process Management on Campus was also invited, but, for scheduling reasons, could not accept the invitation. Despite the refusal, the teacher's sharing of the experience was commented on by the teachers when they suggested that they do "what they can, in a simple way for everyone to have access to. We won't try to theorize too much because otherwise it dies in the drawer, it doesn't even happen."

The Campus has set up a process mapping committee with the aim of identifying, standardizing, increasing publicity and improving the way procedures are carried out in order to provide documentation that allows the identification and standardization of the tasks performed by this organizational unit.

There was agreement that the initiative needed the support and participation of senior management, that is, that it should be top-down. However, as there was no interest from the rectory, they started with the support of the general direction of the Campus as stated by E3 "Ideally, it should start with the rectory, the books say that it needs to have the support of the top management, but let's do it here since they don't want it, since it's not a priority". Interviewee 1 reinforces: "It was kind of bottom-up, right, it was more of a bottom-up initiative than a top-down one. We formalized and made a Commission, but within the scope of the Campus, there was no negotiation so far with the Rectory".

The concern of the members makes sense, the lack of support from senior management is an additional obstacle in the already challenging mission of implementing process management in a public educational institution.

According to the guide, CBOK (2013, p. 39), "the practice of BPM is defined by a set of values, beliefs, leadership, and culture that form the foundations of the environment in which an organization operates, influencing and guiding organizational
behavior and structure." Adding that "Such values, beliefs, culture and leadership styles determine the success or failure of the initiatives undertaken by the organization."

Shared experiences show that top-down organizational commitment is crucial to the success of process management initiatives:

BPM requires a top-to-bottom commitment in the organization, from the executive leadership that defines and supports the BPM practice, through the functional management line that must collaborate with process owners and managers in the design and execution of cross-functional processes, to people who work in functional and highly specialized teams. Experience shows that the maturation of BPM practices and benefits are unlikely to occur without that there is organizational commitment. Individuals can possess BPM skills, and organizations may possess the enabling technologies. Still, without support from values, beliefs, leadership, and culture, BPM is unlikely to succeed in the organization (CBOK, 2013, p. 40).

For Wong (2014), the support of high-level management and the realignment of power, knowledge and information to lower levels in the organization, which can result in increased productivity, competitiveness and performance.

The participation of the students in the Commission happened, at first, from a project submitted by interviewee 2, "a project to try to win a scholarship for the students approved in the internal notice of the organizational unit. We had 6 scholarship students and 1 volunteer, 3 of these students are on the Commission to this day". Interviewee 3 explains that the students help a lot in the operational part, especially in the design of the processes, "the students came who added a lot because they could stay in this operational part of putting things in Bizagi and things like that". Interviewee 5, one of the students, agrees that "it arose from their interest in the teachers to do the project and include the students in the process mapping project of the educational institution in order to map all the processes and have a long duration".

7.2.3 The Commission's Expectations

Process mapping promises certain improvements in the organization, so it is common for its implementation to generate expectations. In the interviews, the members
of the Commission mentioned the main results expected from the Commission and the mapping of the processes:

I. Standardize procedures; II. Eliminate rework; III. Increase efficiency; IV. Improve the organizational climate; V. Longevity of work.

According to ENOKI (2006), the implementation of BPM can provide the following benefits:

I. Integration of the numerous factors involved in a process (people, technology, equipment, facilities) in order to ensure compatibility; II. React quickly to market changes; III. Enable you to develop new business more quickly; IV. Accommodates outsourcing or even supply chain management processes more easily; V. Reinforces standards, policies, and procedures across the organization; VI. Create streamlined touchpoints for a given process and be able to track responsibilities through the process; VII. Increase performance monitoring capabilities, eliminate bottlenecks, and ensure tasks are getting done; VIII. Monitor the status of all processes, including which activities are adhering to standards, policies, and procedures; IX. Integrate employees from different units and locations; X. Find opportunities to automate and make changes when necessary; XI. Identify activities that do not add value; XII. Increase productivity by examining time and costs spent on processes; XIII. Change the mindset of the organization towards the customers; XIV. Achieve strategic organizational objectives with transparency.

However, the CMPN does not aim to implement the entire BPM methodology, it will be restricted to the mapping of processes from all areas of the Campus.

According to Villela (2000), process mapping is an analytical management communication tool whose objective is to help improve existing processes or implement a new process-oriented structure. The use of this methodology allows organizations to benefit in several aspects such as the process of cost reduction, speed of information, reduction of failures, better integration between processes, among others.

For interviewee 1, in the short term, the focus is on gaining administrative efficiency with well-defined routines and identification of bottlenecks aimed at development, thus providing better services to students. In the long term, the focus becomes on gaining efficiency and internalizing processes.

Interviewee 3, interviewee 4, interviewee 5 and interviewee 6 share the view that the elimination of rework should be one of the greatest gains with process mapping, since managers tend to be the only ones with the knowledge of how to perform procedures,
leading other stakeholders to perform their way and overloading managers with doubts or rework due to activities performed wrongly. Interviewee 4 corroborates by saying that the great gain is "Not having rework and thus saving time, because otherwise another coordinator comes in and does it his way", as well as interviewee 6 that "It would be mainly to clarify and standardize the processes. That way you'll save time in the sense that there will be no rework."

In addition to the operational gains, interviewee 3, perhaps due to her background in psychology and her strategic functional position, also shows a concern about the reflection of these in the organizational climate, since rework generates great wear and tear, especially in the change of managers.

Our goal is to let people know what is expected of them and what to do, which reduces anxiety and increases the organization of sectors. Because we see how difficult it is to change management because you don't have anything, everything is in people's heads and this all generates a lot of wear and tear because each one does it in a different way. We understand that this maturation is also necessary to improve the climate. (Interviewee 3)

A concern about the longevity of the work being carried out was present at different times during the interview with the interviewees, especially the teachers. Be careful not to repeat the mistakes of the previous attempt to implement Process Management when it was discontinued with few people taking notice. However, it was interviewee 5 who touched on this point when answering about the Commission's expectations: "The idea that the professors have always passed on to us is that they would try to make this project stay alive on the Campus and could always make these improvements so that we do not end up falling into oblivion. Because the other committee came, started working and suddenly they stopped."

7.2.4 Tools and Artifacts

In order to describe the methodology used by the Commission, it is first necessary to list and understand the tools and artefacts used.
To perform process modeling, there are several tools available ranging from the use of simple whiteboards, flip-charts, or sticky notes, to sophisticated and specialized BPM tools. Some tools allow the resulting templates to be quickly and easily shared via email, either immediately or shortly after the session. This makes it easier, especially when the difficulty in bringing the parties together physically. In addition, there is the possibility of sharing the modeling by repositories allowing the other party to access and view if they agree. What matters, however, is not which tool will be used, the focus should be on the process itself (CBOK, 2013).

Table 3: shows the tools commonly used by CMPN in the development of its activities.

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Backlog</strong></td>
<td>List of business processes in a given sector.</td>
</tr>
<tr>
<td><strong>Business Rule</strong></td>
<td>Table that details how each process is executed. Completed during the interview with the sectors.</td>
</tr>
<tr>
<td><strong>Bizagi Modeler</strong></td>
<td>Software used to design the process flow.</td>
</tr>
<tr>
<td><strong>Microsoft Word</strong></td>
<td>Microsoft Text Editor. Used by the Commission to make the Business Rule and the description (written part) of the process flow.</td>
</tr>
<tr>
<td><strong>Microsoft Excel</strong></td>
<td>Spreadsheet editor used to make the backlog.</td>
</tr>
<tr>
<td><strong>Google Driver</strong></td>
<td>File storage and synchronization service. Services like this are commonly referred to as the &quot;cloud.&quot; Used by the Commission to share documents with departments as well as to the Repository.</td>
</tr>
<tr>
<td><strong>Google Meet</strong></td>
<td>Video communication service used for remote meetings. Source. Own elaboration.</td>
</tr>
</tbody>
</table>

7.2.5 Methodology

The methodology used by the Commission is the one suggested in the Guide to the Business Process Management Body of Knowledge (BPM CBOK) whose phases of the BPM life cycle are composed of: Planning, analysis, design, implementation, monitoring and refinement, and commonly described and mapped using the PDCA cycle (Plan, Do, Check, and Act) by Deming.

