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International Scientific Journal – ISSN: 1679-9844
Nº 4, volume 18, article nº 11, October/December 2023
D.O.I: http://dx.doi.org/10.6020/1679-9844/v18n4a11
Accepted: 14/04/2023 Published: 29/12/2023

SWOT ANALYSIS AS A STRATEGY IN PUBLIC PROJECT MANAGEMENT OF AGRICULTURAL TECHNOLOGY WITH A FOCUS ON GREEN CATTLE

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Resumo

A crescente participação dos produtos de origem agropecuária na pauta de exportações do Cone Sul da Amazônia conduz à necessidade percebida de formação de quadros técnicos profissionais especializados, aptos a conduzirem os saltos produtivos de qualidade e expansão da oferta correspondente. Para suprir essa lacuna, propõe-se o gerenciamento de um projeto simulado de implantação de curso de tecnologia agropecuária em uma universidade pública da região, com o uso da Análise SWOT e sob a perspectiva da Nova Gestão Pública. Dessa forma, optou-se por dar ênfase nas técnicas do "boi verde", conceito sustentável em voga e que desponta como potencializador das exportações para os mercados internacionais sofisticados. Além disso, o "boi a pasto", é um modelo que se apoia na alimentação dos rebanhos predominantemente com a vegetação de pastagens, naturais ou plantadas sem agrotóxicos, assim reduzindo o impacto ambiental de uma atividade econômica hoje apontada como geradora de significativa poluição e gases de efeito estufa. Delimitou-se como objetivo geral estudar a aplicabilidade da ferramenta da Análise SWOT no gerenciamento de projeto público estratégico em tecnologia agropecuária com foco no boi verde, tarefa que aponta as possíveis contribuições de um projeto dessa natureza e culmina na elaboração de um *framework* operacional simulado para a gestão dos riscos do projeto. Os resultados apontam a viabilidade e a oportunidade do projeto, bem como o seu potencial para alavancar o desenvolvimento econômico da região.

Palavras-chave: Análise SWOT, gestão de riscos, projetos públicos, universidade, sustentabilidade.

Abstract

The increasing representation of agricultural origin products in the exports of the Amazon Southern region leads to the perceived need for training specialized technical staff, able to lead the productive leaps in quality and the expansion of these products' supply. To fulfill this gap, it is therefore proposed the management of a simulated project to implement an agricultural technology course at a public university in the region, using SWOT Analysis and under the perspective of the New Public Management. It emphasizes the teaching of 'green' livestock production techniques, a sustainable concept that is currently on the rise and which is emerging as a booster of exports to sophisticated international markets. That model relies on feeding the herds predominantly with pasture vegetation, whether natural or planted without pesticides, thus reducing the environmental impact of an economic activity nowadays identified as a generator of significant pollution and greenhouse gases. The general objective of the research was to study the applicability of the SWOT Analysis while managing a strategic public project in agricultural technology with a focus on the 'green' livestock production, a task that points out the possible contributions of a project of this nature and culminates in the development of a simulated operational framework for project risk management. The results indicate the project's feasibility and opportunity, as well as its potential to leverage the region's economic development.

Keywords: SWOT Analysis, risk management, public projects, university, sustainability.

1. INTRODUCTION

The economy of the State of Rondônia has a strong agricultural vocation, as shown in the data from the State Secretariat of Planning, Budget and Management of the state government. For example, the Rondonian export agenda has as its main contribution the products of agrarian origin, cattle ranching and mineral extraction; But the most relevant in foreign trade in 2020 were frozen, chilled or fresh beef, which totaled about 659 million dollars. In addition, the bulk production of soybeans, closely related to animal husbandry, represents one of the main inputs for the manufacture of feed. This information refers to the meaning of the management of actions aimed at a public project addressed to professional training in the area of agricultural technology with a focus on the green ox, destined to the solution by the qualification of the Amazon, in this complex history of excellence in which an educational institution could contribute to fill the gaps in this mister.

Another aggravating factor is the scenario left by the health crisis between 2019 and 2022. Demonstrating a severe evidence of contextual change in public education, with its political, economic and social aspects, especially considering the post-COVID-19 future, when a new scenario will unfold. This is when the market will become much more rigorous, with new planning guidelines and strategic actions, which would motivate the management of basic measures, such as those aimed at professional training in agricultural technology with a focus on the green ox, through scenario study. SWOT Analysis can serve as an institutional tool for the management of credible measures, motivating investigative work such as this. And then the following question arises: How could SWOT Analysis support strategic public project management in agricultural technology with a focus on green cattle? To answer this question, the general objective is to study the applicability of the SWOT Analysis tool in the management of the strategic public project in agricultural technology with a focus on the green ox; and for the results, it brings as specific objectives to identify the need for professionals in agricultural technology (1); to point out the possible contributions that the management of a public project of an agricultural technology course may bring to the development of the Southern Cone of the Amazon (2), and to elaborate a simulated operational framework for project risk management, based on the SWOT Analysis (3).

And the scientific article is structured in: topics, subtopics and presents, after this introduction, the theoretical and conceptual review, the methodology for construction of the proposed research, in addition, the results obtained, the conclusion, and the bibliographical references.

2. THEORETICAL AND CONCEPTUAL REVIEW

The State has assumed new dynamics, both economic and social, which requires its commitment in the search for efficiency, to account for all its activities, either through public entities, or in partnership with private institutions, fostering the economy and generating development. To do so, it is necessary to design Public Management, with greater responsibilities and autonomy for action. Pereira (2001) teaches that the State should be more focused on markets and competition at the international level, because technological advances and globalization require answers in less time and well-thought-out strategies. Therefore, bringing the way private initiative works to the center of the New Public Management, New Public Management, is essential for national growth and development.

