

**RISKS ASSOCIATED WITH THE ECONOMIC SUSTAINABILITY OF
THE BRAZILIAN ARMY'S STRATEGIC PROGRAMS**

***RISCOS ASSOCIADOS À SUSTENTABILIDADE ECONÔMICA DOS
PROGRAMAS ESTRATÉGICOS DO EXÉRCITO BRASILEIRO***

***RIESGOS ASOCIADOS A LA SOSTENIBILIDAD ECONÓMICA DE
LOS PROGRAMAS ESTRATÉGICOS DEL EJÉRCITO BRASILEÑO***

LUIZ PAULO GOMES PIMENTEL

Mestrado em Administração pela Unioeste. ORCID iD <http://orcid.org/0000-0003-2191-076X>

GEYSLER ROGIS FLOR BERTOLINI

Docente do Doutorado Profissional em Administração, do Doutorado em Desenvolvimento Rural Sustentável e do Mestrado em Contabilidade da Unioeste. Doutor em Engenharia de Produção. ORCID iD <http://orcid.org/0000-0001-9424-4089>

ABSTRACT

The implementation of strategic National Defense programs guided the strategic and budgetary planning of the Brazilian Army. The main risks identified for achieving the objectives of the Army's strategic programs are of a budgetary nature, characterizing a risk to the economic sustainability of these programs. The objective of this article is analyze the budget risks of the Brazilian Army's strategic programs, and propose actions to address these risks. A deductive study and qualitative approach was conduct by a descriptive research, with data collection from bibliographic sources, Brazilian Federal Government databases, and administration agents who participated in the budget execution of resources of Army's Strategic Programs. The Delphi method was applied to a set of ten internal governmental auditors who are specialists in risk management and who performed audits on the Army's Strategic Programs. The main results found were the validation of some of the risk treatments cited by the researched literature for Strategic Programs, and the proposal of mitigation actions for these risks by the experts participating in the Delphi method, which constitutes a strong improvement of the preventive and contingency measures for the Army's Strategic Programs' budget risks. The main conclusions were that the management of budget risks contributes positively to the economic sustainability of programs and projects.

Key words: Risk; Sustainability; Strategic Programs.

RESUMO



A implementação dos programas estratégicos de Defesa Nacional norteou o planejamento estratégico e orçamentário do Exército Brasileiro. Os principais riscos identificados para o alcance dos objetivos dos programas estratégicos do Exército são de natureza orçamentária, caracterizando um risco à sustentabilidade econômica desses programas. O objetivo deste artigo é analisar os riscos orçamentários dos programas estratégicos do Exército Brasileiro e propor ações para o enfrentamento desses riscos. Foi realizado um estudo dedutivo e de abordagem qualitativa, por meio de uma pesquisa descritiva, com coleta de dados em fontes bibliográficas, bases de dados do Governo Federal e agentes da administração que participaram da execução orçamentária dos recursos dos Programas Estratégicos do Exército. O método Delphi foi aplicado a um conjunto de dez auditores internos governamentais, especialistas em gestão de riscos, que realizaram auditorias nos Programas Estratégicos do Exército. Os principais resultados encontrados foram a validação de alguns dos tratamentos de riscos citados pela literatura pesquisada para os Programas Estratégicos e a proposição de ações de mitigação desses riscos pelos especialistas participantes do método Delphi, o que constitui um forte aprimoramento das medidas preventivas e contingenciais dos riscos orçamentários dos Programas Estratégicos do Exército. As principais conclusões foram que a gestão dos riscos orçamentais contribui positivamente para a sustentabilidade econômica dos programas e projectos.

Palavras-chave: Risco; Sustentabilidade; Programas Estratégicos.