To define how it would be implemented in the Institution, as well as to define the tools and artifacts that would be used, a pilot project was carried out, as reported by E1 in the interview: "At the very end of 2019 we did a pilot process, which was the process of using studies from the Academic Record and there we defined the artifacts: like that's
the modeling, the flow, the BPM using **Bizagi**. Then we did an analysis, some referrals of possible improvements in the redesign. So there was this first stage."

After some adjustments, interviewee 2 reports how the steps they followed would be and the tools in each of them:

> When we started the Commission, we discussed a few things. We didn't know the scope we could reach or the support we would receive. The first thing I suggested at the time was to define which area we could work in. We held a meeting with the possible stakeholders who worked in these areas and understand their willingness to support and get to know us, we called it a **backlog**, being a list of the processes in this area. Then, from this area, they established the items of what would be the most important to them and the ones that would be the least. Then defining this list, the **backlog** is already within this BPM methodology, we organized ourselves to start bringing a round of interviews with these people, from the interviews create notations and generate some artifacts, being documents, create a descriptive document of the process, sequential, who executes. (Interviewee 2)

Interviewee 3 and interviewee 4 explain that first the Commission contacts the sector, the person in charge meets with the Commission from where the **backlog is prepared** with the priority processes of the sector and which will be mapped. The business rule is assembled, another meeting is scheduled for validation and, once validated, the process flows are made that go through a final validation, ending this stage.

By consensus, the Commission began its activities prioritizing the areas of education because it believed that, in a Public Institution of Higher Education, it would have the greatest impact because it is the most demanded area and the source of the greatest conflicts.

Regarding the prioritization of areas, interviewee 3 states:

> They wanted to start with teaching because we realized that the biggest conflicts occurred in teaching: disciplinary process, student and so many other grade reviews, so many other things that have a greater impact on the Campus. We started with the Board of Education (DREN) and then we worked a lot with the General Coordination of Education (CGEN) in contact with these more bureaucratic processes and then with the Course Coordinators.

Interviewee 2 adds: "looking at the organizational structure, the organizational chart, we took the main existing directorates and went to the one that at first we believed
was the most important, the one that gave the most added value to the Institution, which in this case is teaching, precisely because we provide services to our students”.

E1 explains that the main criterion for the order of the mapped areas is the availability and time of each coordination or direction, as well as the capacity of the Commission itself in mapping processes.

The first contact with the sector is made by one of the professors. The scheduled meeting is held by the head of the department and a team from the Commission, usually composed of 1 professor and 2 students. At this meeting, a semi-structured interview is held to define the priority processes. E2 explains that the Commission did not interfere in this definition, but the questions helped to elucidate some aspects: “We didn't define anything, we asked what they did the most. And they even gave direction to their processes, we just wrote them down. When we started doing the analysis part by talking to them, some of these things that they called a process, it was actually an action or a task in something bigger that would be the actual process.” In this meeting, the processes considered most critical to the coordination are raised. This is the backlog.

During the interview, the business rule is also created. This is the description of the processes that the interviewee details, however, to make it easier, a table was created that contains the instrument, responsible action, etc. The process flow is carried out from the business rule. The backlog and the business rule are the artifacts used for the modeling of the process until the last validation, thus completing the process mapping that are documented.

According to E1, “we basically defined the artifacts, from having done a modeling of the process, it starts with the description of a business rule, usually then it makes a flow and then a validation is done in the sector, being considered suitable, validated that process. So these are the steps, we're mapping them practically.”

This participation and autonomy of the stakeholder during the interview in which he defines what the business processes are and how they are carried out is positive, since it generates greater engagement. According to Alves Filho (2011), a large portion of organizations remain without improvements and without employee involvement in simplifying their activities. The reason is not limited to the lack of interest of the workers,
but to the fact that they are not offered opportunities to decide on a better conduct. The acceptance of the ideas suggested by the employees becomes fundamental for the processes to be redesigned in the organization.

Business processes are linked to the essence of the functioning of the organization (Dreyfuss, 1996). They are typical of the company they operate in and are very different from one organization to another. The importance of work processes increases as companies become more and more intellectual content or in companies with purely intellectual content (Quinn, 1992).

In the end, E2 explains that the "documents created, we document them in the repository, we share this repository with the interested parties and basically this is the result we have for each process we work on".

The Commission's work has therefore been restricted to mapping the processes of all coordinations, not advancing beyond that. It is a process management and not a process management. This is a more timid approach to the methodology, an aspect that interviewee 1 and interviewee 2 emphasize when commenting on how the methodology they use is adapted to the context of the Campus of the Educational Institution. This, however, does not diminish the importance of the Commission's work. According to the ideas of Alvarenga Netto (2004), the most important element for Process Management is its mapping, as it facilitates the determination of where and how to improve it, as well as the elimination of activities that do not add value, as well as reducing the complexity of processes. It allows you to get a broad view of the organization.

From the process life cycle proposed in the Guide to Process Management, the Commission has focused its efforts on process mapping, which is the first phase of a cycle. In the bio you have more or less 6 that you can execute, the last one being continuous improvement and monitoring. (Interviewee 2)

It can be seen that the efforts of the Business Mapping Commission is the AS-IS modeling of the processes of all sectors, that is, the process in its current moment, how it works today, and its registration and documentation.

It is also noteworthy that in the BPM methodology, the implementation must be top-down, which did not occur in this case due to the lack of interest of the Institution's
Rectory currently. That's why E2 explains that "our initiatives are a little more timid. Process Management seems very strong, it is a slightly more modest initiative that we hope that one day it can really become a Management, something more formal. We already have a formality, I mean something stronger here at the Institute."

Oliveria (2014) states that a concern for BPM practitioners is that the complexity of its use results in organizations unable to achieve the benefits they desire.

7.2.6 Main Challenges and Feedbacks

The Commission did not face any resistance to carrying out the work in the sectors, in general the receptivity was always positive. The positive experience of the civil servants who worked with the Commission led to "word of mouth" propaganda, that is, through conversations in the corridors, causing other departments to seek out the Commission. The biggest obstacle was the availability of time of the coordinators or directors to attend to the team responsible for mapping, in this way, the availability of time ended up being the main criterion in the choice of sectors, as explained by E1 "The biggest resistance is people's time, it is what you know is important, but that will compete with urgent activities. So, we went to the sectors that were available, the availability itself is already a lack of resistance, but if there was any resistance on site, it was the overloads of work at that time".

With the COVID19 pandemic, in 2020, it turned out to be a major obstacle, mainly due to the increase in overload, as E6 explains:

The Campus faced this pandemic situation where many things became remote and it turned out that for many people the workload increased. It is a constant complaint from the education area, the transition to remote due to the increased workload was an obstacle many times, of not being able to meet as often as necessary or not being able to get the stakeholder to read the material we send in time.

Interviewee 3 explains that the pandemic has overloaded the managers of the sectors, but also the Commission itself since it has 3 teachers at the head "The pandemic certainly, which has driven us away and which has overloaded us, because everyone is a
teacher and who has other things to do and had to adapt to remote teaching and, at the same time, continue to map the process."