The following subtopics deal with the theoretical concepts that guide the preparation of the research, focusing on the management of public projects and agricultural technology with a focus on the green ox; institutional compliance and risk management; and, finally, it deals with definitions of public policies and development in the Amazon.

2.1 Concepts of management of public projects, agricultural technology and green cattle

The problems related to bureaucratic dysfunctions, such as inefficiency, low effectiveness and lack of quality, created the emergency space of the New Public Management. In this new management, agile response instruments are needed, where public project management practices are incorporated, which mobilize the life cycles of projects through management by a modern and efficiency-oriented tooling. Agriculture, a significant sector for development, can benefit from the New Public Administration to increase the economic progress of places that prove to be potential. With agricultural technologies being one of the vectors for the training of skilled labor, focusing on the proposal of the green ox, there will be expansion in exports that can position the State of Rondônia on the world stage.

2.1.1 Conceptualizing public projects

In Brazil, from the Administrative Reform Plan, the mobilization for a Management State emerges through the conception of the New Theory of Public Management, which begins to be disseminated with a focus on the pillars, emerging the concepts of client/citizen, quality, flexibility, strategic planning and results. They are renovations that substantially improve the management of public projects, now having a system and logical tools compatible with modern administration, focusing on their real needs. So much so that Pinheiro and Rocha (2012) affirm that it is noticeable that governments have started to adopt a management model that values performance and that they succeed when care occurs in the conduct of public projects. Project management gains substantial theoretical body precisely in the period of diffusion of the new public management. Thus, it is possible to notice a correlation between the themes and the inseparability between the achievement of the best performance, primacy by the New Public Management, and the management of public projects, with techniques that lead to solutions.

The management of public projects contains a life cycle that usually comprises the phases: Project Proposal; Planning; Execution; Monitoring and Control; Closure; and Results and Benefits. These steps are consistent with the aforementioned characteristics of the New Public Management. Table 1 that follows allows us to conceptualize the characteristics and requests of the New Public Management and, on the other hand, how the management of public projects enables the achievement of the desired results.

Table 1: Definitions of the relationship between the New Public Management and the Management of Public Projects.

Concept	Definitions
1. Needs of the citizen	1.1 The interaction between the Public Administration and the citizen starts from the needs presented by the latter, which need to be managed efficiently.
2. New Public Management	2.1 The needs of citizens will be met; management trend through private market tools and techniques; focus on effectiveness.

3. Public Policies	3.1 Set of actions that the government proposes, strategically, to solve the problems of citizens collectively.
4. Public project management	4.1 Use of specialized techniques and best practices for the management of the entire project lifecycle in public organizations, including the SWOT matrix.
5. SWOT analysis	5.1 Modern public project management tool that analyzes strengths, weaknesses, threats and opportunities in the purposes of public projects.
6. Results	6.1 Impact on the problem situation to be addressed by the public project. The New Public Management has a predominant orientation to results, in contrast to process indicators.

Source: Prepared by the authors based on the research.

Based on the concepts outlined, it is possible to infer that the paradigm of the New Public Management significantly benefits the results obtained in project management, impacting the effectiveness of public actions.

2.1.2 Concepts on agricultural technology and on green cattle

Technological transformations have enabled the development of several areas of knowledge and economic sectors. The same is true of agriculture. Gehlen (2001) states that agricultural growth needs to be supported by technological resources, specialized and trained professionals, as well as points to the State as the main provider of resources that allow and support this growth.

In the scenario of agricultural technology is the green ox, a model of cattle breeding, for meat consumption, which Dall'agnol et al. (2015) claim to be made with pasture without the use of pesticides in conservation and supported in feeding also by other vegetables. This model is also called "The ox to pasture", and is supported by the feeding of the animal predominantly of vegetation, coming from natural or planted pastures.

The expansion of agricultural technology can help make the green ox achieve world-class quality standards. The products of agriculture, as Gehlen (2001) affirms, have world standards and for the insertion of the producer in a competitive market it is

necessary the help of specialized professionals. Thus, this improvement of the sector enables the generation of employment and income. In this same sense, to take advantage of the proposal of the green ox aligned with agricultural technologies, Dall'agnol et al. (2015) sees a strong differential for Brazil, due to the capacity of Brazilian slaughterhouses, coupled with the consumer appeal for green seals and healthy products produced with ecological concern.

Experts on the subject explain that products such as green cattle are aimed at consumers who care about issues such as food safety and preservation of the environment and who aim at the diffusion of an ecologically sustainable model of life.

2.2 Concepts on public policies and development in the Amazon

Public Policies are planned and articulated actions of the government that promote changes in society. The transformation of reality and economic growth are some of the consequences of intervention by public policies. In the Amazon, the application of this action requires a specific vision, considering, as Becker (2010) states about the contemporary Amazonian context, the territorial extension, the geopolitics, the economic structure and other factors that make the region unique. This whole scenario does not prevent the mobilization of the State in the region, through specific policies and actions that allow the development of the Amazon.

