ASSOCIATED TOOLS STRATEGIC MODEL CANVAS AND SWOT ANALYSIS APPLIED IN STRATEGIC PLANNING OF PUBLIC PROJECTS

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Abstract

In the face of relative autonomy, public managers can formulate their own strategies in the face of environmental variables. This study aims to answer the following: How to elaborate strategic planning in an institution of higher education using the Strategic Model Canvas tools associated with SWOT Analysis? The general objective of this study is to study the use of Strategic Model Canvas tools associated with SWOT analysis for practical actions in strategic planning at a public university. This study is based on the New Public Management theory, proposed in the context of Western governmental organizations. In the preparation the content analysis method is applied, organizing the research corpus from three stages, namely, pre-analysis, material exploration and treatment of results, inference and interpretation. As a result, it was found that the researched institution requires a mature work group, and clear definition of strategic objectives with performance indicators that are specific, measurable, attainable, relevant, and temporal. With the application of SWOT analysis one can see that the results support the development of the action plan, showing the strengths and opportunities to be boosted and weaknesses and threats to be mitigated, in addition to enabling inferences for the strategic direction, and evaluation of offensive and defensive capabilities. It was also possible to bring in these results proposals through simulation of the Strategic Model Canvas in the fronts that are pointed out in the task; which highlights complementary elements compared to the use of the BSC.

This is a contribution from academia to managers committed to the excellence of the practices applied in this study.

1. INTRODUCTION

Public universities theoretically play a key role in building a more just, prosperous and innovative society. There can be found the way to access quality education regardless of the socioeconomic condition of the students; it can also make it possible to reduce social inequality, in addition to promoting research and innovation, while contributing to the economic development of the region or country. As a result of their relative autonomy, these institutions can, through their managers, formulate their own strategies, mitigating problems, and neutralizing macro-environmental threats, without concern for profitability. These are some reflections that justify studies involving the optimization and application of useful tools in strategic planning in public higher education projects.

This task seeks to answer the following research question: How to develop strategic planning in a higher education institution using the Strategic Model Canvas tools associated with SWOT Analysis? And to answer this question, the general objective was to study the use of Strategic Model Canvas tools associated with SWOT Analysis for practical actions in institutional strategic planning in a public university; and for the production of results, it brings as specific objectives to raise about the current practices admitted in the elaboration of strategic planning in a university institution (1), carry out a SWOT Analysis on the current reality in order to innovate the action processes (2), and propose innovative actions to be met through the Strategic Model Canvas (3). This document is structured by topics and subtopics, dealing, right after this introduction, with the theoretical-conceptual review, the methodology accepted in the construction of the task, the results in the form of objectives, the conclusion and the references consulted in the preparation.

2. THEORETICAL AND CONCEPTUAL REVIEW

This study is based on the Theory of New Public Management (NGP) which, according to Bresser (2015), was proposed in the context of western democratic government organizations. These institutions turn out to be large, slow, expensive, inefficient, in addition to not being customer-citizen oriented. NGP then emerges as an intellectual movement of several scholars and practitioners of public management in different countries, based on the changes that occurred in countries such as England, the United States and Australia, in which they identified convergences in measures that, together, they called New Management Public.

The reading carried out in Lapuente and Van de Walle (2020) shows that NGP goes beyond a concept; it is a doctrinal framework from several seminal British, American and Australian authors. They evoke that the NGP proposes reform and organizational change from the public bias, superimposing that classic Weberian bureaucratic model. Then, the concept of organization focused on results arises, based on practices arising from the private sector, reaching the citizen client. It was believed, therefore, that such practices would increase the efficiency and effectiveness of public organizations.

Maximiano and Nohara (2017) report that following the world trend, Brazil, in the 90s, introduced NGP precepts through the Master Plan for the Reform of the State Apparatus, however, it cannot be said that it was largely successful due to remnants of Patrimonialism evidenced through the corruption scandals, and by remnants of the excess of Bureaucracy, evidenced through the immobilization of the public machine, which still persist over the years. Although it has such remnants, New Public Management is still the prevailing model of public administration in Brazil, and although it has the title of nova in its name, this model has been in force for decades.

Lapuente and Van de Walle (2020) elucidate that, over the last few decades, numerous perspectives on New Public Management have been studied. Nevertheless, even though there is an intention to transcend NGP, the post-NGP reforms did not present themselves as a break with the model, as a new perspective that could replace it, but presented themselves as complementary, giving continuity to the initial concepts. Abrucio (1997) lists three main approaches of NGP models, as observed in the conceptual view shown in Table 1.

Table 1: NGP Models

Conceptual orientation	Descriptive
managerialism	Model operated under the imperative of cost reduction in the face of the fiscal crisis, implying the joint search for efficiency, and the achievement of objectives through a minimum resource in planned action.
consumerism	A model in which the importance rests on the quality of the public service and the prioritization of the client-citizen.
Public Service Orientation (PSO)	Model that considers the participation of society in decisions based on the use of concepts such as transparency, political participation, equity and justice.