During the pandemic, the Commission did not interrupt its work, they continued to conduct interviews and meetings between them remotely and mapping the processes, as E3 says: "The Commission did not stop during the pandemic, we met online, the interviews and the business rules were done online. We don't stop at all." However, it is interesting to note the difference of opinions between teachers and students, members of the Commission, on the difficulties during the Pandemic. Among the teachers, it is unanimous that there are difficulties generated by the work overload of both them and the managers in getting available to assist them. For the students, despite all the ills generated by the pandemic, there was a positive aspect, especially in relation to the meetings that were now remote. Student E5 opines that the fact that the activities were face-to-face was a hindrance: "Because face-to-face ends up taking away flexibility, people have to be in the same place and this is very difficult because I live far away, other students also lived far away and then I had to go before class to be able to talk to the coordinator and sometimes I arrived and the coordinator couldn't because he was too busy". In this way, the remote meetings provided "flexibility for us because we could talk much easier with the coordinators, they were much more relaxed because they were at home". In this way, according to E5, this flexibility "has been very beneficial for the Commission. In person it was very difficult even for our meetings. I don't know about the professors because sometimes it seems like they live there, so they were able to get together, but the students didn't because sometimes someone had to come from the internship, they had to define what was the best time for the student to be there and it was important that everyone always participated because it was a Commission." "I don't know what they thought, but for me it was much better remote." E6 corroborates the difficulty of scheduling the best time for meetings "Because it is a job that needs a lot of meetings for us to be aligned and work together, sometimes it is a little complicated in the universe of teachers, servers and students, to get these schedules in common. A lot of times we can get around it by recording the meetings."
Regarding the possibility of changes (positive or negative) in performance after the mapping, E2 explains that it is still too early to assess, since they do not have this metric, which "is very much in the initial process, still incipient in the methodology, so we don't mature, we don't get out of place yet. To do this, we need to strengthen the initiatives a lot, and this comes from the top down and not from the bottom up."

### 7.2.7 Self-Assessment

The Commission's performance was unanimous. Everyone praised the atmosphere in the Commission's working environment and an excellent performance under the conditions.

E1 says he considers "The performance of the commission fantastic. This issue of student participation has even created a certain synergy in the sense of how things are done."

E4, an administrative technician, says she sees a lot of engagement: "I see that people are satisfied, they are mapping the processes and they are mapping laughing. Even this know-how that the scholarship holders are having opened doors, they had employability, they received proposals to work in other institutions and this for me is one of the greatest assets".

E3 said he thinks it's exquisite: "The teachers of the Commission are very serious and their tranquility gives a professional tone and the rhythm is great. As I said, we've already picked up this rhythm of production." And he emphasizes, as well as E4, the opportunities that have arisen for students due to their experience in the Commission "there are students, for example, who have already been hired to be interns to map processes in the IT sector. Hired by the IT sector to map the processes of the sector itself due to their experience in the Commission".

Attention to students is emphasized by E2: "we try to involve students a lot because we are in an Educational Institution".

The students on the Commission agree. E6 says that "It is a Commission that because of the organization, and here I am talking especially about the teachers, who
managed to carry out this work with mastery. I can say that the students who proposed to join the Commission learned a lot: The atmosphere since I have participated is one of super professional work”. E5 corroborates: “I believe our work is 10. Seriously, we did well. I see that we have evolved, in the beginning I already thought that we had already started very well, but now we are much better than we were at the beginning because it has refined our process within the Commission”.

7.2.8 Upcoming Challenges

The Commission works to map the processes of all sectors of the Campus. The priority is to standardize and document AS-IS processes. The interviewees showed insecurity and concern about the future steps. Although they see possibilities, it will depend on the success, support and conduct of the work that is being carried out.

The success of the work is related to the updating, use and internalization of the processes. Will the processes really be used by the sectors? Who will keep the processes up to date? Will servers and other stakeholders learn to work with processes? That is, consulting the mapped processes and doing it the right way instead of always asking and/or doing it “the wrong way that works”? How long will the Commission be maintained? Will the work be lost over time? These are valid insecurities in a public institution whose work has not yet been supported by senior management, apart from the uncertainties in periodic changes in management.

Over the last two decades, numerous models of process improvement have emerged, most of which are aimed at the private sector. The search for improvements, however, has also come to worry the public sector, which has found itself under greater pressure to improve its performance and demonstrate greater transparency and evaluation of results (accountability)). It should be noted, however, that there are several specific characteristics of the public sector that influence improvement programs or any change program, such as rigid hierarchies, industry culture, employee stability, periodic changes in political direction, which can be drastic, and political interests, often emphasizing short-term changes (Biazzi et al., 2011).
It would be more of an internalization moment to disseminate the flows to the community because there is already a reasonable number of flows, so you need to keep working, so that the person has an expertise because something is outdated, you have to do maintenance and deep down you need people to be familiar. The success of this stage will also depend on the next administration, it will depend a lot on the other management that comes because you already have a large volume of work, but then I am passing these issues aware of the limitation of the FI but then it is linked to the history of the creation of the Commission itself. (Interviewee 1)

Interviewee 3 also defends the urgency of internalization due to the fact that the processes need constant updating: "The processes are alive, they are systemic. And then we need people to be the guardians of the processes, who will even indicate when the process needs to be changed and remapped. And I don't know if this is going to die, I don't know if another Commission is going to take care of these processes and if a process office would have this full-time function.

Another who expressed concern about the outdated processes was E2: "When we finalize all the processes of the Institution, probably the first ones we worked on will probably be outdated. And that's what I say, we have our limitations. Because we could already be working on a better part of the methodology proposal and try to work on optimizations, trying to better disclose to people, the processes, how they happen, but due to these limitations, being only in the initial stages" and made agreed that success will depend on the continuity of the work of the next management of the Campus "I don't remember when the mandate of the general directorate ends, but it may be a legacy that she will leave for the next directorate, or if she will be able to take an extra step towards the continuity of these initiatives. It depends on the vision of our leaders."

The interviewees’ reports are in line with the results of the research carried out by Santos et al. (2012), with the objective of analyzing the relationship between critical success factors found in the literature and the barriers faced in initiatives to implement process management by public institutions. The barriers pointed out were: bureaucracy and culture of the public sector; history of failures in projects carried out by consultancies that were not completed, causing feelings of frustration and distrust in people; obsolete mandatory legislation that prevents improvements; lack of integration between organizational units; obligation to follow legislation; staff turnover, as the expenditure on
training and acquired knowledge are lost; and the discontinuity of projects due to the change of government.

The critical success factors identified by Santos et al. (2012) were: support from senior management; competence of process teams; composition of the team by staff members; communication between the team and the other members of the organization; awareness of the benefits provided by process management to internal customers; and training of those directly involved with the processes.

7.2.9 Mapping of Processes and Teaching

The choice to start working in the teaching sectors was made in a logical way because they were in an Educational Institution. Interviewee 1, president, is emphatic in saying that "From the beginning, we tried to focus on the parts of the teaching processes". When discussing the improvement of the quality of teaching on Campus due to the mapping of processes, he made a point of pointing out the various factors present in an Educational Institution, such as the teacher-administrative and teacher-student relationship: "It is a distal and multifactorial relationship".

E1 continues: "In the teaching process, in the teacher-student relationship, there is a set of factors such as improving didactics, student awareness and the classroom environment. I think what improves at the administrative level is that you reduce misinformation." Since, according to E1, the didactic/pedagogical relationship is distal, it would be a pretension to say that there would be an improvement in the Campus: "You can improve at some administrative level, but you have problems with the system and the people. The process is a little bit of a link on top of that because it depends on the people and the system, if you don't have a minimum of defined process and systematization your organization will be at a very low level of maturity".

