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Strategic planning of defense systems acquisition: an analysis for the implementation of the evolutionary acquisition strategy

Planificación estratégica para la adquisición de sistemas de defensa: un análisis para la aplicación de la estrategia de adquisición evolutiva

Abstract: This article discusses the improvement of the Brazilian Army's defense systems acquisition process with the adoption of evolutionary acquisition strategies by its Strategic Programs, for providing methods that enable the incorporation of technological developments throughout the defense acquisition program. Bibliographical and documentary research was accomplished to describe the process of obtaining defense systems, encompassing strategic planning and defense systems life cycle management. Subsequently, an analysis of several regulations regarding the acquisition processes was conducted, which culminated in the identification of the gap regarding the strategy and the acquisition approach in the Strategic Programs. Then, the characteristics of the evolutionary acquisition strategy and acquisition approaches were discussed, concluding which factors should be considered when developing an evolutionary acquisition strategy by Strategic Programs that contemplate the development of defense systems.

Keywords: defense acquisition; acquisition strategy; acquisition approach; evolutionary acquisition; capability-based planning.

Resumen: Este artículo analiza la mejora del proceso de adquisición de sistemas de defensa del Ejército Brasileño a través de la adopción de estrategias de adquisición evolutiva por Programas Estratégicos (PgrEE), ya que proporcionan métodos que facilitan la incorporación de los desarrollos tecnológicos que ocurren a lo largo de un programa de adquisición de defensa. Se realizó una investigación bibliográfica y documental para describir el proceso de adquisición de sistemas de defensa, abarcando la planificación estratégica y la gestión del ciclo de vida de los sistemas y materiales de empleo (SMEM). Posteriormente, se realizó un análisis de diversas normativas que abordan los procesos de adquisición, lo que culminó con la identificación de la brecha respecto a la estrategia y enfoque de adquisiciones en el PgrEE. Luego, se discutieron las características de la estrategia de adquisición evolutiva y los enfoques de adquisición, concluyendo qué factores deben ser considerados en la elaboración de una estrategia de adquisición evolutiva por los PgrEE que contemplen el desarrollo de sistemas de defensa.

Palabras clave: adquisición de defensa; estrategia de adquisición; enfoque de adquisición; adquisición evolutiva; planificación basada en capacidades.

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1 INTRODUCTION

Many defense systems rely on technologies that are challenging to develop, with only a limited number of companies or countries possessing the expertise to master them. This developmental difficulty, combined with restrictions in the defense market, makes governments the primary investors in the development of defense system, resulting in numerous ventures spanning the political spectrum between nations (Dombrowski *et al*., 2003; Schank *et al*., 2006).

As a result, developing nations face persistent disadvantages compared to their developed counterparts. These nations become the primary holders of technologies used in the defense sector, as few emerging countries succeed in breaking free from political influence and technological dependence, overcoming intellectual property barriers and the high costs of developing defense systems (Barcellos, 2022).

Given the need to acquire efficient defense systems that enable them to achieve their strategic objectives, including in the field of defense, developing nations face challenges in accessing sensitive technologies and managing budgetary constraints to develop essential solutions (Barcellos, 2022). As a result, government entities responsible for defining defense policies and strategies must strike a balance between purchasing ready-made systems—those already developed and operational—and developing their own defense systems.

To be able to reconcile available budgetary resources for investment with decisions on what to develop, defense organizations rely on strategic planning that integrates the strategic, tactical, and operational levels (Rainha *et al*., 2015). One of these forms of planning has evolved into strategic planning for capabilities acquisition. This planning method provides decision-makers with the information needed to implement strategic programs within the Armed Forces (AF), addressing capability gaps through the acquisition of defense systems.

However, strategic programs involving the acquisition of defense systems have faced challenges in coordinating acquisition processes conducted within their projects. These programs are typically large, complex, and multidisciplinary, dealing with cutting-edge technology to achieve the required operational performance (Tishler *et al*., 1996; Eren; Erenel, 2018). This has resulted in traditional acquisition approaches being applied to increasingly complex systems, with requirements needing to be modified or improved after contracts are signed and technological advancements occurring during the development cycle, leading to systems that fail to meet user needs or take excessive time to develop (Henderson; Gabb, 1997).

The current scenario has exacerbated this situation, as the technological development of systems is marked by increasing intensity and complexity, with significant implications for the acquisition of defense systems, whose development may span decades (Mortlock, 2020). Thus, it is necessary to evolve the defense acquisition process to make it more responsive to operational demands, aiming to field planned operational capabilities as quickly as possible, reduce risks, and enhance process efficiency (Mortlock, 2009). This procedural evolution is also essential because development projects are increasingly exhibiting evolutionary behaviors (Rozenfeld *et al*., 2006), meaning they are developed in successive and progressively capable increments (Brown, 2010; Kossiakoff *et al*., 2011).

To address these challenges, the academic literature highlights the emergence of new evolutionary acquisition strategies that enable the effective organization and integration of technological changes into ongoing programs. As a result, when a program concludes, the delivered defense system incorporates functionalities and operational capabilities aligned with modern technological standards.

In this context, this article attempts to propose improvements to the Brazilian Army's (BA) defense system acquisition process by expanding the range of acquisition strategy options. Therefore, it is proposed to broaden the range of strategies for this purpose, incorporating those with evolutionary characteristics, which would be adopted by strategic programs aimed at developing defense systems. The foundation for this proposal lies in the capability of evolutionary strategies to incorporate technological changes occurring throughout the execution of strategic programs, which also impact various phases of the defense system's life cycle.