Source: Prepared by the authors (2023).

Lara and Gosling (2016) argue that the reform proposed by the NGP puts the citizen in the place of analysis, either admitting a role of mere passive consumer (consumerism) or participating consumer (PSO), which leads to a broad discussion about the role of the client-citizen in the public sphere, but without a doubt, it can be seen that there is a substantial gain in adopting the concept of client in the context of public service, as it is used in the private sector, because in this way, the relevance of meeting their needs and providing a better quality public service is admitted. Therefore, changes in public administration require changes in the organizational culture in order to foster a continuous commitment to the provision of quality services, from institutional planning to the provision of the daily service itself.

Studies by Lapuente and Van de Walle (2023) report that although NGP seeks results, it is difficult to assess such performance due to lack of comparative data, which incurs controversy, since NGP is based on the search for efficiency and effectiveness, and to prove an optimized result, comparative data showing better performance is needed. The difficulty, then, lies in the fact that it is easier to measure costs than quality in public services.

Contextualizing its benefits, strategic planning appears in public administration as a consequence of NGP, and despite Normative Instruction No. 24 (BRASIL, 2020), which deals with the elaboration, evaluation and revision of Strategic Planning in public institutions, there are still difficulties regarding the elaboration and implementation of the plan. Costa et al. (2022) elucidates that with regard to federal Higher Education Institutions (HEIs), strategic planning is carried out through the Institutional Development Plan (PDI) which provides the action plan based on the institution's vision for the next five years, however , the difficulties identified for effective strategic planning are in the limited capacity of the management model and the participation of the agents involved in the elaboration, implementation and monitoring process, since the realization of the PDI goes beyond the legal imposition to meet the requirements of government agencies and guide institutional decisions.

2.1 Concepts about Strategic Planning

Dias Sant'ana et al. (2017) conceptualizes strategic planning as the means to achieve long-term organizational objectives; that is, planning is related to the vision of the future, the assessment of environmental variables that unfold into threats and opportunities, as well as action plans that consist of a joint effort to achieve the defined objectives. Strategic planning proposes a panoramic study, which allows managers to have a better perception of what is a priority for the organization, and such perception is relevant to the daily decision-making process.

In the context of federal IEs, each institution carries out its strategic planning through its own Institutional Development Plan (PDI) and serves both as a form of evaluation by the responsible bodies and for directing institutional objectives, so that it is based on a diagnosis systemic strategy, it also serves as a basis for reflection, formulation, implementation and management of action plans based on the institution's vision of the future. Considering the institution under analysis, the last Institutional Development Plan, PDI 2019-2024, was composed of objectives that are organized into five axes, as illustrated in Figure 1.
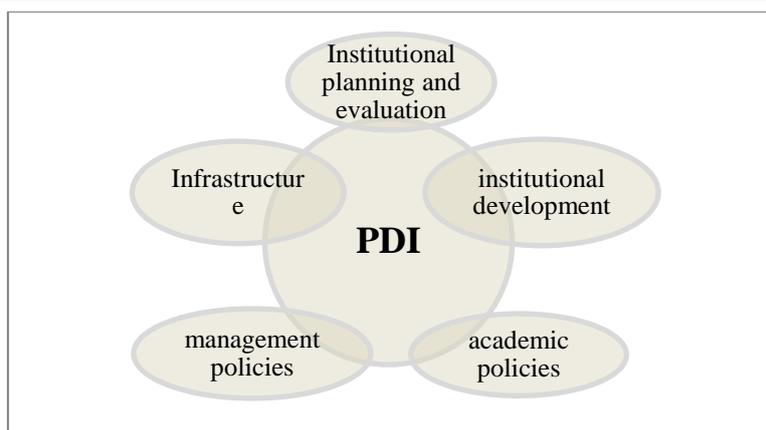
Figure 1 - Strategic axes, Source: Prepared by the authors (2023).

Dias Sant'ana et al. (2017) suggest the use of five tools to support the elaboration of the Institutional Planning of federal IES: SWOT analysis, Scenario Construction, Balanced Scorecard (BSC), Situational Strategic Planning (PES) and Business Model Canvas (Canvas). This same author and his collaborators report the expressiveness of the use of SWOT and BSB tools in the PDIs of the federal IES, the first with application in about 44% and the second with application in about 37% of the PDIs carried out until 2017, while the Canvas is still little disseminated as a tool for strategic planning with a tiny use close to 2%.

2.2 Swot Analysis Concepts

Strategic planning requires good situational analysis. As mentioned by Fernandes (2012), SWOT analysis is a tool that provides the elaboration of a diagnosis of the microenvironment (strengths and weaknesses) and the macroenvironment (opportunities and threats) in which the institution is inserted. Created at Harvard between the 1950s and 1960s, it has consolidated over time for being easy to understand and applicable.