RESUMEN

La implementación de programas estratégicos de Defensa Nacional guió la planificación estratégica y presupuestaria del Ejército brasileño. Los principales riesgos identificados para el logro de los objetivos de los programas estratégicos del Ejército son de carácter presupuestario, caracterizando un riesgo para la sostenibilidad económica de estos programas. El objetivo de este artículo es analizar los riesgos presupuestarios de los programas estratégicos del Ejército brasileño y proponer acciones para abordarlos. Se realizó un estudio deductivo con enfoque cualitativo, mediante investigación descriptiva, con recolección de datos de fuentes bibliográficas, bases de datos del Gobierno Federal y agentes de la administración que participaron en la ejecución presupuestaria de los recursos de los Programas Estratégicos del Ejército. Se aplicó el método Delphi a un grupo de diez auditores internos del gobierno, especialistas en gestión de riesgos, que realizaron auditorías a los Programas Estratégicos del Ejército. Los principales resultados encontrados fueron la validación de algunos de los tratamientos de riesgo citados en la literatura investigada para Programas Estratégicos y la propuesta de acciones para mitigar estos riesgos por parte de expertos participantes del método Delphi, lo que constituye una fuerte mejora en los presupuestos de medidas preventivas y de contingencia de riesgos. para los Programas Estratégicos del Ejército. Las principales conclusiones fueron que la gestión del riesgo presupuestario contribuye positivamente a la sostenibilidad económica de los programas y proyectos.

Palabras clave: Riesgo; Sostenibilidad; Programas Estratégicos.

1 INTRODUCTION



In order to establish a policy to increase and renew the Army's military capabilities, besides strengthening the Defense Industrial Base for the development of dual-use technologies (civilian and military), inducing the generation of jobs and projecting Brazil in the international scenario (MINISTRY OF DEFENSE, 2021), the Army elaborated a portfolio integrated by sub-portfolios and strategic programs.

The Army's strategic portfolio foresees that throughout the period, by the fiscal year 2020, more than 23 billion reais will be invested, all of which will come exclusively from federal public budget resources (MINISTRY OF DEFENSE, 2020). In this sense, in government macroprograms, with high investment values that go beyond one term of office of the executive branch, strategic planning is intertwined with the government strategic plan (RODRIGUES, 2020). To this end, the government strategic plan must consider not only a single fiscal year or financial year, but more than one.

The main risks identified for achieving the objectives of the Army's strategic portfolio are of a budgetary nature, either by reducing or even cutting the federal government's financial resources allocated to Strategic Programs (BRAZILIAN ARMY PROJECT OFFICE, 2022), characterizing a risk to the economic sustainability of these strategic programs.

With implementation planned until the early 2040s, the Army's strategic programs are scheduled for periodic reviews of the size of these programs in light of the budgetary resources made available by the federal government. Sustainability is a dynamic process of learning and adaptation that requires building resilience and the ability to manage it (HAY; DUFFY; WHITFIELD, 2014). Throughout this future period, the economic sustainability of the Army's strategic programs is at the mercy of budget variations that will force restrictions or enable expansions while still in the investment phase. If the goals of a program are known and possible disruptions or risks are anticipated, then it is necessary to analyze whether the program can remain on track to achieve the goals after the risks are realized (KOZLOVSKYI; KHADZHYNOV; VLASENKO; MARYNCHAK, 2017; FRANÇA; LEISMANN, 2018).

The monitoring of risks to the economic sustainability of strategic programs is crucial for the Brazilian Army to redefine the scope of these programs in the long term. The failure to reach the objectives of the Army's strategic portfolio will lead to the ineffectiveness of the Army's strategic programs, with the loss of resources already invested, and negative impacts on the social and organizational defense goals of the Brazilian state, with the consequent obsolescence of systems and materials of military



use and affecting the fulfillment of the Army's constitutional missions (MINISTRY OF DEFENSE, 2019).

In face of the problem raised above and based on the brief literature cited, the following research question is proposed: what would be the mitigating measures for the budget risks of the Brazilian Army's strategic programs, so that they achieve their physical and financial targets, and long-term economic sustainability?

Guided by the research question, the objective of this article is to analyze the budget risks of the Brazilian Army's strategic programs, and to propose actions to address these risks.