2.2.1 Definition of public policies

Souza (2006) teaches that the literature has highlighted public policies as a set of actions that the government proposes to solve collective problems. These actions impact the economy and society, and should often transform the reality of the object and improve the quality of life. For the development of a locality, for example, it is expected that the government will act in a planned way, and not just practices isolated from individuals. In addition to the economic repercussion, public policies also lend themselves to protecting society, so Santos, Vian and Mattei (2020) point out that the term food security is the focus of current public policies, and rely on joint initiatives of international institutions. In this perspective, food safety, with regard to meat, from the creation of the animal to the arrival at the final consumer, is a public health issue of global concern. Countries can impose barriers to products that do not have a correct management chain, observation of environmental standards and animal health, which includes the most basic care, such as the quality of the water that the animal ingests,

until the analysis of the state of feeding conditions.

2.2.2 Conceptualizing integrated local development in the Amazon

Development, in the local perspective, can be understood as a process that aims at a product built collectively in a given locality, which stimulates the use of the resources of that territory within a common and inclusive project. The place object of development is some territory where there are possible resources to be worked and that, from the intervention of the State and the support to the enterprises, it is possible to improve the quality of life of the inhabitants of the locality.

Integrated local development, in turn, is a more innovative concept, because, as Bonelli, Forcellini and Rabechini (2008) maintain, it is an essential way to enable successful strategies, by allowing the identification and anticipation of needs in a precise and joint way, with all efforts channeled to achieve success in the intended project. Public strategies, or those that support the private sector, of integrated local development contribute to development in its broadest sense, as they must go beyond the financial perspective, also considering environmental, social, cultural, education and quality of life aspects.

2.3 Concepts on institutional compliance and risk management

When outlining strategies for public projects aimed at integrated local development, especially when it comes to the Amazon, it is necessary to observe technical-legal aspects that dictate the environmental relations of the region. The green ox has in its essence the ecological concern and the use of natural technologies for preservation, so the clarity and the conduct of the technique, in accordance with codes and laws of environmental character, help to ensure the quality and reliability of the product. The laws that govern the dynamics of fauna and flora protection need to be in balance with local strengthening projects, reconciling economic development and preservation of the environment. Valois (2003) points out that the agriculture practiced in the region, through the prioritization of the use of land wealth, has targeted agribusiness and food security.

The activities developed in the Amazon should avoid predatory and illegal deforestation, especially the management of pastures, such as those used in the care

of the green ox. Studies indicate the possibility of regeneration of pastures and even increased productivity, actions that require the performance of qualified professionals. Valois (2003) states that in specific regions of the Amazon, such as the areas of terra firme, the creation of animals, whether large or small, presents economic viability and ecological respect, generating employment for the inhabitants of the region and respecting legal issues that protect the area.

2.3.1 Conceptualizing compliance

According to Kempfer and Batisti (2017), the concept of compliance can be enunciated as adherence to the laws and standards that govern a certain sector of activities. The term in English has as its closest translation the word "conformity", and has a strong connotation of combating institutional corruption, a theme that assumes special prominence in public contexts. These authors recommend the establishment of specific compliance programs, including the development of codes of ethics and conduct, as a measure capable of mitigating institutional and project risks. As an expression of the performance of public bodies, it is of all interest to the success of the management of the respective projects the use of mechanisms of this type, ensuring that there are no failures or interruptions due to non-compliance with the applicable regulations.

In turn, Silva and Rodrigues (2019) argues that compliance has a threefold purpose: the prevention of nonconformities and infractions, which is the most remembered and present aspect in the resulting internal control systems; the mitigation of the harmful effects arising from possible infractional conducts verified, despite the preventive mechanisms; and, finally, the adoption of advanced market practices, which contribute to compliance, but also to the improvement of the organization's performance.

2.3.2 Conceptualizing risk management in public projects

Inherent in every project is the possibility of adverse events, which hinder, reduce the effectiveness or in any way impair its objectives. The scenario is no different in public projects, giving rise to the need to apply risk management techniques in order to avoid or mitigate them. According to the PMBOK Guide of the Project Management

Institute (2017), risk control is most commonly associated with the treatment of uncertain future events, but should also cover those not related to events, such as those resulting from errors, low productivity or technical deficiencies. To this end, the Guide identifies seven project risk management processes, such as Plan (1), Identify (2), Perform Qualitative Analysis (3), Perform Quantitative Analysis (4), Plan Responses (5), Implement Responses (6) and Monitor (7), as shown below in Figure 1 and Table 2.