It is worth mentioning that managers do not control the variables of the macroenvironment, and that the success of the strategy will measure the efficiency of the University in the face of environmental adversities, to exemplify, the COVID-19 pandemic is a variable of the macroenvironment to which all HEIs were subject, with this, there was an imperative need to respond to this variable, therefore, the organizations that proposed the best response had greater efficiency in the management of the business. The variables of the microenvironment are controlled by managers through the internal processes of the institution, therefore, they will measure the performance of the institution. Table 2 illustrates the initial stage of elaboration of the SWOT matrix, the survey of the factors of the internal and external environments.

Table 2 - SWOT Matrix

Internal Analysis	S *Strengths*	W *Weaknesses*
External Analysis	O *Oportunities*	T *Threats*

Source: Dias Sant'ana et al. (2017).

After identifying the strengths, weaknesses, opportunities and threats, one must confront the internal factors with the external factors to evaluate the possible strategies in the scenario in which the institution finds itself. Table 3 shows the possible strategies after the cross-referencing of the factors.

Table 3 – Strategies from the crossing of factors

Cross-Referencing	Strategy
Strengths x *Oportunities*	Development strategy
Strengths x *Threats*	Maintenance strategy
Weaknesses x *Oportunities*	Growth strategy
Weaknesses x *Threats*	Survival strategy

Source: Dias Sant'ana et al. (2017).

2.3 Concepts And Definitions about Strategic Model Canvas

The Business Model Canvas (BMC) was developed from Alexander Osterwalder's doctoral thesis in 2004, and since then it has become one of the most popular tools for business modeling, not only to create a business model, but also to enhance existing models by fostering innovation. For Osterwalder and Pigneuer (2019), the Business Model can be visually illustrated through nine components that represent the perspectives of how an organization can generate value, namely: customer segments, value proposition, channels, customer relationship, revenue sources, key resources, key activities, key partnerships and cost structure.

Similar to the Business Model Canvas, De Abreu Mancini et al. (2018) proposed the use of the Strategic Model Canvas (SMC) as an adaptation of the strategy-driven BMC concept. The SMC brings the visual representation of the different perspectives and facilitates the understanding of the strategic direction of the organization through visual synthesis, enabling comparisons, engagement, inspiration and more effective communication between those involved. The SMC with its visual concept enables strategic thinking to precede strategic planning, through 4 strategic perspectives and 10 blocks.

As an adaptation of the BMC, Abreu Mancini et al. (2018) elaborated the Strategic Model Canvas (SMC) through four perspectives, namely: Stocks, Strategic Choice, Portfolio and Environment, and is designed to answer respectively the questions: Why?, What?, How? and How much?, as illustrated in Figure 2.

Figure 2 - Strategic Model Canvas and its perspectives
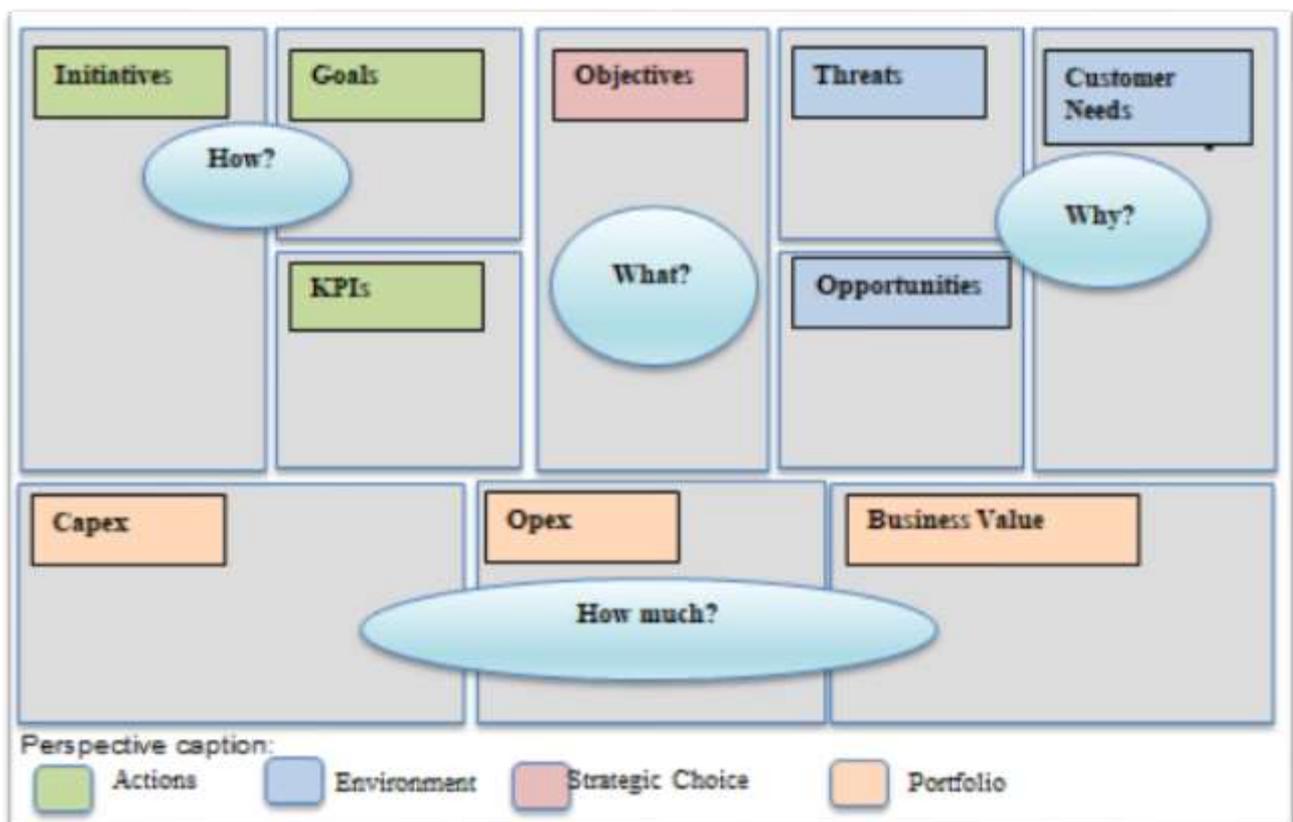
Source: Prepared by the authors