2 THEORETICAL ANN PRACTICAL REFERENCES

2.1 STRATEGIC PORTFOLIO OF THE BRAZILIAN ARMY

The Brazilian Army's Strategic Planning has resulted in a portfolio of strategic programs and projects aimed at updating and generating new military capabilities for the defense of society and the Brazilian state. It also seeks to strengthen the Defense Industrial Base and generate jobs and income, in addition to the development of technologies for civilian and military use (MINISTRY OF DEFENSE, 2021).

Among the sub-portfolios that make up the Army's strategic portfolio, the one of greatest interest for this dissertation study is the "Defense of Society" sub-portfolio, which includes the following strategic programs: *Astros 2020*, Aviation, Antiaircraft, Cybernetics, Guarani, OCOP, *Proteger*, and SISFRON (MINISTRY OF DEFENSE, 2021).

In a nutshell, the *Astros 2020* Program is aimed at achieving long-range, high-precision fire support capability. The Aviation Program aims to modernize Army Aviation. The Air Defense Program seeks the acquisition and nationalization of anti-aircraft artillery to protect strategic installations and areas. The Cyber Defense Program aims to develop the capacity to protect the Brazilian cybernetic environment. The Guarani Program will manufacture a new family of armored vehicles on wheels. The OCOP Program intends to recover and obtain new military capabilities with the substitution or acquisition of systems and materials for military use. The *Proteger* Program proposes the increase of the Brazilian Army's capacity to protect critical and

strategic national structures, security of large events, voting and elections, fight against terrorism and Guarantee Law and Order. Finally, the SISFRON program intends to continuously monitor Brazil's land border, with effective action by the Brazilian Army in the protection and prevention of cross-border crimes (FLORES, 2020).

In order to monitor the budgetary risks of strategic programs, for the current Multi-Year Plan (PPA), the Army Staff, the Army Command's agency responsible for managing the Army's Strategic Portfolio, drew two budgetary scenarios for the period 2020-2023. One scenario with the ideal values for program progress, totaling R\$ 13,544,000,000.00, and another scenario, with minimum values, totaling R\$ 8,568,770,000.00 (ARMY, 2019).

Therefore, if there are other budget risks associated with the economic sustainability of the Army's strategic portfolio, these need to be properly identified, addressed, and monitored so that Senior Management can make further necessary changes to the organization's strategic planning and maintain its continuity over time (MINISTRY OF DEFENSE, 2021).

2.2 RISK MANAGEMENT

Somewhat more broadly and distinct from the definitions cited, the International Organization for Standardization (ISO) considers risks as the effects of uncertainties, whether positive or negative, on an organization's objectives (ISO, 2018), which is corroborated by the Project Management Body of Knowledge (PMBOK), which addresses risk as any adverse event, whether positive or negative, that impacts project outcomes (RODRIGUES, 2019).

Risks must be assessed and addressed in a systemic manner across the organization. Otherwise, inefficiencies and possible conflicts in risk mitigation actions may occur (COSO, 2017).

Among the risk management structuring models, the most relevant and that serve as a basis for the development of the theme are the Committee of Sponsoring Organizations of the Treadway Commission (COSO), the International Organization for Standardization (ISO) Standards, and The Orange Book: Management of Risk - Principles and Concepts (Vianna Junior, 2019), together with the Project Management Body of Knowledge (PMBOK) Guide of the Project Management Institute (PMI) (SOARES, 2020).



One of the risks identified by the strategic defense projects is that of changes in government policies, either in strategies or in government policy, with consequent budgetary alterations that are extremely sensitive to the objectives of the projects. Another risk associated with strategic defense projects is that of contracting with companies that disregard the contingency costs of the projects. Thus the company requests the conclusion of additive terms so that the project is adequately fulfilled (RODRIGUES, 2019).