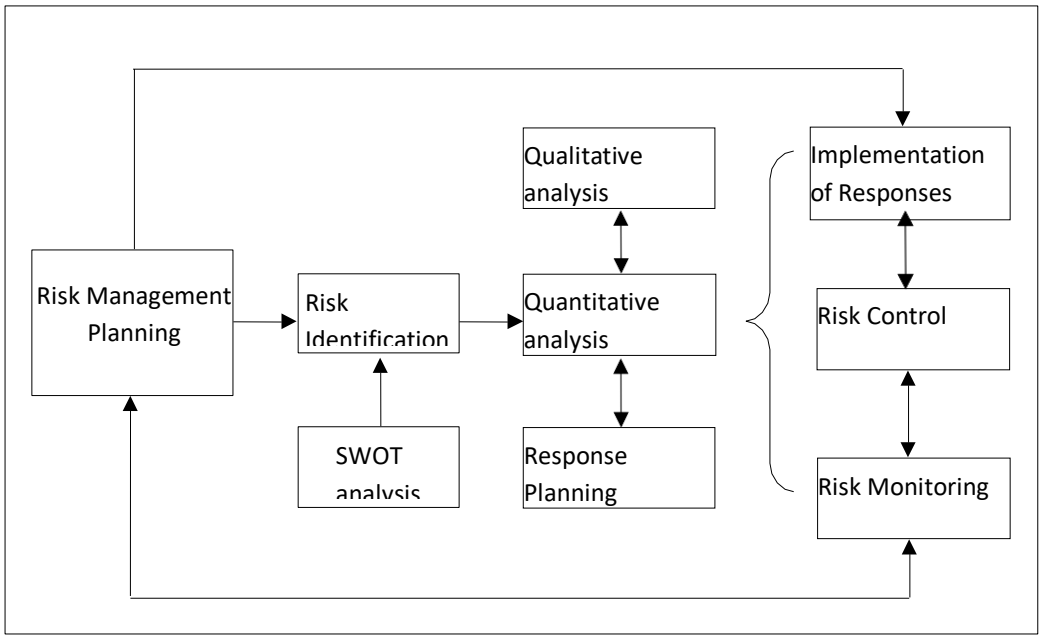


Figure 1: Public project risk management diagram.

Source: Prepared by the authors based on the research.

Table 2: Definitions of risk management processes.

Concept	Definitions
1. Risk management planning	1.1 Outline in advance how the risk management tasks of the public project will be carried out.
2. Identification of risks	2.1 Identify, catalog and document the risks and their possible origins.

3. SWOT analysis	3.1 Tool that can be used for risk analysis of the internal scenario (Strengths and Weaknesses) and external (Opportunities and Threats).
4. Qualitative analysis	4.1 Evaluation of the risks to which the project is subject in aspects of probability of its effectiveness, impact and cost-benefit of avoidance, in order to prioritize its treatment.
5. Quantitative analysis	5.1 Quantification, in numerical terms, of the repercussion of the risks and uncertainties identified on the project.
6. Planning responses	6.1 Prior structuring of ways of treating risks to avoid, mitigate or reduce impacts, in the event of their occurrence.
7. Implementation of responses	7.1 Put into practice the planned responses, selecting the most appropriate strategic alternatives.
8. Risk monitoring	8.1 Permanent process that feeds back the control of risks, identifying new risks, monitoring and analyzing those already identified, and evaluating the effectiveness of the management adopted.
9. Risk control	**9.1** Set of management measures to deal with the risks to the project, following assumptions and restrictions, such as that some risks cannot be entirely avoided, and it is up to the manager to reduce their probability and / or their effects.

Source: Prepared by the authors based on the research.

Nevertheless, Okano (2018) draws attention to the fact that public projects have their own characteristics, which are reflected in the risks to which they are subject. In the public sector, according to the author, legal, regulatory and compliance risks play a prominent role, as well as the presence of multiple stakeholders adds complexity to management; Examples of these actors can be cited as civil society, political agents, other public bodies of the same and other spheres of government, external control bodies, public opinion.

3.1 PREPARATION METHODOLOGY

The research focuses on qualitative methodology. For Pádua (2019), it has the purpose of interpreting the reality that is being studied, through the observation of information and its meanings. Thus, the simulation of the management of a public project of agricultural technology with a focus on the green ox, by enabling visualization of the transformation of agriculture in the Amazon region, characterizes the study as qualitative.

3.1.1 Regarding the Content Analysis Method

To ensure the technical accuracy of the preparation, this research used the Content Analysis Method, following the steps described by Laurence Bardin. Seramin and Walter (2017) discuss the three main stages of this method, aimed at bringing qualitative explorations into the field of scientific objectivity. Therefore, the first phase consists of pre-analysis (1), using the floating reading for a previous and comprehensive overview of the works consulted, serving to select the useful material and align objectives and research hypotheses. In a second moment, there is the exploration of the material already filtered in the previous stage, trying to systematize, codify and decompose the collected data, comparing them with the indicators and objectives defined. Finally, the treatment of the results itself, which makes use of interpretive cognitive processes and inferences brought by logic to validate and identify the contexts of what was recorded. As pointed out by Seramin and Walter (2017), along the way the findings are grouped and categorized according to their common characteristics.

3.1.2 The procedures adopted

For this work, the procedure of bibliographic survey was adopted, compulsing collections collected in the virtual search platforms Spell and Google Scholar, making use of keywords combined by Boolean operators. Scientific articles published in specialized journals were selected through the floating reading applied to the titles and abstracts; once the pertinence with the object of study was confirmed, those with the highest number of citations were preferred, as evidenced in Google Scholar, indicative

of the relevance of the works; and those more recent, choosing to know what is most current the academy has to say on the subject.

We then proceeded to the full reading of the bench before us, with the cleavage of the excerpts of interest aligned with the study. The next procedure was the categorization into related ideas, structuring them according to the specific objectives proposed in this document. Given these systematized data, the analysis and writing of the content were guided by the contributions of Habermas, as described below.

3.1.3 The analysis

The systematization of the results was supported by the perspective of the communicative action of Jürgen Habermas, a renowned German philosopher affiliated with the Critical Theory of the Frankfurt School. In this sense, in line with the reading carried out in Pinto (1995), what is useful for the purposes of this work was collected and reflexivity was added to the analysis, excluding everything that could distort the neutrality and objectivity of the research reasoning.

The task of analysis seeks to escape the contradictions and manipulation of knowledge, always pondering about what serves society. Thus, as detailed by Couto and Carrieri (2017), the interpretation of the concepts offered allows factual understanding, paying attention to the meanings underlying linguistic interactions as a way to provide democratic consensus, which lead to the emancipation of man.