Just like the traditional Business Model Canvas (BMC), each perspective has blocks that form a visual map, the conceptual orientation of the proposed blocks is presented in Table 4 below.

Table 4: The elements of the Strategic Model Canvas

Prospect	Block	Conceptual orientation
Strategic Choice	**Objectives**	It is the central link for the other perspectives of the tool, defines the strategic direction for the coming years.
Actions	**Initiatives**	These are the actions that will be implemented to achieve the objectives.
	Goals	This block indicates the success reference for each objetive.
	KPIs	It concerns the results achieved, that is, it is the measurement and control of the performance of the initiatives.
Portfolio	**CAPEX**	It concerns investment in Capital Goods and proposes the cost-benefit analysis of the highest risk initiatives.
	OPEX	It concerns the Operating Expenses that must be considered.
	Business Value	It evidences the expected benefits with strategic objectives.
Environment	**Threats**	It is factors external to the organization that threaten the strategies.
	Opportunities	It is factors external to the organization that favor the strategies.
	Customer Needs	It concerns the analysis of the microenvironment through the perspective of customers in a competitive market.

Source: Adapted from De Abreu Mancini et al. (2018).

The authors De Abreu Mancini et al. (2018) suggest that with the application of the Strategic Model Canvas it is possible to generate benefits (Business Value) by meeting the strategic objectives aligned with what customers and stakeholders expect from the organization (customer needs).

3. METHODOLOGY

The present study proposes an investigation, following a cross-sectional mixed methods approach. Thus, a qualitative stage was carried out through an interview with a member of the strategic planning department of the institution, and another quantitative stage in which the SWOT simulation was proposed by scoring the cross-checks of the factors. The information for the elaboration of the factors that made up the SWOT Matrix was collected from the Institutional Development Plan 2019-2024 (BRASIL, 2019), associated with the Management Report 2021 (BRASIL, 2022) produced by the institution under analysis, and from the document generated from the audit of evaluation of the performance of Federal Universities carried out by the Federal Court of Auditors (BRASIL, 2022), then, from the SWOT analysis, it was possible to define the strategic positioning and simulate the Strategic Model Canvas considering the strategic positioning of the institution, the main threats and opportunities.

3.1 Regarding the Content Analysis Method

In order to raise the crucial points for HEIs with regard to the development and monitoring of strategic planning, an interview was conducted with a member of the strategic planning department, followed by a qualitative analysis, through content analysis as proposed by Bardin (1977), organizing the corpus of the research from three stages, namely, the pre-analysis, the exploration of the material and the treatment of the results, inference and interpretation.

3.2 Regarding the Procedures Adopted

For the elaboration of the scale of analysis for strategic planning, content analysis of the interview with a

member of the strategic planning department of the institution was performed, according to a study conducted in Bardin (1977). In addition, based on the result of the interview and the notes of the audit of the Court of Auditors of the Union of 2022, as well as the last Management Report (2022) of the institution whose base year is 2021, the tables and tables were elaborated simulating the application of the strategic tool SWOT Matrix, as proposed by Fernandes (2012), followed by the simulation of the application of the Strategic Model Canvas tool as proposed by De Abreu Mancini et al. (2018).