Also related to strategic defense programs, the Project Management Body of Knowledge (PMBOK) Guide of the Project Management Institute (PMI) guides the reserve analysis as a budgetary guarantee to the budgetary or schedule risks of a project. This reserve analysis must be adequate and compatible with the budgetary risks of the defense project (SOARES, 2020).

2.3 ECONOMIC SUSTAINABILITY

Hay, Duffy and Whitfield (2014) interpret sustainability as a capability, which in turn is owned by an organization. Economic sustainability therefore means the ability of an organization to sustain, maintain, or continue something, in economic terms. As such, economic sustainability can be defined as the ability of an organization to adapt to external economic changes, and to circumvent any internal budgetary, financial or asset risks (KANKHVA; UVAROVA; BELYAEVA; 2016).

Economic sustainability, under another approach, is the ability to neutralize negative external influences on an organization, program or project (KOZLOVSKYI; KHADZHYNOV; VLASENKO; MARYNCHAK, 2017). It also expands the understanding of sustainability Golini, Longoni and Cagliano (2014) by pointing out that the economic dimension of sustainability is defined as having the ability to generate sufficient cash flow to ensure liquidity and produce a persistent long-term return.

By analyzing the economic sustainability of an organization, program, or project, it is possible to identify and monitor the economic determinants in order to predict risks and anticipate actions to ensure the stability and continuity of the program or project (KANKHVA; UVAROVA; BELYAEVA, 2016). Economic impact indicators should be able to address long-term economic sustainability and not just short-term economic cost (ZAMAGNI; PESONEN; SWARR, 2013).



(Table 1):

Table 1 - Summary with the main researches related to the theme

Author and year	Title	Relationship to theme	Variables studied	Interventions and Contributions
Radson Amaral Matos, 2021	Risk Management in the decentralization of health resources in the Brazilian Army	The budget risks related to budget execution, alignment and effectiveness of contracting can be extrapolated to other Army strategic actions	Risks, budget execution, risk management methodology	Identified numerous budget risks that can negatively impact a public agency's strategic planning
Eduardo Beeck Garozzi, 2020	Guidelines for the alignment of the budget with the Strategic Planning of the Instituto Federal de Educação, Ciência e Tecnologia Catarinense	Establishes how budget risks can negatively impact strategic planning and reduce the effectiveness of a public agency's activities	Strategic planning, risks, budget, alignment between strategic planning and budget	"Readjustment of Strategic Planning in a context of resource instability and limitations and budget reductions; the good use of public resources, in a rational and sustainable manner; the optimization of budget management; integrated institutional management, and; the fostering of a strategic management culture"
Josinaldo da Silva Barros, 2020	Impacts of contingency in the execution of public expenditures: the case of the Brazilian Army Department of Science and Technology	Justifies the occurrence of contingency decrees as a budgetary risk and explains how budgetary contingency reduces the effectiveness of strategic programs and causes misalignment between budgetary actions and strategic planning objectives	Quality of budget execution, alignment of contracting with the strategic program, budget contingency	The budget contingency is associated with risks in the budget execution of the federal public administration bodies, also harming qualitatively this execution

In order to achieve the main objective of analyzing the budget risks of the Brazilian Army's strategic programs, and to propose actions to address these risks in order to maintain its economic sustainability, the following activities were conducted:

From the bibliographical research, the literature referring to the theme was selected and contained in the last five years in the CAPES theses and dissertations banks, of the Brazilian Army, Brazilian Navy, Brazilian Air Force, and in the SCOPUS and Scielo research bases, using the keywords: Strategic Planning, Federal Public Budget, Risk Management, Army Strategic Programs, and Economic Sustainability.

From these studies, budgetary obstacles were identified in situations similar to the object of this dissertation, which were treated as risks in this study. It was also identified, when possible, how those obstacles were solved by the strategic planning of other organizations, and that in this dissertation study were considered as risk mitigation proposals.