3.1.4 As for the tool applied

Reading in Pedro Filho et al. (2017) brings the knowledge about SWOT Analysis, conceptualizing that it is a useful technique for the apprehension of the reality in which the organization is inserted, cataloguing perceptions about the internal and external environments. In fact, the acronym SWOT corresponds to the English terms Strenghts, meaning, in Portuguese, Forces; Weaknesses; Opportunities; and Threats, which translates to Threats. The first two indicate the factors internal to the organism under study, and the others are related to the external ones.

The PMBOK Guide of the Project Management Institute (2017) indicates SWOT as a recommended tool for project management, especially in the planning of the risks

to which the enterprise is subjected, in the stage of data analysis. It proves to be useful for the determination of the scenario before the manager, subsidizing the decision for the implementation of solutions or their continuity, which demonstrates its applicability for the evaluation of the viability and relevance of the public project under study.

Bezerra, Júnior and Correia (2021) had already demonstrated the value of the SWOT matrix as a tool for the evaluation of strategic and situational aspects of technical courses in a Federal Institution of Rondonia. The construction of this analysis allows the elaboration of objectives consistent with the desired impacts, as well as the selection of metrics for the monitoring of public projects of this nature. The same authors address the use of the Institutional Development Plan - PDI as support for decision making, comparing it with the strengths, weaknesses, opportunities and threats identified in the project. These management practices provide rationality in the allocation of public efforts, directing human and financial resources to courses that effectively meet the demands identified locally, and enhancing the chances of success.

4. APPLICABILITY OF THE SWOT ANALYSIS TOOL IN STRATEGIC PUBLIC PROJECT MANAGEMENT

The locus of this study is the state of Rondônia, located in the Western Brazilian Amazon. It has a physical area of 237,765,347 km², much larger than many countries, such as Rwanda, Israel or Bangladesh. In the technical and technological educational aspect, it has the Federal Institute of Rondônia that offers, as indicated on its website, face-to-face education in 9 campuses in 8 cities, and distance education in 25 poles. Its facilities are well equipped, with a laboratory structure that adequately serves high school in the areas of agriculture and other. Also the Federal University of Rondônia, with its campuses installed in 8 municipalities, where it offers several face-to-face courses in the area of technology, making it possible to overcome the lack of scientific and technological knowledge in the State.

According to IBGE (2021), the estimated population of Rondônia is 1,815,278 individuals, and has a balance in number by sex and age. Age is predominant in the age group between 15 and 44 years of age, revealing that individuals are in full productive age to institute a scenario of economic, social and environmental progress. The age pyramid is shown in Figure 2 that follows.