3.3 Regarding the Analysis

Strategic planning has a participatory character, which in the perspective of Habermas (2012), starts from the premise that communication is a social process to achieve results. The author suggests free communication to obtain a rational consensus and defends the need to develop logical awareness to understand and evaluate arguments, thus enabling the emancipation of individuals, which enables the transformation in social structures. The data that served as the basis for environmental analysis, although some are from a secondary source, were initially generated from social interaction, as well as the interview conducted. From these data, SWOT and SMC tools were implemented to evaluate their applications in the strategic context of public HEIs. However, it should be noted that according to the critical theory of Habermas (2012), the application of instrumental reason should be treated with limits, given the relevance of communicative reason to promote shared understanding.

4. STUDY OF STRATEGIC PLANNING IN A HIGHER EDUCATION INSTITUTION

Strategic planning in the context of Federal Universities is still recent, and was implemented from legal imposition, Presidential Decree No. 5,773, of 2006 (BRAZIL, 2006). However, the planning that was initially carried out to meet the legislation, allowed the exercise of the action of planning from this beginning to the strategic culture in the institution. Even after some PDIs have been carried out, members of the institution still recognize that it is necessary to mature the way strategic planning is idealized, carried out and controlled so that the institutional reality is adequately captured, considering the expectations of the citizen client and in order to promote the engagement of strategic practice at all levels of the institution.

4.1 Survey of the Current Practices of the Strategic Planning of a University

A search conducted in Brazil (2019) informs that the institution under analysis has its current strategic planning defined by the PDI document 2019-2024, in which tools such as SWOT Matrix, Scenario Construction and Balanced Scorecard (BSC) were used. The current institutional PDI proposes the SWOT for the environmental assessment that will subsidize the vision of the future (scenario analysis). The scenario analysis tool consists of the construction of projections of possible futures, considering different external variables that can affect the organization, being useful for the mapping of risks, threats and opportunities, which resembles in some respects the same proposal of SWOT.

The BSC is used in the final stage of planning because it provides the focus on what results the organization wants to achieve and for this, it considers the strategic analysis of 4 dimensions: customer perspective, the perspective of internal processes, the financial perspective, the perspective of learning and growth, the latter being oriented to the support of the other 3 previous dimensions, that is, it concerns elements that support the climate of organizational growth, as presented by the authors Dias Sant'ana et al. (2017).

In summary, the process of preparing the strategic planning of the institution under analysis for the period 2019-2024 was carried out through the following sequential steps: environmental analysis, SWOT elaboration, definition of strategic positioning, realization of scenario construction, definition of actions through the BSC with elaboration of goals and indicators, and finally, the elaboration of strategic map. From the strategic direction (strategic map) established in the PDI of the IES in question, the objectives of the tactical planning are defined considering the axis of action, in this way, the planning is aligned to guide the management and governance in the execution of its activities and processes, with a view to creating value for society (BRAZIL, 2022).

It should be noted that the BSC was the last tool applied in the process of preparing the PDI 2019-2024 with the intention of enabling an action plan to achieve measurable objectives that would later be monitored by indicators, however, after an interview with a member of the strategic department of the institution under analysis, it was observed that the greatest difficulty of strategic managers consists in measuring the quality of the service provided, such as how to measure the success rate of graduates, with regard to employability in the area of training.

Another observation is that the measurement becomes easier for objectives with systemic evaluation already instituted, such as the evaluation of courses and external institutional evaluation, because it makes use of the results of the National Examination for Evaluation of Student Performance (ENADE) and does not

require data collected by the institution itself, which evidences a strategic culture still immature. Some objectives were not adequately contextualized to enable their broad understanding and measurement. What requires the understanding of the multidisciplinary working group on how well to define strategic objectives, for the elaboration of the PDI offer key indicators of business performance, associated with the SMART criteria: S (Specific), M (Measurable), A (Attainable), R (Relevant), and T (Temporal).

4.2 SWOT Analysis on the Current Reality Involving the Possibility of Innovation in Processes

For the preparation of the SWOT matrix considering the scenario of the institution under analysis with a focus on the Institutional Development Axis, notes from the audit of the Federal Audit Court were studied, as well as the last Management Report whose base year is 2021 and interview with a member of the strategic planning department of the institution. Thus, for the use of the SWOT Matrix tool, 8 strengths, 8 weaknesses, 8 opportunities and 8 threats were identified to simulate the application of the tool in the context of the HEI under study. Acronyms were considered for the factors identified in order to facilitate the organization of the SWOT Matrix, being F for strengths, Fr for weaknesses, O for opportunities and A for threats, as proposed in Table 5 (Internal analysis) and Table 6 (External analysis).

Table 5 – SWOT: Internal Analysis

Code	Strengths
F1	Qualified training for the labor market.
F2	Leadership in local scientific production.
F3	Diversity in the profile of students (inclusion).
F4	Offer of extension activities.
F5	Internalization of higher education.
F6	Qualified faculty (masters and doctors).
F7	Articulation with other public and private universities.
F8	Economic, cultural and social development of the region.