The performance of good pedagogical practices, that is, the different ways in which teaching is transmitted, is a fundamental element in a Public Educational Institution when we talk about quality of teaching. However, the quality of education is also constituted by other dimensions based on decisions made and executed by the
administrative areas. According to E1, the Commission’s work will help much more in the administrative aspect, responsible for one of the biggest causes of work overload, as it was, for example, in the pandemic. It is from this perspective that the interviewee perceives the impact and improvement in the quality of teaching.

According to Bolzan (2006), in the internal environment of universities, the search for quality is one of the paths taken by management to improve academic and administrative processes as a contribution to the solution of serious problems involving university management.

Work overload is one of the points commented on by E3: "Our hope is that these mapped and internalized processes can help the teaching area and help teachers to have a lower overload."

The E6 also makes a distinction when assessing the impact: "It is complicated to talk about standardization in teaching because we have free teaching, which is one of the most important characteristics of teaching. However, I think it serves to meet the basic requirements."

Student E5 explains how, in her view, mapping can reduce work overload:

For example, one thing that takes a lot of work in the coordination of my course is the delivery of complementary hours. No one knows how to do it to this day, no student knows how to do it. So the course coordinator gets dozens and dozens of emails every semester asking how do you do that thing. No one knows how to answer, only the coordinator. And we know that the coordinator doesn't want to be the only one to have this information, but it ends up that every semester a new class comes in and at some point this is lost among the students. There is no communication of one student guiding another how to do it, each one sends their e-mail asking how they do it.

7.2.10 Case Management in a Public Higher Education Institution

As asked about the challenge of implementing process mapping in a Campus of a federal educational institution with verticalized education, that is, that offers courses in different stages of education, in this case from integrated high school, technical, undergraduate and graduate level, accentuating all the complexity inherent to an educational institution.
Modern society assigns to schools an increasingly wide range of functions—mediating family conflicts, scholarship control, permanence, vaccinations, student health, among others,—the teacher must respond to a growing number of educational aspirations that become increasingly diverse and demanding. In addition, the connection between the internal life of the school and the environment in which it is inserted requires that one considers the complexity of the context, of the thoughts, of the practices that are produced there and those that circulate there. In this sense, what we usually call educational does not exhaust the practices related to the classroom, as it covers aspects that concern the immediate school reality and the society in which it is inserted.

In this way, a Public Educational Institution that has high school students, minors and whose parents tend to participate and control more actively in the school environment, and undergraduate students, for example, the diversity of agents that participate in this social organization is perceived, as well as the different demands received by the servers. The innumerable demands in which school realities are immersed require this constant negotiation among its members and between them and the context of which they are part. All this generates a shared culture, both within the school and in the collective of teachers, as well as in their union with that of other agents, who, in different areas, also carry out the educational practice.

The school is an institution that constitutes itself as an organizational culture, a socially constructed reality that involves professional performance, creating possibilities and limits that will act in the development of its members. It can be considered an institution that not only reproduces itself, but also, at a slow and sure pace, reproduces the modes of conduct, thoughts, and relationships that are inherent to it, regardless of the impositions arising from the changes that occur in the society in which it is inserted (Nóvoa, 1992).

As a social organization, the school can be understood as something that exists due to the shared experience and negotiations between the subjects who work in it. Those who are accustomed to their daily lives know that they follow norms from higher authorities and are controlled by them. In addition to sheltering, as Sacristán (1999) states, "zones of disorganization" that are the "ways" of each school to solve everyday issues,
such as lack of lunch, insufficient teaching material, maintenance of the building or furniture, didactic difficulties, difficulties with discipline, among others.

External customers are the reason organizations exist. However, as important as external customers are internal customers, they must be respected and their expectations and needs met, as external customer satisfaction starts with internal customer satisfaction. An entire process can be compromised without this commitment to the entire process (Cruz, 2015).

It is known that the implementation of changes in public administration is quite different from that carried out in the private sector due to the inherent characteristics of each sector. The public administration must follow a series of norms, rules, legislation and accountability that do not affect the private sector. In addition, they are organizations with very different objectives, contexts, and cultures.

Due to all its diversity and complexity, making changes in a Public Educational Institution is even more complex than in any other public agency. The last question of the interview sought to provide the interviewees with a moment to share their experience in trying to implement changes in this universe, contributing to the still scarce literature on this subject.

From the statements of the interviewees, the following stand out:

I. Possibility of discontinuity of work in the change of management; II. Duration of the Commission; III. Organizational culture; IV. Organizational Structure; V. Legal limitations of public administration; VI. Servers overloaded; VII. Lack of support from senior management; VIII. Possibility of discontinuity of work in the change of management.

According to the institution's General Regulations, "The term of office of the Directors-General is 4 (four) years, counted from the date of inauguration, with one reappointment allowed". The mandate of the current management ends in 2023, the periodic change generates concern due to the uncertainty of how the new management will be treated (if any) to the CMPN and the work already developed. This is what E1 refers to when he mentions the "waves" in public administration: "within public administration you know that sometimes things are in waves, you know, even if it is
perhaps not a discontinuity, when someone starts there will already be a previous version. It's in the context of administration that you have some things where they are discontinued and then resumed, but it's worth the initiative in that regard."

There are characteristics of the public sector that influence improvement programs or any change program (Meadam & Donaghy, 1999). These include:

i. Periodic changes in political direction, which can be drastic; ii. Political interests, often emphasizing short-term change; and iii. Overlapping initiatives, often created in different political periods.

Evidence suggests that if the structure, bureaucracy, political environment of public organizations, and other sector-specific characteristics are not considered, improvement initiatives may fail. There is evidence, therefore, that improvement models should be adapted to the public sector context.

These characteristics highlight the need to adopt specific change programs for the public sector, rather than simply applying models developed for the private sector. However, there are few authors who present models for improving processes in the public sector.

### 7.2.11 Organizational Culture

Organizational culture is undoubtedly one of the most important aspects in any change made in management. Every change has an impact and the diversity of opinions of the members of the organization can affect it positively or negatively. Organizational culture embodies collective values and beliefs that transform the company for process management. It therefore creates an environment that complements the various BPM initiatives (Bai & Sarkis, 2013; Brocke & Rosemann, 2013).

People, then, are a key element, as they are the ones who continuously improve and apply their knowledge and skills to execute and improve processes (Brocke & Rosemann, 2013).

E1 reports how, in a public administration, even contrary opinions about the work carried out must be respected.
You have a cultural challenge, which some people value, others are even averse to the issue of mapping, you have a challenge of change, where anything you will put in place requires change and then you need leadership, you need to know how to do, you need, who knows, continuity.

Interviewee 1 believes that the lack of knowledge about what is being implemented or the person simply not agreeing even though they know are the main challenges:

The main challenge would be for people to get to know it. In cultural terms, some people think it's even mechanization. In the same way that there are articles that say that strategic management is a manipulation, so you also have to respect that it is not a language that you will say is totally accepted.

Successfully changing an organization is one of the greatest challenges of contemporary management. Although information technology is essential in business process management, the success of these initiatives depends mostly on the human factor. In this way, people's receptivity and commitment ends up being one of the critical success factors. To do this, it is necessary to create a "process culture", with values, beliefs and behaviors focused on processes. (Brocke & Rosemann, 2013)

The interviewees also mention how the lack of support from senior management means that the work can be questioned and, in this way, adhered to or not by managers. The E5 student says that "despite having the support of the management, no one was forced to adhere to this culture of processes. So there is a concern if everyone is going to have a culture of processes, even to look at that process that it is being designed, if it is being designed it is not to be shelved, it is to be consulted, if it will not be a work in vain" and questions whether this lack of culture will not make the work fall into oblivion, buying from the private sector.