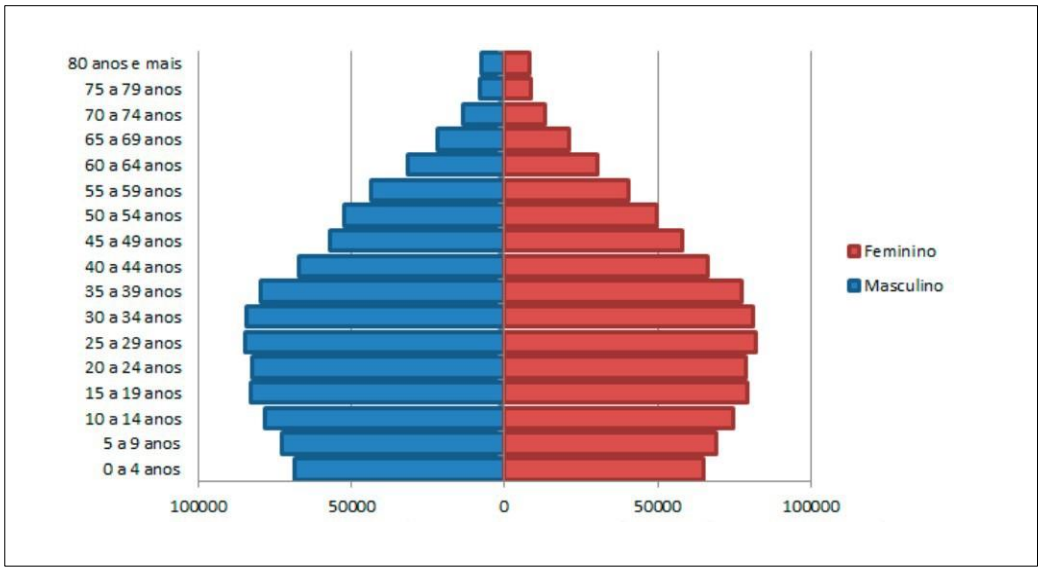


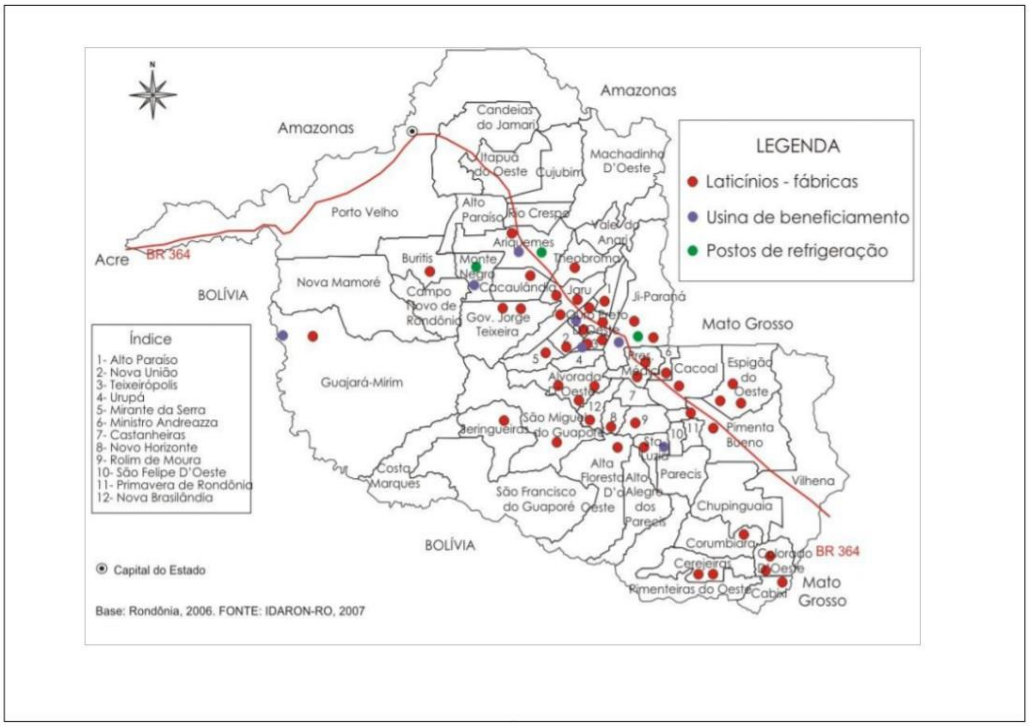
Figure 2: Resident population, according to sex and age group.

Source: Adapted from CONASS, 2019.

It should be noted that in the year 2017 it was revealed in the State of Rondônia the illiteracy of 130 thousand people who do not know how to write their own name, as it is read in Francis (2017). It is a situation that requires strong intervention by the Government in order to reverse this situation. Nevertheless, INEP indicated in its 2020 report an increase from 48.7% to 60.8% of teachers with a postgraduate degree, which contradicts the structural reality related to illiteracy.

It deserves to consider the strength in its agricultural matrix, when the Brazilian Institute of Geography and Statistics indicated that, in 2020, the State of Rondônia is the sixth largest producer in cattle farming, offering 14.8 million head, of which 8.1 million are for the purpose of slaughter. It was also recorded that its pasture area is approximately 71 thousand km², which provides abundant space for the breeding of the famous green ox, according to the marketing strategy structured in this branch of business with cattle, with mapping already identified, as shown in Figure 3 below.

Figure 3: Scenario of cattle farming and dairy production in Rondônia.



Source: Demonstration collected and interpreted by Pereira (2015).

It is necessary to readjust this scenario, as well as its current agribusiness model, starting with a reformulated structuring policy. This significant provision would be possible with the training of technological labor, such as the one idealized in this study, with arguments of a modern government management. Indications such as those of this research, give rise to assumptions from the New Public Management, applied in the scenario that simulates through the SWOT Analysis, addressed to the strategy of public project management of agricultural technology focusing on the green ox. The growing green cattle market has strong appeal in sustainable meat consumption; this fact brings with it a natural marketing, as approached in Lamoso (2020). This space of opportunities in growth now analyzed, requires qualified and specialized professionals in the treatment of animals destined to the supply of meat. There is no doubt that the promotion of technological education in green cattle farming is the ideal way to consider. Or reflect on the actual condition, from the fact of being free of foot-and-mouth disease, according to the certificate issued by the competent body. Lo and behold, according to official data collected in this study, the state of Rondônia exported in 2019 about 27,100 tons of meat, bringing a currency of US$ 80.7 million in compliance required internationally.

The New Public Management requires state efficiency, through the support of the public sector to the private initiative, as well as the promotion of education and training of qualified labor, taking advantage of opportunities and stimulating integrated local development. The Amazon is an environment abundant in riches and factors that can be worked to promote the quality of life of the Amazonians. Encouraging the green ox technique can be another way to preserve the environment, by taking advantage of the local potentialities designed by the existing pastures for the required bovine confinement. Thus, the management of efficient public projects comes from public policies of local improvement, which requires workers with specific training in agricultural technologies, meeting the purposes of public projects that encourage the green ox.

4.1 The need for qualification in agricultural technology.

The management of public projects and their tooling can enable the implementation of courses aimed at training professionals in the area of agricultural technology. Technological transformations generate employment and income opportunities in various areas of knowledge and economic sectors, especially those with advanced levels of agriculture; It requires innovative knowledge and in-depth technology for global local market competition. This is the context in which Amazon producers compete directly with international competitors. As read in Gehlen (2001), advanced techniques in constant evolution, with modern tools for the excellence of the product offered, will increase socioeconomic development. Therefore, the scenario in which the green ox is inserted, growing and with potential, demands professionals to deal with animals for slaughter and meat consumption; will sustain Brazil's competitive potential in the sector, optimizing the productive scale and sustaining the growing national and international demand for sustainable products such as green livestock (Dall'agnol et al., 2015).

This study allows us to consider as opportune the implementation of an agricultural technology course to meet the demands of Rondônia, and the best way is to equip oneself with the established techniques in project management, which advocate good practices for the management of its entire life cycle, as guided by the PMBOK Guide (2017).

The support of modern public institutions and aligned with the managerial

precepts of the New Public Management can be decisive in the process. The public contexts have as an important vocation the promotion of the productive sectors, which includes the training of professionals specialized in agricultural technologies, bringing competitive advantages to the Southern Cone of the Amazon, as seen in the following topic.