Code	Weaknesses
Fr1	Difficulty in replacing/replacing retired and/or assigned servers (from the end and middle areas).
Fr2	Deterioration of physical facilities.
Fr3	Deficiency in communication processes with stakeholders.
Fr4	Average dropout rate close to 30%.
Fr5	Non-utilization of all installed capacity (idle spaces).
Fr6	Strategic culture in development.
Fr7	Educational approaches centered on the teacher's speech, the reading of the book and the passivity of the student.
Fr8	Follow-up actions of graduates are still incipient, with rare longitudinal studies on the subject.

Source: Prepared by the authors (2023).

Table 6 – SWOT: External Analysis

Code	Opportunities
O1	Democratization of access to higher education / diversity in the profile of students (Law 12.711/2012 – Law of quotas).
O2	Expansion of vacancies in various shifts.
O3	Expansion of the offer of courses in the Distance Learning / Hybrid modality (Reuni Digital).
O4	University Platform 360.
O5	Andifes Academic Mobility Program (Promote).
O6	Growing demand for teaching, professional qualification, research and innovation.
O7	Decentralized Execution Terms (TEDs) for the realization of academic projects.
O8	Partnerships with universities in the Continental Amazon, and with other national and international public and private entities.

Code	Threats
A1	Reduction of the IFES budget.
A2	Increased dependence on resources from parliamentary amendments for funding and investment.
A3	Rules of revenue estimates and fixing of expenses imposed by EC 95/2016.
A4	Evasion of researchers.
A5	Deficiency in the basic training of freshmen.
A6	Expressive contingent of students in a situation of socioeconomic vulnerability.
A7	Large turnover of high-level managers of the bodies responsible for conducting policies for higher education (MEC, Inep, Capes, CNPq).
A8	Relative administrative and financial autonomy.

Source: Prepared by the authors (2023).

After the survey of the factors, the confrontations of the factors by peers began from the following reflections:

I)   Analysis of forces vs. Opportunities: With what intensity does the Force in analysis help to seize the opportunity in analysis?

II)   Analysis of strengths vs. threats: How strongly does the Force under analysis help the organization mitigate the Threat under analysis?

III)   Analysis of Weaknesses vs. Opportunities: How strongly does Weakness under analysis make it difficult for the organization to seize the opportunity under review?

IV)   Weaknesses vs. Threats Analysis: how strongly does the Weakness under analysis accentuate the risk of the Threat under analysis?

For the score, the following scale was considered in all crossings: 0 for indifferent; 1 for little and 2 for much. Figure 3 shows the result, the cross-SWOT matrix obtained from the cross-checks of the factors and the respective scores.

Figure 3 – Simulation of the crossed SWOT matrix

SWOT Matrix			External Environment																Total
			Opportunities								Threats								
			O1	O2	O3	O4	O5	O6	O7	O8	A1	A2	A3	A4	A5	A6	A7	A8	
Indoor environment	Strengths	F1	2	1	2	2	0	2	0	1	0	0	0	0	0	0	0	0	**10**
		F2	1	1	1	2	0	2	2	1	2	0	0	2	0	1	1	0	**16**
		F3	2	0	2	2	1	2	0	1	0	0	0	1	0	0	1	0	**12**
		F4	1	0	1	2	0	2	1	1	0	0	0	0	0	1	0	0	**9**
		F5	1	2	2	2	0	2	0	0	0	0	0	0	0	2	1	0	**12**
		F6	0	0	2	2	0	2	2	2	2	0	0	2	0	0	1	0	**15**
		F7	0	0	1	2	2	2	1	2	2	2	2	2	0	0	0	1	**19**
		F8	2	2	2	1	1	2	2	2	0	0	0	0	0	1	0	0	**15**
	Weaknesses	Fr1	0	2	2	1	0	2	0	0	0	0	0	2	0	0	2	2	**13**
		Fr2	1	2	0	2	0	2	0	1	2	0	2	1	0	0	0	2	**15**
		Fr3	2	2	1	0	2	1	1	1	2	0	0	0	0	1	0	2	**15**
		Fr4	0	2	2	2	2	2	0	0	2	0	0	0	1	1	0	0	**14**
		Fr5	0	2	2	2	0	0	0	0	2	0	1	0	0	0	0	0	**9**
		Fr6	0	1	1	2	1	1	2	2	2	2	2	1	0	0	0	2	**19**
		Fr7	0	1	2	0	0	1	0	1	0	0	0	1	1	0	0	0	**7**
		Fr8	1	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	**6**
∑ (F x O)			9	6	13	15	4	16	8	10	6	2	2	7	0	5	4	1	
∑ (Fr x O)			4	12	11	11	6	10	3	5	10	2	5	5	2	2	2	8	
Total ∑ (F x O) - ∑ (Fr x O)			**5**	**-6**	**2**	**4**	**-2**	**6**	**5**	**5**	**-4**	**0**	**-3**	**2**	**-2**	**3**	**2**	**-7**	

Source: Prepared by the authors (2023).