And maybe not only to have a process culture, but also to maintain that and revisit if for some reason a process changes would have a difficulty, because it is a public sector, so it may not be as fast as in the private sector. So, if the Commission ends today, who will do that work there again? (Interviewee 5)
E3 also mentions culture: "I think that the organizational culture not being consolidated makes us still break our brains and then we have to change the process, all this causes change and wear and tear in the process and in people".

To conclude, E1 recognizes that, although challenging, these aspects are characteristics of a public educational institution and compares them with companies:

An educational institution is characterized by diversity. There are different views for the solution of certain problems, and you have to respect that. So maybe the challenge is the cultural issue that, at the same time that it is a challenge, is also a characteristic of the institution, perhaps the challenge is a bit like this: you are in an institution, not in a company. In a company you say you won't do it, everyone says it's to be done because the boss wants it to.

7.2.12 Organizational Structure

There are collegiate bodies linked to the General Administration of the Institute. They are the Superior Council and the College of Directors, and the Council for Teaching, Research and Extension (CEPE). According to the General Regulations (2022), the Superior Council has a normative, consultative and deliberative character, the College of Directors has a consultative and support character for the decision-making process, while the CEPE has a normative, consultative and deliberative function, as delegated by the Superior Council, on academic, scientific, cultural and artistic matters.

These aspects are mentioned by Interviewee 1:

You are not an institution that has a well-defined hierarchical chain. The educational institution has its collegiate bodies, it has its professors, it has its councils, so how will you implement such a process in this context? The organization profile is a non-hierarchical profile. I don't know if I could classify it like that. I'm not saying this is bad, I'm just telling it like it is.

Interviewee 2, contrary to most of his colleagues in the Commission, is skeptical about the real benefits of the Institution if a process office were set up in the structure of the Pro-Rectory, because the institution could be stuck by working on indicators. "The indicators could put a lot of pressure on employees to look for some things that are not feasible for some departments."
7.2.13 The Limitations of Public Administration

Another factor mentioned refers to the difference between implementing process management in a private initiative and a public institution. According to E2, who has already had experiences in some companies, "in a private company it is very easy, everything that is time-consuming here and is very costly, is where it attacks to try to solve" in a public agency "for you to run a process you have to have a series of signatures, a series of sciences because the legislation asked for this and it was not we who defined the legislation" in this way "trying to increase performance is very complicated. Reducing costs due to bureaucracy is also complicated."

Public Institutions of Higher Education, especially Brazilian federal universities, have the characteristic of having extremely bureaucratic organizational structures, both in the administrative and academic fields, hostage to bureaucracy, submitted to rules and dependencies that are often unnecessary, produced by pyramidal support structures (Vieira & Vieira, 2004).

Thus, in order to direct management towards managerial public administration, new management models are needed that follow the changes in the environment where public organizations are inserted. In this sense, Vaz (2008) argues that Process Management is an excellent instrument to reverse the trend of bureaucracies in the public sector, while processes need to be directed to meet the demands of customers, internal or external. However, he points out that, in the public sector, there is a great risk of failure of process redesign initiatives due to the characteristics of the sector – legal obstacles, lack of resources, political uncertainties and administrative discontinuity.

Corroborating the practices of managerial public administration, Carneiro (2010, p. 2) explains that "all over the world, developed or developing countries have been seeking to improve their public administration through the use of models and practices typical of private companies", this concern with the quality of the services provided reflects the social and economic transformations that the public administration has been going through, increasingly distanced itself from the bureaucratic model present in the service public.
As an example of the lack of flexibility, E2 says that "for you to run a process you have to have a series of signatures, a series of sciences because the legislation asks for this and it was not we who defined the legislation. Sometimes we have to maintain a regulation, from top to bottom and even in the general management we can't have much flexibility." Interviewee 2 completes comparing it to the halt of education during the pandemic:

The Institute stopped for 3 months until it was able to put in distance education. It had to train people, it took a long time for people to be trained, they had to train themselves throughout the classes, it even took to have federal legislation and it took 3 months to process, to have the allocation of special resources to be able to move students to be able to work. So when we needed an emergency, we were very slow.

On the other hand, E3 mentions how "the toilets were extremely fast: everything stopped, we went to distance education. She set up a structure for distance learning overnight, and even if she had to buy a third-party structure and make it available, as she did, much faster than the federal ones."

7.2.14 Servers Overloaded

One of the most commented difficulties was related to the work overload of the servers, culminating in the difficulty of the Commission in scheduling appointments with stakeholders due to lack of time availability, especially during the pandemic, such as teachers who divided their time between the Commission, teaching, Projetotudo, and, in some cases, the management of the sector. E3 reports that "The scenario here is very complex for a number of factors. I've never seen an institution where one person does so many things. A teacher is not just a teacher, he has to do a lot of bureaucratic things, the coordinator doesn't even talk about it." He also comments on the need to create a culture of consulting the mapped processes, of them being internalized to avoid yet another overload on the coordinators: "I think it is difficult for the teacher, the coordinator to be able to sit down and before doing a process and go there to consult the mapped process. Maybe it's easier for him to ask, but when he asks, he overloads even more the course
coordinator who is already so troubled and turns into this, this crazy thing that we live that brings a lot of suffering to the people who work”.

For Meyer Jr, Pascucci and Mangolin (2012), the number of demands met in IPES is one of the great management challenges in the search for more efficient and effective ways of acting to better meet the, among others, educational policy, demands of the productive sector, fluctuations in the demand for courses and the renewed needs and expectations of students.

E6 agrees: "The challenge is a lot of the great load and prioritization, because you can't do everything at the same time." E2 cites overload as one of the factors of the Commission not being able to go further in the methodology.

We have some support from the Institution to continue our activities, because the ordinance has been renewed several times, but we cannot run the entire methodology because this requires a little more effort, dedication and hours dedicated to these activities, the Institute has its limitations in personnel, financial, we cannot grow so much because of these limiting factors.

Finally, E3 cites the lack of support from senior management as a limitation, as many processes go beyond the Campus arriving at the Rectory "our processes depend a lot on the Rectory and this ends up extrapolating the Campus. So the ideal would be that we could count on the sponsorship of the Rectory".

7.3 ANALYSIS AND DISCUSSION OF QUESTIONNAIRES

Among the activities carried out by the institution, those related to Teaching, Research and Extension are considered finalistic.

According to the National Council of Federal Institutions of Professional, Scientific and Technological Education (CONIF, 2012, p.5) "The conception that permeated the creation of the Federal Institutes in Brazil (IFs) and the constitution of the Federal Network of Scientific and Technological Professional Education – Federal Network of EPCT, brought with it great challenges, among which the transformation of Professional Education into a Network that aims to promote teaching excellence, applied
research and extension that promotes scientific and technological development, thus constituting the pillars of this new Institutionality”.

Thus, in addition to the verticalized teaching and the multidisciplinary curriculum, being particularities of the IFES, another differential is the alignment of teaching, research and extension projects with local productive arrangements and the demands of the world of work.

In the organizational structure of the Campus, object of study, the General Directorate is the highest level sector in the hierarchy. They report directly to the general directorate: the Board of Education, the Board of Research and Extension and the Board of Administration.

Considering the scope of the research, the areas related to the teaching and training of students were invited to participate in the research, in this case, the Direction of Education and the Directorate of Research and Extension.

1. **Board of Education**
   - Student Affairs Coordination;
   - Library Coordination;
   - General Coordination of Education;
   - Academic Registration Coordination.