4.2 Contributions of a public project of agricultural technology course for the development of the Southern Cone of the Amazon

The Southern Cone of the Amazon reveals itself to be a region with natural riches and a field of opportunities. In this scenario, strong dynamism is allowed in the mobilization for a thriving economy, requiring only the formulation of policies and specific actions that allow its development. These actions, to be successful, need to be managed by specialized professionals who leverage the potentials of the locality, formulating and implementing qualified measures. A public project that can qualify labor with agricultural technologies tends to have a beneficial impact on the four helices of integrated and sustainable local progress - the government with its guiding measures, the beneficiary civil society that mobilizes the practices, the academy with the knowledge for the actions, and the consumer market of the goods and services operated in the cognitive scenario. Thus, the institutional, social, economic and environmental aspects enter the convergence for the expected success in the particularities already very well revealed. Now, with qualified professionals, respect for the required compliance standards will occur, which will enable market dynamics, including for exports; This measure of adequacy will format the business with the interested countries, while removing the barriers to products to be exported, such as meat and other goods carried from the well-managed production chain from public projects such as the one specified in this task, with the observation of environmental standards and animal health.

The public project of agricultural technology course for the development of the Southern Cone of the Amazon is the revelation of the opportunity expected by the State of Rondônia. It will generate an improvement in the quality of life of the inhabitants of the locality, coming from integrated and sustainable local development, and increases the economy through the production of food essential to consumption and export with less environmental impact. It could indeed be verified that the food security of the populations is a prominent concern, which brings the double challenge

of meeting the increased demand for animal products and doing so with the least possible environmental harm; And one of the promising ways to this end is the stimulation of cattle breeding techniques on pasture, or green ox constituted as an agribusiness strategy. At the same time, the professional management of this public project meets the premises of the concept of integrated local development, which seeks the convergence of the economic perspective with the social, environmental, quality of life and educational imperatives, among others. In this concept, the different dimensions, far from competing with each other, are actually mutual reinforcements for the achievement of the ultimate goal of progress of society.

Although the Federal Institute of Rondônia has been offering a technical course in agriculture, this study points to the importance of readjusting the preparation of this type of professional. This establishment focuses on the performance of this technician for the production of food with broad characterization, which includes soil and crop management in agricultural projects. However, the reality in cattle production requires a very specific driver as conducted in this study that focuses on the agricultural technology of the green ox, in a strategic format of export at scale.

4.3 Elaboration of simulated SWOT analysis for project risk management

Considering the applicability of the SWOT Analysis tool for the identification and treatment of project risks, at this stage of the study a simulated matrix was elaborated for the compilation of the strengths, weaknesses, threats and opportunities glimpsed for the management of the project of implementation of an agricultural technology course, focusing on the green ox, in a hypothetical public institution of higher education. As reported in a previous topic of the work, the territorial delimitation of this project was located in Rondônia, state of the Southern Cone of the Brazilian Amazon. Factors internal and external to the public institution that could enhance the chances of success of the project or, conversely, make it fail enter the analysis.

Table 3: Simulated SWOT analysis to identify project risks.

Internal factors	**1. Strengths**	**2. Weaknesses**
	1.1 Public educational institution with solid governance. 1.2 Experience in the implementation of new courses. 1.3 Faculty commitment. 1.4 Good reputation of the public educational institution.	2.1 Budget cuts. 2.2 Deficient infrastructure. 2.3 Slowness of the contracting and acquisition processes. 2.4 Dispute of resources with other government agencies and between the departments of the institution.
External factors	**3. Threats**	**4. Opportunities**
	3.1 Difficulty in finding sufficient specialized teachers. 3.2 Sanitary barriers to export. 3.3 Change of regulatory frameworks. 3.4 Possible low acceptance of public opinion and environmental activists.	4.1 Acceptance and demand for the green ox. 4.2 Shortage of qualified professionals allowing adherence. 4.3 Rondônia's potential as a South American logistics corridor. 4.4 Wide availability of places for practical internship of students.

Source: Prepared by the authors based on the research.

The above table shows a scenario of many opportunities and strengths, despite the existence of threats and weaknesses. This set of possibilities signals positively for the realization of the project, but managing the risks that may arise from weaknesses and threats. Regarding the opportunities of the sector, the IBGE (2020) estimates that the cattle herd in the state of Rondônia corresponds to 14.8 million head, of which 8,107,541 are intended for slaughter. Among the 92,198.83 km² used by agriculture in its various activities, it was also recorded that the area destined to pasture is 71,123.54 km², which corresponds to 77.14% of the area in use. Considering that IBGE data measure the territorial area of Rondônia at 237,765.347 km², a large physical field of opportunities in the sector is glimpsed.

The production of Rondonian beef destined for export, in data systematized by the Brazilian Association of Meat Exporting Industries (ABIEC, 2021), indicate that, in the accumulated of the year 2021, the State has already exported 186,538 tons; The fact leaves in 5th place in the national ranking and generated foreign exchange, in dollars, of approximately 605 million. Such information reveals the strength of local production and the expressive representativeness in the country's trade balance.

As stated in Brazil (2021), the State of Rondônia is one of the six units of the federation that in 2021 was declared a zone free of foot-and-mouth disease without vaccination by the World Organization for Animal Health. On the other hand, a retrospective study by Lopes et al. (2021), a retrospective on bovine rabies in that State, points out that, between 2009 and 2018, there were suspected cases diagnosed for cattle in 21 municipalities. This discrepant scenario regarding the quality in cattle farming may be representative of threats to the production of green cattle, while denoting the need for trained technicians for safe management that protects animal health.