After the confrontation of Opportunities x Strengths; Opportunities vs. Weaknesses; Threats x Strengths and Threats x Weaknesses, the totalizations and inferences of the current scenario were made, for this, the Total column represents the sum of the lines confronted, that is, it measures the potential of the strength, because it adds the confrontation of each strong point x opportunity with strength x threat, so it is possible to identify the forces of highest score. Therefore, the forces with the greatest relevance were identified: F7 (Articulation with other public and private universities) and F2 (Leadership in local scientific production).

Considering this same sum criterion, we have the total resulting from the sum of weakness x opportunity with weakness x threats, in order to evidence the greatest weight for Fr6 (Strategic culture in development), Fr2 (Deterioration of physical facilities) and Fr3 (Deficiency in communication processes with stakeholders), inferring that these are the weaknesses that require greater attention in planning.

The Total line is obtained from the sum of the column of each upper quadrant subtracted from the sum of the same column of the lower quadrant, therefore, this total proposes to evidence the opportunities with greater

potential and threats that need to be neutralized, in this analysis the result of the sum should be considered as a factor, that is, the cross obtained from Fr8 x A8 resulted in -7 and this was the highest score of this Total line.

Thus, the Opportunities with greater relevance were identified: O2 (Expansion of vacancies in various shifts), O6 (Growing demand for teaching, professional qualification, research and innovation), O7 (Terms of Decentralized Execution (TEDs) for the realization of academic projects) and O8 (Partnerships with universities in the Continental Amazon, and with other national and international public and private entities). Then, the most relevant threats were highlighted: A8 (Reduction of the budget of IES) and A1 (Relative administrative and financial autonomy).

In addition to the confrontations of the factors, it is possible to make some inferences about the situational strategic capabilities of the institution, for this, it is possible to evaluate the total score of each of the quadrants. To illustrate, admit Q1 as the confrontation quadrant between Strengths and Opportunities, Q2 as the confrontation quadrant between Strengths and Threats, Q3 as the confrontation quadrant between Weaknesses and Opportunities, and finally, Q4 as the confrontation quadrant between Weaknesses and Threats. Consequently, from the sum of the points attributed to each quadrant, the highest score for quadrant Q1 can be perceived, as shown in Figure 4, which means a favorable scenario for development strategy.

Figure 4 – Analysis of the quadrants of the SWOT Matrix

Source: Prepared by the authors (2023).

In addition to the inference for strategic choice, the adoption of the SWOT Matrix enables the identification of the offensive and defensive capacity of the institution under analysis from the sums of each quadrant, as explained below.

I) Offensive capacity (Q1 – Q3): 45 points.

Obtained from the sum of the values of quadrant Q1 (strengths x opportunities, subtracted from the sum of the values of quadrant Q3 (weaknesses x opportunities). The positive result demonstrates that the IES has the capacity to take advantage of the opportunities listed.

II) Defensive ability (Q2-Q4): -9 points.

Obtained from the sum of the values of quadrant Q2 (strengths x threats), subtracted from the sum of the values of quadrant Q4 (weaknesses x threats). The negative result demonstrates the weakness of the IES in reacting to threats, thus requiring attention to the weaknesses listed.

It should be noted that cross-SWOT can contribute to the evaluation of factors when the score is expressive, and that the factor will only be disregarded when your score is null or irrelevant compared to the others. In view of the application of SWOT, it can be seen that the result of the confrontations will serve substantially for the elaboration of the action plan, as it highlights the forces that need to be boosted, weaknesses that need to be mitigated, opportunities that need to be taken advantage of and threats that need to be neutralized, in addition to allowing inferences to guide the adoption of the best strategy, and assessment of the institution's offensive and defensive capabilities.

4.3 Proposals for Innovative Actions in the Face of the Strategic Model Canvas

As proposed by De Abreu Mancini et al. (2018) to implement the SMC tool, it is necessary to understand the following logic: for each customer need a strategic objective must be established, such objective must have initiatives (actions), and these actions must have goals, which in turn will be controlled by KPIs (Key Performance Indicators), so that it will be possible to evaluate the strategic performance, with regard to the needs of the client, and the environmental factors (threats and opportunities) identified in the context of the organization. Finally, it is listed how the fulfillment of the objectives will result in costs (Capex and Opex) and what benefits will be expected.

Thus, from the data collected from the SWOT analysis and also from the objectives in the PDI 2019-2024, it was possible to elaborate a proposal of Strategic Model Canvas for the HEI under study, in order to innovate the strategic process according to table 7.