2. **Directorate of Research and Extension**
   - Extension Coordination;
   - Internship Coordination;
   - Graduate Coordination;
   - Coordination of sustainability and Culture.

   The Coordination of Student Affairs, Library Coordination, General Coordination of Teaching and Coordination of Academic Registration report directly to the Board of Education. There are a number of subordinate coordinations to these not mentioned here to facilitate understanding and visualization.

   The coordinators subordinated to the Research and Extension Directorate are: Extension Coordination, Graduate Coordination, and the Sustainability and Culture Coordination. The Internship Coordination is subordinate to the Extension Coordination.
The organizational chart, Appendix C, makes it easy to see the departments. Only the participating boards and immediate coordinators were considered, with the exception of the Internship Coordination included for answering the questionnaire.

During the interviews, the members of the CMPN said that the choice to start mapping processes in the teaching areas was unanimous, since because they were in an educational institution, these areas were the most demanded. The expectation was that the mapping could have a greater impact on these sectors, benefiting them in their work routines.

However, the Commission has its limitations and the pace of work, as much as it was praised considering the resources and the number of people, was not considered ideal. It is necessary to consider the workload of the CMPN and the time that the person responsible for the sector has available at that moment.

Thus, in the period of the invitation to the managers of the aforementioned directorates and coordinations, only 4 departments had already had their processes mapped:

i. Board of Education; ii. Directorate of Research and Extension; iii. General Coordination of Education; iv. Internship Coordination.

These areas are among the most demanded on campus. Others, such as the Academic Registration Coordination, are mutually interested, but the large workload has made it impossible for them to take place so far. The Library Coordination communicated that the mapping is in progress and the others did not have a meeting until the period in which the research took place, but the following are in the Commission's plans:

i. Teaching Direction - up to 6 months; ii. General Teaching Coordination - up to 6 months;

iii. Research and Extension Direction - between 6 months and 1 year; iv. Internship Coordination - up to 6 months.

The questionnaire applied, Appendix B, contains 19 questions, of which 18 are closed questions and 1 is an open question. There are 16 closed questions and 1 open question entirely related to the processes in which they have been mapped by the Commission in their sector. In addition, there are 2 closed questions for identification:
sector and time in the position. These 16 questions related to the mapped processes were divided into 3 parts: In the sector, In relation to stakeholders, and Quality in teaching.

7.3.1 In the Sector

The statements presented in this section were used to assess the perception of engagement managers, from their respective sectors, with the mapped processes and how it impacted work routines.

Graph 1 - Question n 1 (in the sector)
1. When I took over the management of the current sector, the processes had already been mapped.

4 respostas

Source: Authors.

Graph 2 - Question 2 (in the sector)
2. If they were mapped, the processes were consulted to assist in understanding their execution and/or the functioning of the sector.

4 respostas

Source: Authors.
One of the benefits of documenting processes is that they can serve as a source of consultation, as it is in the consultation that workers acquire a better understanding of the activities and develop learning.

We can observe that of the 4 managers, 3 stated that the processes had already been mapped when they occupied their current position, also meaning that they did not participate in the meetings with the Commission. The 3 managers also stated in the second question that the documented processes were consulted and helped in the understanding of the functioning of the sector.

Graph 3 - Question 3 (in the sector)

3. There was an extra effort from the sector to disseminate the mapped processes to the stakeholders

4 responses

- 25%
- 50%
- 25%

Source: Authors.

The main objective of Process Management is to add value to customers, so the processes prioritized in the mapping are those that add the most to customers. In order to achieve a significant increase in efficiency, it is necessary that the industry and key stakeholders understand the processes.

In this question, only 1 manager stated that there was an extra effort to disclose the mapped processes, two managers "neither agreed nor disagreed" while 1 disagreed.
4. There is a commitment in the sector to execute the processes as they were mapped.

For 2 managers, the sector is fully committed to executing the processes as they were mapped, while 1 agreed that there is an effort and 1 could not say to what extent there is or is not this effort.

5. The mapping of processes helped me gain a broader understanding of their parts.

Almost unanimously, 75% of managers strongly agreed that mapping helped them have a better understanding of the process as a whole, and 1 manager agreed.
Questions 6, 7, and 8 are causal, since the success of one influences directly on the success of the others.

With the standardization of processes, it is expected that people will abandon "their way" of performing activities and adopt the mapped version and, in case of doubt, consult the documented processes. In this way, over time, everyone starts to perform in a standardized way, making fewer mistakes and in a more agile way. Which leads to a decrease in rework, a decrease in workload, and an increase in efficiency.

In question 6, half of the managers (50%) did not perceive a decrease in rework. The other half perceived a decrease, although one perceived it more clearly agreeing with the statement.
In question 7, half of the managers neither agreed nor disagreed, and did not perceive a decrease in workload. The other 50% agreed that there was a decrease.

In question 8, only 1 manager did not increase efficiency in meeting the demands in the sector. Two managers agreed, while 1 strongly agreed. Which confirms the casualness of the 3 questions.

Decisions are made on the basis of the information available to us at the time of the decision. When the organization begins to enjoy the benefits of process mapping, information flows more easily, creating an environment that assists managers in decision-making.
Half of the managers marked that they "neither agree nor disagree", indicating that they do not perceive greater agility in their decision-making. Two managers said they perceived greater agility in decisions: One manager "totally agrees" and another just agreed.

Finally, 75% stated that they did not perceive an improvement in the organizational climate, while 25% (manager 1) strongly agreed, clearly perceiving an improvement in the organizational climate.

Graph 10- Question 10 (in the sector)
10. I perceive an improvement in the organizational climate.

75%  25%
I totally agree  I agree
I neither agree nor disagree  I disagree
I totally disagree

Source: Authors.

7.3.2 In Relation to Stakeholders

Interested parties are those directly involved in the process. That is, they are the people who have a connection with the requested demand. In the case of the Federal Institute, the main stakeholders are: students, teachers, managers (from any area) and administrative technicians.

In this way, this part seeks to assess the perception of managers in serving their customers (internal or external), since part of their demands start from a request or delivery from a stakeholder from outside the sector, and when errors are found in their completion or execution, the sector has the rework to correct or return for correction.
It is hoped that with the disclosure of the mapped processes and facilitating their access for future consultations to stakeholders, errors will gradually decrease.

In question 11, half of the managers agreed that there was a decrease in errors made by people who have a connection with the requested demand. One manager strongly agreed and only one disagreed, not noticing any decrease in the execution of the processes.

In question 12 half (50%) marked, neither agree nor disagree, so they do not perceive any difference in the demand of the sector to answer questions. The other two were divided, one manager replied that he agrees and the other that he disagrees.
It is observed that 75% of the managers did not perceive a positive change in the demands related to the doubts that come to the sector.

Graph 13 - Question 13 (in relation to stakeholders)

13. I perceive that the faculty members are also benefited from the mapping of the processes.

Source: Authors.

All managers responded positively regarding the benefit generated to teachers with the process mapping, with 50% answering "totally agree" and the other 50% "agree".

Graph 14 - Question 14 (in relation to stakeholders)

14. I perceive that the students are also benefited from the mapping of the processes.

Source: Authors.

In question 14, in relation to the benefits generated to students with the mapping of processes, 50% totally agree, 25% agree and 25% neither agree nor disagree.
7.3.3 Quality of Teaching

Although the notion of quality of teaching involves several aspects, including management, teaching, research and extension, there is only quality of teaching when the improvement of these aspects affects, directly or indirectly, the faculty and the student body.

Graph 15 - Question 15 (quality of teaching)

15. I perceive that the mapping of processes is positively impacting the quality of teaching.

Source: Authors.

Question 15 was unanimous, 100% of the participants said they agreed that there is a positive impact on the quality of teaching with process mapping.