It should be noted that the Rondonian population estimated by the IBGE (2021) in 2021 is 1,815,278 people; and that the Agricultural Census estimated that, of this population, 271,000 individuals work in agriculture, with 10% never attending school, while the literate (those who completed the old primary) and those who have high school add up to almost 50%. With higher education the number does not reach only 5%, which is unfortunate. The academic training of workers in the agricultural area presents itself as a weakness to be overcome in the conduct of the production of the green ox.

Brazilian public educational institutions are especially well equipped for the task, with a faculty formed by a significant number of doctors, making up approximately 66% of the total, according to 2019 data brought by INEP (2021); in addition to masters, in the matter of 24.7%. In the private sphere, the proportion of graduates with a master's degree is more expressive, totaling 48.3%, while those with a doctorate reach 28.9%. In the state of Rondônia, this scenario is also favorable, considering that almost half of the faculty of the Federal University of Rondônia has a doctoral degree, and 36.1% are masters, according to the Institutional Development Plan – PDI of UNIR do ano de 2019. Another public institution well placed to meet the demand pointed out in this study is the Federal Institute of Rondônia - IFRO, which notes in its PDI the existence of 53.7% of masters among its teachers, although only 10.6% have a doctorate.

In relation to the number of higher education technological education establishments in the country, the survey carried out by INEP (2021), which in 2019 pointed out 40 institutions, divided between Federal Institutes and Federal Technological Center, can be taken as a parameter. However, its reach is still limited, considering that just over half of these establishments have fewer than 5,000 students

enrolled each. For example, the Federal Institute of Rondônia has projected to offer 2,330 vacancies for face-to-face technical courses, considering its nine campuses, as can be consulted in its Institutional Development Plan (PDI).

Observation made in the same study allows to evidence that the undergraduate courses in technological academic degree are a minority in the country, with 8,400 courses. Comparatively, bachelor's degrees predominate by a large margin, in the amount of 24,402 courses, in addition to the significant number of 7,625 degrees. This may indicate a gap to be filled with the teaching of a technological nature, presenting itself as a possible opportunity.

Based on these data, the crossing of the factors detected through the SWOT matrix demonstrates that the public educational institution under analysis presents relevant Strengths that can be reversed in the face of Weaknesses, mitigating them, as well as being directed to the confrontation of Threats and the use of Opportunities. For example, the Strengths that reside in the solid governance and good reputation of the educational institution can be decisive to achieve primacy in the distribution of government resources, obtaining the human and especially financial resources that allow to face eventual budget cuts and receive relocated professionals or hire them, in order to deal with the threat of shortage of teachers. The latter, by the way, is also positively affected by the aforementioned reputation of the institution, which tends to attract professors of excellence, interested in associating with a prestigious establishment, as well as can serve as a bulwark against possible criticism from civil organizations contrary to the concept of green ox.

The threat of a shortage of teachers lies as one of the opportunities for the project, which also serves as a motivator for its implementation. It serves as an indication of the urgent need for the training of specialized staff, leading to the establishment of a virtuous circle for the dissemination of knowledge and good practices. And, if most of the factors are directly related to the internal scope of the public institution involved in the project, it was found that there are also threats and opportunities that derive from external agents outside the governance of project managers, and it is up to them to prepare to circumvent possible adverse occurrences.

Exemplifying with a factual view, we cite the case of the Opportunities presented by the geographical position of Rondônia, revealed as a preferential corridor for exports via the Pacific Ocean. The new scenario permeates the implementation of an adequate infrastructure arising from government actions; It is a horizon that

depends on a public project manager who is aware and committed to the success of the State, overcoming the barriers to the inducers of progress. Similarly, threats can be considered as those of health barriers that may derail the strength of the regional agricultural sector. New restrictive regulatory frameworks may lead to increased costs or a ban on activities. Nevertheless, it is observed that the project manager can gather a range of strategic alternatives through technological knowledge, optimizing the market scenario, which may be possible through the operation of a course of agricultural technology of good term.

5. CONCLUSION

In general, in the management of a public project focused on agricultural technologies with a focus on the green ox, it was found that agriculture, being an attractive sector, can use the support of the Public Administration to promote integrated local development (DLI), through the formulation of agricultural technologies, training of qualified labor, focusing on the proposal of the green ox. And Public Policies have the potential to promote the transformation of reality and economic growth, in addition to assisting the development of the Amazon with ecological balance, observing relevant aspects such as its territorial extension, geopolitics, economic structure and other factors that make the region unique.

The feasibility study required the use of public project tools, which was done using SWOT Analysis. This instrument enabled the identification and treatment of project risks. In the corresponding stage of the study, a simulated matrix was elaborated for the compilation of the strengths, weaknesses, threats and opportunities glimpsed for the management of the project of implementation of an agricultural technology course, focusing on the green ox, in a possible public institution of higher education. Thus, it was verified the feasibility of implementing a public project aimed at training professionals specialized in agricultural technologies with a focus on the green ox, based on the existence of local opportunities and strengths that overcome weaknesses and threats, since the latter two can be managed through a risk management plan.

Therefore, it is expected that this scientific research will be a landmark of theoretical contribution of academia with relevance and interest for managers of public projects that seek references of prior risk analysis, especially those useful to subsidize

the implementation of educational courses for the professionalization of the local workforce. And for the research developments, studies of the hybrid use of SWOT Analysis with other situational analysis and risk management tools are suggested.

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