Next, and based on the aforementioned variables, a questionnaire was applied by means of a form to the managers and administration agents responsible for the budgetary execution of resources received by the strategic programs. Of the 420 Management Units that make up the universe of organizations that execute the Brazilian Army's budget, only the subset that have received at least one Credit Note related to one of the 8 Strategic Programs is part of the study object of this dissertation. Thus, in the period between 2012 (beginning of the Strategic Programs) and 2021 (last closed fiscal year), 239 Management Units meet this criterion and make up the study population.

The variables of this research, linked to the objectives of the research instrument and the research question, compose the research instrument according to the script below (Table 2):

Table 2 - Script for the Interviews to be conducted with the administration agents responsible for the budgetary execution of resources of the Brazilian Army's Strategic Programs.

Interview Phase	Objective of the question/ variable surveyed	Question type	Research variable references
Qualification of the respondent	Optional identification of respondent	Open	Not applicable
	Identification of the position held in the execution of the resources	Closed	(BARROS, 2020; SOARES, 2020; RODRIGUES, 2019)
	Identification of the Army's Strategic Programs in which the respondent participated in		Not applicable

Interview Phase	Objective of the question/ variable surveyed	Question type	Research variable references
	the budget execution of resources		
	Time when the last budget execution took place		
	Length of experience in the position when the last budget execution took place		
Respondent's perception of the frequency of budget risks	Excessive Deadline for Budget Execution - R1 Risk	Closed, 5-point Likert Scale	Barros (2020); Soares (2020); Hossain (2019)
	Resources decentralized too close to the end of the financial year - Risk R2		Barros (2020)
	Commitments partially not linked to the physical targets of the strategic program - Risk R3		Barros (2020); Garozzi, (2020)
	Difficulties in the elaboration of basic projects, terms of reference, tenders and contracts for commitment of the resources received - Risk R4		Barros (2020); Soares (2020); Hossain (2019)
	Problems in the execution of contracts by suppliers - Risk R5		Hossain (2019); Rodrigues (2019)
	Other risks identified by the management agent and not questioned in the interview	Open	Not applicable
	Perception on the occurrence of the risks identified by the management agent itself	Closed, 5-point Likert Scale	
Respondents' perception of the impacts of budget risks on the Brazilian Army's Strategic Programs	Relationship between budgetary risks and the continuity of the Brazilian Army's Strategic Programs	Closed, 5-point Likert Scale	Faure, (2019); Kozlovskyi, Khadzhynov, Vlasenko and Marynychak (2017); Kankhva, Uvarova and Belyaeva (2016)
	Relationship between budgetary risks and the achievement of objectives and goals of the Brazilian Army's Strategic Programs		Barros (2020); Garozzi (2020); Hossain (2019)
	Relationship between budgetary risks and the operational capacity of the Brazilian Army to deliver benefits to the Brazilian society		Army (2022)

For the evaluation and subsequent proposal of mitigating measures to the identified budget risks, based on the literature on the subject, the Delphi method was used with a group of internal governmental auditors who are specialists and experienced in budget management, risk management, and who have conducted

internal audits in the strategic programs of the Brazilian Army. With this, it was expected to evaluate the impact of the twenty budgetary risks on the objectives of the Strategic Programs, the applicability of mitigating measures raised by the literature, and the proposal of suggestions for the treatment of budgetary risks of the Brazilian Army's Strategic Programs.

Figure 1 below shows the length of professional experience of these experts in public administration functions.