Graph 16 - Question 16 (quality of teaching)

16. I believe that, in the long term, process mapping can positively impact the quality of education.

Source: Authors.
In question 16, the last question referring to process mapping, 75% of managers showed greater belief in long-term results, noting that they fully agree with the positive impact of long-term process mapping. The remaining 25% marked that they agree.

A space was also made available for the manager to share any "aspects of how they perceive that the mapping of processes reflects on the quality of teaching" optionally. Two managers responded.

For the Research and Extension Board, process mapping "Contributes to knowledge management, for example, in the exchange of management; for the speed of responses, in addition to avoiding rework".

For Internship Coordination, "The mapping of the processes helped a lot in the development of the functions related to the Internship Coordination, since they are operational tasks and with a similar procedural flow, most of the time. However, it is necessary to remember that, in order to apply the mapped actions, we need enough collaborators, ensuring the speed of the actions".
7.3.4 Answers per Question

Questions 5, 13, 15 and 16 were fully accepted, i.e., everyone agreed (marked agree or strongly agree). It is interesting to note that all participants agree that teachers benefit from the mapping of sector processes (question 13) and have the perception that it is positively impacting the quality of teaching (question 15), but are more convinced that the impact will be greater in the long term (question 16).

Questions 3, 10 and 12 were the ones with the lowest percentage of agreement, i.e., where the sum of the answers in "neither agree nor disagree", "disagree" or "strongly disagree" were higher.

It is noted that 75% of the managers did not agree that there was an extra effort by the sector to disclose the mapped processes to the stakeholders (question 3) and, in the
same proportion, they did not agree that the sector is less sought by the stakeholders to ask questions about the execution of the mapped processes (question 12). Remembering that in some sectors, as said by the members of the Commission in the interview, the demands that arise to answer questions make up a large part of the workload and is one of the biggest complaints of some managers.

Managers were well divided to assess the impact of process mapping on the efficiency of the work routine. Questions 6, 7, 8 and 9 referred respectively to the reduction of rework in the sector, reduction of the workload in the sector, efficiency in meeting demands and greater agility in decision-making. With the exception of question 8, which had a 25% response in "neither agree nor disagree", all the others had a 50% response in "neither agree nor disagree", with the remaining 50% responding that they agree or strongly agree.

Remembering that this is a perception of managers, as there are no institutionalized indicators to measure these aspects.

8 CHAPTER IV - PROPOSAL FOR INTERVENTION

Based on the results of the research carried out and the difficulties faced by public agencies, especially IPES, in process management initiatives, the intervention proposal aims to contribute to the ongoing initiative, developed on a Campus of the Federal Institute of Education, Science and Technology of Brazil.

The literature lacks academic works that deal with process management in IPES, part of the initiatives are without references to know how to circumvent certain problems and which direction to follow. "Many companies want to organize themselves by processes, but do not have a clear notion of the steps to be followed and the measures that should be taken" (Gonçalves, 2000, p. 9).

In this context, the concept of process maturity emerges as a tool that enables the Campus to organize itself and plan strategic actions to achieve the desired level of process maturity.
The concept of process maturity has been gaining more and more space in process management, being used to map logical paths and improve the services and products of organizations (White, 2001).

According to Fisher (2004), maturity models are used as a basis for evaluation and comparison in order to seek improvement. According to Hammer (2007), maturity models provide managers with mechanisms that make it possible to identify what needs to be done, how much and how to evolve processes.

The first maturity models were created to assess the level of maturity of the processes, in this case the processes are measured separately and then actions are planned according to the level identified. However, more recently, models have emerged concerned with assessing not only the maturity of a specific process model, but the maturity of an entire organization in the adoption of process management. These models bring greater organizational scope and benefits to all levels of the organization.

Section 1.5 presents a model developed by the Federal Institute of Sergipe (2018), based on the CBOK, with 5 levels of maturity. Gonçalves (2000a) in his article "Process, what process?" also proposes a process maturity model for the organization with 5 stages indicating the possible development of the organization at each stage. In addition, there are recommendations of what companies can do to reach a higher level of maturity.

Thus, based on the results obtained in the research, the two models were used to assess the level of maturity of the Campus. In the model formulated by IFS (2018), Figure 2, the characteristics that most resemble are those of level 2, called the known level. They are as follows:

i. Processes are improved as investments are made in capabilities that support process planning and definition and detailed process design, creation and implementation. ii. Increased awareness and understanding of what the work process is, how it relates to value delivery. iii. Investment in the development of standardized and repeatable work processes, as well as support in methods and tools for improving management; iv. Reduction of redundancy of initiatives. v. Internal drives use similar strategies to troubleshoot everyday problems. However, they lack a structure for communication and dissemination of work standards, with responsibility being handled individually.
It is unlikely that a process or organization will fit into just one maturity level, as these present a complex maturity profile. Thus, it is common for them to present different degrees of adequacy to the attributes of two or more levels (Siqueira, 2005).

Compared to the model proposed by Gonçalves (2000a), Appendix A and Appendix B, the Campus was included in stage B, which would correspond to level 2 of the model. The characteristics of Stage B are:

i. The organization has identified its processes, sub-processes, and sub-sub-processes; ii. The focus of the effort is still on the functions; iii. The processes are framed in the functional structure; iv. The approach is too broad; v. Bottlenecks were improved and efficiency improvements were obtained.

However, although there are several process maturity models, they have been formulated to be used in companies. The recommendations do not take into account the particularities and reality of Brazilian public institutions.

In this sense, and based on the main difficulties of the members of the Commission and the difficulties identified by the managers of teaching, research and extension.

In this sense and taking into account the difficulty of the Commission and the managers to internalize the processes on the Campus, that is, to create the habit in the stakeholders to use the mapped processes, thus creating a new culture based on process management, an intervention proposal was prepared with the objective of establishing improvements in the pedagogical areas, namely, teaching, research and extension, thus raising the quality of teaching.

8.1 DEVELOP A MATURITY MODEL

Developing a maturity model inspired by existing models, but that includes the educational institution appears as a viable option for the organization to structure itself and define the direction it wants to take after mapping the processes. Each maturity level should be detailed with the requirements that the organization must fulfill to reach that stage of maturity. There should be basic recommendations of what the institution should do to reach the next level, these recommendations can serve as a basis for planning actions.
and the formulation of goals. Level 5 (or the maximum level) should indicate exactly the level of maturity that the organization is aiming for, thus directing efforts in a direction known to all.

8.2 TRAINING AND PERIODIC MEETINGS

Train managers for a basic process management program and establish periodic meetings with the Commission on the managers' agenda.

8.3 QUALITY STANDARDS AND INDICATORS

The objective is not to measure the performance of the public servants, as was even thought by the Commission and, subsequently, they dissuaded from the idea after resistance and legal issues. It is expected here to determine the satisfactory performance of the main processes of the Campus. The indicators would show how far the standards are being met and then look for ways to identify and eliminate the causes that prevent the expected performance from being achieved.

8.4 COMMUNICATION PLAN

Establish objectives and strategies for communicating with stakeholders. Meeting the needs of stakeholders is the most important aspect of process management. The following actions are suggested:

i. Identify stakeholders from each sector; ii. Specify the type of information and the type of media for each stakeholder; iii. Identify the media available in the institution to serve the interested parties; iv. Formulate communication strategy with each identified stakeholder.

In view of the work overload and the accumulation of functions as a common practice on the Campus, it is suggested that for the accomplishment of these and other possible activities, teams be set up by public notice that report to a central Commission.
Given the importance and difficulty in getting the support of senior management, the expectation is that as the results appear, there will be greater engagement and they will show interest in participating and supporting the initiative.