Table 7 - Simulation of the Strategic Model Canvas Blocks

Block ID	Credible action
Objectives Block	To become a reference in higher education, scientific and technological production in the region.
Initiatives Block	Invest in research and innovation infrastructure. Develop more efficient communication policies with stakeholders. Strengthen partnerships with other universities and public and private entities. Strengthen the strategic culture of the institution.
Goals Block	Increase scientific production by 30% in the next 5 years. Improve by 50% the index of the evaluation of communication processes. Increase by 20% the number of research and innovation projects in the next 5 years. Conduct quarterly strategic discussion workshops to monitor results.
KPIs Block	Number of scientific articles per year with concepts B2 or higher. Net Promoter Score. Number of Projects with Partners per year. Number of workshops held per year and evaluation of the rate of progress of results.
Threats Block	Reduction of the IFE budget. Relative financial and administrative autonomy.
Opportunities Block	Expansion of vacancies in various shifts. Growing demand for teaching, professional qualification, research and innovation. Possibility of decentralized execution (TEDs) for academic projects. Partnership with universities in the Continental Amazon and with other entities.
Customer Needs Block	Offer quality education and professional training of excellence.
Capex Block	Investment in infrastructure to foster research and innovation. Improvement of physical facilities
Opex Block	Personnel costs for teaching and operational support. Material costs.
Value Proposition	IFES credibility for the community. Position of relevance in the regional scientific production.

Source: Prepared by the authors (2023).

Table 7 shows an objective that considers the development strategy whose inference was obtained in the SWOT analysis stage. From the objective, the action plans, their respective goals and KPIs were established. Therefore, threats and opportunities were also obtained from the SWOT analysis. The customer needs block was filled from what is relevant to the citizen customer. Capex and Opex blocks must be populated from administrative information. The Value Proposition block reinforces must be filled out to reinforce what the institution offers as a differential in its field of activity.

The simulation promoted the understanding that the Strategic Model Canvas (SMC) brings complementary elements when compared to the BSC and may be a more suitable option for a university that needs to mature its strategic culture.

5. CONCLUSION

This study is aimed at the public interested in strategic planning in Federal Higher Education Institutions that face the difficulty of measuring the quality of the service, given the perspective of the NGP when considering the currents of consumerism that emphasizes the client-citizen and the PSO that places the client as an active participant through concepts such as accountability, transparency, political participation and equity. Thus, this study proposed to elaborate the strategic planning in a federal higher education institution using the tools SWOT Analysis and Business Model Canvas as a way to rethink the strategic planning of a federal HEI through the use of two tools inherited from the private initiative, the first in order to analyze the environment in which the institution is inserted and the second to evaluate innovative improvements with regard to planning strategies.

It is identified that the current strategic planning made use of the BSC, as it is a tool that helps translate the strategy into specific objectives with performance indicators, goals and initiatives, implemented with a focus on measuring and monitoring performance. The SMC proposed in this study, on the other hand, is a more comprehensive visual tool in perspectives than the BSC, because it helps to structure the strategic planning with the visual representation of 10 different perspectives, facilitates the understanding of the institution through synthesis, enabling comparisons, engagement, inspiration and more effective communication among those involved, elucidating the expected value with objectives, in addition to proposing goals and indicators. The added value of SMC lies in the purpose of focusing on understanding and communicating the logic behind strategic thinking, which can significantly help in the development of the strategic culture of the IES under analysis.

Therefore, it is possible to affirm that if managers are seeking a more qualitative and visual approach to strategic planning, associating SWOT with SMC may be a viable option for the strategic process. Therefore, the choice between associating SWOT with the BSC or SMC will depend on the type of approach and methodology that management prefers to adopt.

In the development of this study, it is worth mentioning that the simulation of the elaboration of a SWOT matrix for the institutional development axis was carried out, as well as the SMC for this same axis and it is considered that the factors raised are incipient to foster the elaboration of a new PDI, because the proposal here resided in the evaluation of the methodology itself, therefore, it would be desirable that the survey of factors for the SWOT analysis be longitudinal with the participation of multidisciplinary groups so that the instrumental reason does not overlap with the communicative reason (HABERMAS, 2012). Thus, from a longitudinal survey, it would be possible an ideal representation of the organization so that the SWOT matrix adds value to the strategic planning.

It is also recommended the application of the tools by strategic axis, with the participation of multidisciplinary groups in the survey of environmental variables and a previous mapping of the needs of the clients (academic community) as a means of enhancing the results. With the analysis performed for the Institutional Development axis, the results obtained through the cross-SWOT analysis points to a Development Strategy, which corroborates the application of the Strategic Model Canvas, since the idea of development refers us to innovation.

As a conclusion, it was found that the application of SWOT and Strategic Model Canvas tools enabled the identification of environmental factors that require greater attention and also a greater ease in strategic visualization, especially for an institution that needs to foster strategic culture not only at the tactical level, but at all levels.

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