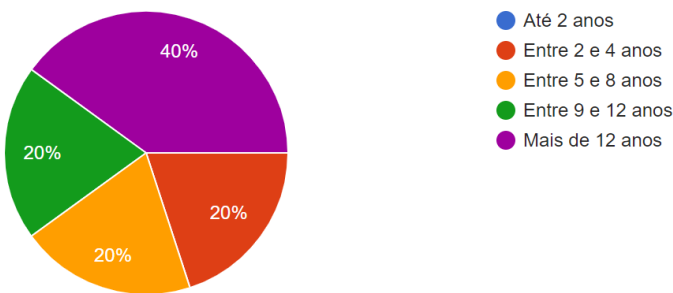
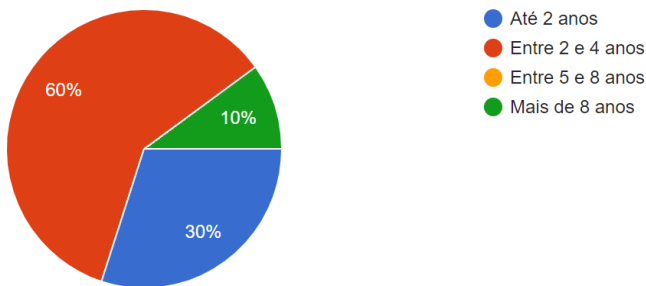


Figure 1 - Time of experience of the experts in public administration
Source: research.

About their experience in performing government internal audit activities, the specialists are described according to the figure below.

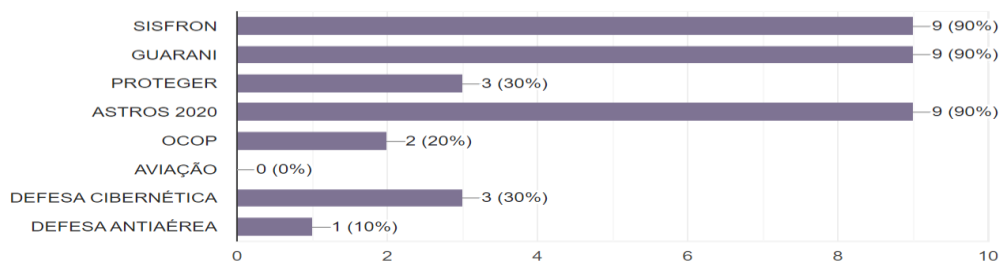
Figure 2 - Expertise as a government internal auditor



Source: research.

Finally, the experts performed internal audits on the Army's Strategic Programs as distributed in Figure 3.

Figure 3 - Participation in internal audits of the Brazilian Army's Strategic Programs



Source: research.

After the initial surveys, the information was tabulated in order to facilitate the comparison and triangulation between the budgetary risks identified in the strategic programs of the Brazilian Army, the budgetary risks pointed out in related academic works, and those cited by the respondents. The goal of this triangulation was to compare the responses from the interviews and the Delphi method with the literature on the subject and with the data from the queries to the Managerial Treasury.

4 RESULTS

As for the respondents' positions and ranks in the Brazilian Army hierarchy, most respondents are officers, with 71.52% of the total, followed by enlisted men, with 28.48%. Among the officers, 15.2% are senior officers (colonels, lieutenant colonels and majors), 29.8% are intermediate officers (captains) and 26.5% are junior officers (1st and 2nd lieutenants). Among the soldiers, 11.25% are non-commissioned officers, 6.6% are first sergeants, 7.9% are second sergeants, and 2.6% are third sergeants or corporals.

As for the specialists' professional qualifications, three of them have a degree in Legal Sciences, three in Military Sciences, three are technologists in Public Administration, one has a bachelor's degree in Administration and another in Accounting. As for post-graduate courses, three specialists have a *stricto sensu* post-graduate degree in administration or related area, one has a *lato sensu* post-graduate degree in Public Management, and another has a *lato sensu* post-graduate degree in Strategic Planning.

	ayment of the resources of the Strategic Programs			year, based on the goals of the physical-financial schedule of the projects and programs, and condition the decentraliza tion of the resources to the homologatio n of the bids		
R5	Suppliers do not meet deadlines for delivery of materials/services related to the Strategic Programs	100%	80%	Follow up with the supplier, by means of meetings, visits, and, previously, identify the possibility of not meeting the deadlines	Mitigation proposal developed specificall y for Army Strategic Programs	Mitigation proposal developed specifically for Army Strategic Programs
R6	Deserted or failed bidding process (no minutes open for accession and no time to conduct a new process)	70%	80%	Budgetary risk of low impact on Strategic Programs	Risk with no treatment proposed	Risk with no treatment proposed
R7	Absence or inadequacy of planning for the application of resources	100%	90%	The evolution of the legal framework on bidding and contracts allow for innovations to remedy potential planning flaws (Hossain, 2019)	100%	80%
R8	Lack of objectivity as to the application of budget resources	90%	80%	Adequacy of the annual contracting planning done by the Managemen t Units, so that the bids are aligned with the	Mitigation proposal developed specificall y for Army Strategic Programs	Mitigation proposal developed specifically for Army Strategic Programs