It is necessary to take into account that limitations such as lack of personnel, work overload, scarcity of resources and periodic management increase the degree of difficulty of any improvement proposal.

It is also important to note that the Commission is in the process mapping stage (AS-IS), an incipient stage within process management. In this way, the improvement proposal seeks to contribute to one of the possible paths for the development of the work.

9 CHAPTER V – CONCLUSIONS, STUDY LIMITATIONS, AND FUTURE OPPORTUNITIES

9.1 CONCLUSIONS

Since the 90's, the Brazilian public administration has been undergoing cultural and managerial changes with management reform. In private initiatives, management practices that would bring greater efficiency and effectiveness in the provision of public services were sought, such as Process Management, which, because it acts in the optimization of processes and is linked to the fundamentals of strategic planning, emerged with great preference.

But the managerial reform of the Brazilian public administration is still an ongoing process where public agencies, at different stages, are observed seeking to adapt to new management models.

In the course of this study, it was possible to follow the path taken by a Campus of the Federal Institute of Education, Science and Technology, in Brazil, until the creation of a Business Process Mapping Commission and to identify the main aspects in the implementation of process management.

The study presented here showed that the Institution identified, in the first management report, the need for operational improvements, placing the mapping of
processes as one of the priorities. The reports point out that projects aimed at the implementation of management by processes covering all *campuses* in the State under the coordination of the Pro-Rectory stalled as the initiative for the implementation in the rectory advanced.

After this period, two process management initiatives were identified on the *Campus* where the research was carried out. The creation of the Business Process Mapping Commission occurred after an unsuccessful attempt to restructure Process Management. This learning was crucial for the development of a simpler project for the mapping of processes without, however, modifying the functional structure.

The composition of the Commission is made up of three professors, all of whom already held other management positions, one technical-administrative and three students who were trained by the professors themselves. This accumulation of positions and responsibilities, which generates overload, is pointed out in the literature as one of the critical factors for the failure of initiatives in the Brazilian public sector, as well as the lack of support from senior management.

The Commission shows great commitment to think of ways to make the academic community internalize the mapped processes, that is, to create a culture of processes and to be consulted frequently. There is a feeling that, despite the initiative being praised, few make real use of the processes that have been documented.

By using process maturity models, the *Campus* was assigned level 2 of maturity, which means an organization where the processes are known, but which has not yet acquired maturity, a culture of processes. This partly explains the difficulty of internalizing the processes. According to Oribe (2008), standardization is not done only through documents. Standards must be incorporated to become one of the thoughts and habits of workers, which includes education and training.

In view of the results presented in this research, it was possible to confirm the high turnover in management positions. Of the managers who answered the questionnaire, 75% had been in the position for less than 6 months. On the other hand, they all agreed that the mapped processes helped them have a better understanding of the workings of their respective departments.
For the teaching, research and extension managers who answered the questionnaire, the mapping of the processes brought timid improvements. They agreed in part that there has been a decrease in rework and workload in their sectors and perceive that there has been an increase in efficiency in meeting demands. In addition, all believe that teachers benefit from the mapping of processes and that in the medium and long term it will have a positive impact on the quality of teaching. As for the students, 75% (3 managers) answered that they believe they also benefit from the process mapping, while 25% (1 manager) answered neutrally, i.e., neither agree nor disagree.

Finally, it is now possible to evaluate the hypotheses, which gave shape to the study, presented in the Hypothesis Table section:

Thus, Hypothesis 1 is confirmed, "The different approaches to the implementation of a process management project on Campus fail due to bureaucratic barriers". According to the Management Reports, the main difficulties were due to technical limitations, due to the lack of servers with training to perform activities of this technical level, and the high turnover of servers, making it impossible to continue projects in the long term. It can be seen that the particularities and bureaucracies typical of the Brazilian public sector had a direct influence on the non-continuity of the projects.

Hypothesis 2 is also confirmed, "The growth of the current structure hinders the development of creativity and strategic thinking of its HRs in favor of the quality of the institution", based on the numbers of the expansion of the Institute presented in Section 3.2.2 and the reports of the members of the Commission, the relationship between the increase in students and teachers and the overload generated at all levels of management is clear, causing loss of efficiency, high turnover in management positions, emotional exhaustion reflecting in the worsening of the organizational climate, among other aspects. These are also one of the main reasons for the creation of the Business Process Mapping Commission.

Hypothesis 3, by the way, is not confirmed, "The mapping of processes impacts mainly on the reduction of work overload, due to a greater standardization of activities, optimization of processes and increase of service levels". The reduction of work overload is part of the scope of the process mapping project, during the interviews the members
reported how work overload is part of the Campus culture, impacting the performance of managers and teachers. According to the questionnaire applied to the teaching, research and extension managers presented in Section 3.3, there was no unanimity in questions 6 and 7, referring to the reduction of rework and workload in the sector, respectively, with 50% (2 managers) of agreement.

And they all agreed that teachers will benefit from the mapping of processes. Based on this information, the hypothesis is not confirmed, because at the time this study was developed, there was no effective decrease in work overload, most likely due to the level of maturity of the Institution as presented in Chapter IV.

Finally, Hypothesis 4 is confirmed, "The mapping of processes is felt at the level of greater agility, operational efficiency and service of the different stakeholders, freeing them for activities of educational value", although it is not yet felt in a consolidated way, the hypothesis is confirmed because it is already felt in the perception of most managers according to the results presented in Section 3.3.

When asked if they perceive greater efficiency in the sector, question 8, 75% (3 managers) agreed, with no disagreement. On the other hand, when asked about the level of agility in decision-making, question 9, the number of agreement was 50% (2 managers), and there was also no disagreement. Finally, in the questions referring to the benefit of teachers and students with the process mapping, questions 13 and 14, there was 100% (4 managers) and 75% (3 managers) of agreement, respectively. When asked about the positive impact on the quality of teaching caused by process mapping, questions 15 and 16, they unanimously agreed on both.

Despite the incentives since the 1990s and the various initiatives, management reform is still incipient and its implementation is ongoing. The studies that will serve as a reference are still being produced. The contribution of this work is that it can serve, among many others, as a subsidy for future work and initiatives that see in process management a way to achieve efficient management.
9.2 LIMITATIONS OF THE STUDY

The limitation of this study is related to the sample size. The departments in the areas of teaching, research and extension with the mapped processes were lower than expected and made it impossible to obtain a larger sample of managers for the application of the questionnaire. A more significant sample would imply a better precision in the results, as well as greater reliability in the evaluation of the hypotheses raised.

However, the strategic level of the organizational units that participated in the research, Appendix C, provided that the data obtained were sufficiently representative for the research objectives to be achieved.

9.3 FUTURE OPPORTUNITIES

The implementation of the different process management approaches are not standardized, they must integrate the strategic elements of the organization and the culture must change to incorporate the new practices that will be implemented. In this way, the sharing of successful experiences is fundamental for the evolution and effectiveness of these approaches. This is the case, for example, of the Guide to Business Process Management (2013, p.19), which is updated with periodic improvements "based on practical experience, academic studies and lessons learned".

In the course of the investigation, the lack of academic studies and sharing of good practices in process management within the IPES was noticeable. This deficiency highlights gaps that can serve as a basis for future research. It is then suggested a research in which successful cases of implementation of process management in IPES are identified, an analysis of the entire path determining the critical success factors, the greatest difficulties and the actions taken at critical moments.

Research such as this has the potential to have a great impact on public management, to the extent that the sharing of good practices and successful experiences can support leaders in conducting process management projects in the particularities of
public educational institutions and provide greater efficiency in the execution of activities and generate value for the users of their services.
REFERENCES