economic crises that make it difficult to maintain prices approved in the Price Registration System.

Other treatments cited by the literature were considered not applicable and not effective, such as the diversification of funding sources beyond the Federal Public Budget (Faure, 2019), to prevent the occurrence of the budgetary risk of insufficient credit for the issuance of Commitment Notes. And the use of derivatives to share the risk of strong exchange rate fluctuation in the costs of Defense Programs (SOARES, 2020), as a contingency measure for the risk of exchange rate variation substantially raising the costs of the amounts to be paid for materials purchased by Strategic Programs.

There was one treatment raised in the literature judged as not effective to address one of the risks, by the experts participating in the Delphi method. The proposal of several readjustments in the physical-financial schedule of the Strategic Programs over the years (HOSSAIN, 2019) was considered applicable, but not effective as a contingency action to mitigate the effects of the occurrence of the budget risk of frequent extensions in the deadlines for delivery of materials.

5 CONCLUDING REMARKS

With implementation planned until the early 2040s, the Army's strategic programs are expected to have periodic reviews of the size of these programs in light of the budgetary resources made available by the federal government. Economic sustainability requires building resilience, and is at the mercy of budget variations that will force restrictions or allow for expansions during the investment phase. As possible disruptions or risks in these programs are anticipated, then managing risks to the economic sustainability of strategic programs is necessary.

As for the theoretical contributions of this study, the use of the Delphi method was ratified, with 80% consensus from the experts, to evaluate complex risks and propose preventive and contingency measures for the occurrence of these risks. Another theoretical contribution of this work concerns the use of a questionnaire for executing agents to identify the risks of a process. A third theoretical contribution deals with the importance of alignment between the strategic and budgetary planning of a



body to achieve its long-term goals. Finally, it is clear that budget risk management is closely related to the economic sustainability of large programs and projects.

As a research limitation, there was a budget risk that had no treatment proposed by literature or by the specialists participating in the Delphi method. Monopoly in the manufacturing of items or components of defense systems and materials, and the lack of cash to pay for expenses, resulted in no proposal to mitigate the risk, being only accepted and monitored for its occurrence.

As a suggestion for future research and academic studies related to the theme of this dissertation, the application and improvement of quantitative methods for assessing the probability of occurrence of budget risks in Strategic Programs of the Armed Forces is desirable. The use of statistical inference from stratified and significant samples or from large corporate databases of Strategic Programs, or even the use of modeling and regression for the predictability of occurrence of high impact risks on the Army's organizational objectives. And the survey of preventive controls or contingency actions for the Armed Forces' organizational or Strategic Programs risks with the use of the Delphi method.

REFERENCES

BRAZILIAN ARMY PROJECT OFFICE - EPEX. **Risks to Society**. Retrieved from: <http://www.epex.eb.mil.br/index.php/risco>. 2022.

COMMITTEE OF SPONSORING ORGANIZATIONS OF THE TREADWAY COMMISSION - COSO. **Enterprise Risk Management Integrated with Strategy and Performance** - Executive Summary. 2017. Retrieved from https://repositorio.cgu.gov.br/bitstream/1/41825/8/Coso_portugues_versao_2017.pdf.

FAURE, Alexandre. Financer un projet hors-norme: le vouveau réseau de métro du Grand Paris (2008-2018). **Revue Belge de Géographie**, 4, 2019.

FLORES, Emerson Ramires. **Technological development in defense**: analysis of the Integrated Border Monitoring System - SISFRON. (Master's Dissertation). Universidade Federal do Paraná, Curitiba-PR. 2020.

FRANÇA, Luana Pereira de; LEISMANN, Edison Luiz. Gestão de riscos operacionais e controles internos: o caso de uma empresa de informática. **Administração de Empresas em Revista**, v. 1, n. 14, p. 129 - 141, 2018.

GAROZZI, Eduardo Beeck. **Diretrizes para o alinhamento do orçamento ao Planejamento Estratégico do Instituto Federal de Educação, Ciência e**

Tecnologia Catarinense. (Master's Dissertation). Universidade do Estado de Santa Catarina, Florianópolis-SC. 2020.

GOLINI, Ruggero; LONGONI, Annachiara; CAGLIANO, Raffaella. Developing sustainability in global manufacturing networks: The role of site competence on sustainability performance. **Int. J. Production Economics**, v. 147, n.14, p.448-459, 2014.

HAY, Laura; DUFFY, Alex; WHITFIELD, R. I.. The Sustainability Cycle and Loop: Models for a more unified understanding of sustainability. **Journal of Environmental Management**, v.133, n.2014, p.232-257, 2014.

HOSSAIN, Laila F. **Para além das planilhas: condicionantes para a execução orçamentária e financeira do Projeto de Integração do Rio São Francisco.** (Master's Dissertation). National School of Public Administration, Brasília-DF. 2019

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION - ISO. **ISO 31000:2018.** Retrieved from https://drive.google.com/file/d/1fdNcTyTZ3Qs7LpGYf_g4-a054fVtiC6b/view.

KANKHVA, Vadim; UVAROVA, Svetlana; BELYAEVA, Svetlana. Development of the scientific and methodological assessment tools of sustainability of the investment and construction complex in Russia and its structural elements in terms of organizational and economic changes. 15th International scientific conference "Underground Urbanisation as a Prerequisite for Sustainable Development". **Procedia Engineering**, v.165, n.16, p.1046 – 1051, 2016.

KOZLOVSKYI, Serhii; KHADZHYNOV, Ilyia; VLASENKO, Ivan; MARYNCHAK, Liliya. Managing the sustainability of economic system as the basis of investment development in Ukraine. **Investment Management and Financial Innovations**, v. 14, n.4, 2017.

MINISTRY OF DEFENSE. **Strategic Portfolio of the Brazilian Army.** 2021. Retrieved from: <<http://www.epex.eb.mil.br/>>.

MINISTRY OF DEFENSE. **Army Strategic Plan.** 2019. Retrieved from: http://www.ceadex.eb.mil.br/images/legislacao/XI/plano_estrategico_do_exercito_2020-2023.pdf.

RODRIGUES, Dilson Gamarra. **Measuring Risks in Complex Projects of Army Aviation.** University of Brasilia. 2019.

RODRIGUES, Gabriela P. **The alignment of strategic planning and budgeting instruments: the experience of the Comptroller's Office of the DF.** (Master's Dissertation). Universidade de Brasília, Brasília-DF. 2020.

SOARES, Raquel Pereira. **Identificação e análise de riscos: eventos que podem comprometer a capacidade da execução orçamentária em programas de defesa.** 2020. 57 f. Trabalho de Conclusão de Curso (Especialização em Gestão de Projetos)—Universidade de Brasília, Brasília, 2020.



VIANNA JUNIOR, Antonio João de Oliveira. **Governance and Risk Management of Contracts: the panorama of the Academia Militar das Agulhas Negras**. Master's Dissertation in Military Sciences with emphasis in Operational Management at the Officer Improvement School. 2019.

ZAMAGNI, Alessandra; PESONEN, Hanna-Leena; SWARR, Thomas. From LCA to Life Cycle Sustainability Assessment: concept, practice and future directions. **The international journal of life cycle assessment**, v. 18, p. 1637-1641, 2013.