To this end, the initial focus is on studying the capability-based strategic planning for the Armed Forces (AF), currently being developed by the Ministry of Defense (MoD) and the AF with the goal to define the range of military capabilities required to meet national strategic objectives. The process of capability acquisition by the BA is examined below, considering the life cycle of defense systems. Additionally, the recent evolution of the regulations governing the defense acquisition process is examined, with a focus on the BA, though these changes also have implications for other branches of the AF. Finally, evolutionary strategies are explored, considering the most relevant approaches, to propose recommendations for the BA concerning evolutionary acquisition strategies.

2 STRATEGIC PLANNING FOR OBTAINING DEFENSE SYSTEMS

Strategic planning for obtaining defense systems seeks to identify the military capabilities that must be acquired to meet Brazil's defense requirements. The MoD recognizes that the identified gaps within military capabilities should be addressed via strategic and structuring programs of the Armed Forces, over long-, medium-, and short-term perspectives (Brasil, 2018). To achieve their objectives, these programs employ a process referred to as "defense systems acquisition" or simply "defense acquisition," which refers to the process of acquiring systems and equipment for military purposes (Brown, 2010).

According to Annex A of Ordinance GM-MD No. 4,070, dated October 5, 2021, defense acquisition, as defined by the MoD, can occur in three ways: the direct purchase of a solution already available on the market; by contracting the solution without transferring ownership to the contracting Force, such as rental or leasing agreements; and the development of a new solution with an organization capable of delivering such new technology.

In the case of this study, which focuses on acquisition via development, the defense procurement process encompasses aspects such as design, engineering, testing and evaluation, production, operations, and system support (Brown, 2010). Since development acquisitions generally span several years, defense programs and projects aim to apply best management practices to ensure the necessary conditions for success, guaranteeing that the expected military capability is delivered as planned (Bucur-Marcu *et al*., 2009).

2.1 Strategic Planning

In Brazil, defense acquisitions are carried out by the Armed Forces (AF) or individual branches, referred to as Single Forces: the Brazilian Navy, the Brazilian Army, or the Brazilian Air Force. These acquisitions may address the specific demands of a single branch or joint requirements, in which case the Ministry of Defense (MoD) participates in the process. Such defense acquisitions are conducted in alignment with the so-called Capability-Based Planning (CBP), a framework integrated into military strategic planning by the MoD.

The MoD has been developing the CBP concept, which is gradually being implemented both within the MoD and across the AF. Currently, CBP is defined as a set of procedures aimed at preparing the Armed Forces by acquiring capabilities aligned with the State's defense interests and military needs. This process operates within a defined time frame, taking into account prospective scenarios as well as budgetary and technological constraints (Brasil, 2018).

Thus, with the purpose of defining and organizing activities related to the preparation and employment of National military power, the CBP will have the ability to establish qualitative and quantitative parameters for sizing, organizing, and equipping the AF, addressing the country's defense needs and contributing to the execution and implementation of the National Defense Policy and the National Defense Strategy (Leite, 2011; Brasil, 2018).

In exploring the concept of "capability," Taylor (2013) noted that each nation may have varying definitions, as it is generally understood as the ability to perform a specific function, given its inherent connection to an activity. From a systemic perspective, Tomforde e Müller-Schloer (2014) define capability as the characteristic of a system that enables it to achieve a specific purpose. From a military perspective, the *Department of Defense* (DoD, 2021) defines capability as the ability to complete a task or execute a course of action under specified conditions and performance standards.

Considering the Armed Forces as a complex military system, the Brazilian Army defines capability as the competence required of a Military Force or Organization to accomplish a specific task or mission. Alternatively, it could be seen as the ability to employ its constituent systems synergistically to perform a task or mission with high effectiveness (Brasil, 2014).

Therefore, military capabilities are achieved with the combination of multiple factors. For instance, in the United States (USA), the concept of capability encompasses a combination of doctrine, organization, training, materiel, leadership and education, personnel, and facilities—collectively known by the acronym DOTMLPF-P. Taylor (2013) recognized that most nations have developed a similar framework to describe the various components of capability, which typically include people, equipment, organizations, doctrine, information, and related elements.

Among these nations is Brazil, which defines capability as being based on a set of seven interrelated and inseparable factors: Doctrine, Organization, Training, Materiel, Education, Personnel, and Infrastructure (DOAMEPI), meaning a capability is achieved through the organizational integration of these factors (Brasil, 2014; Brasil, 2016; Silva, A., 2020). According to Taylor (2013), Australia's Ministry of Defense illustrates this concept effectively in its Capability Development Manual, emphasizing that merely addressing these factors is insufficient to achieve a capability. For Australians, the outcome is not the result of a simple sum but rather the constructive interaction between the factors.

The AF and the MoD plan to implement CBP in two phases: definition and analysis. The first focuses on defining the macro-capabilities to be developed based on the scope of planning—whether national, sectoral, or sub sectoral—and their respective levels, such as political, strategic, operational, or tactical. Table 1 outlines the entities responsible for this initial phase of CBP. The second phase, capability analysis, will be conducted independently by each branch of the Armed Forces to develop their individual capability plans. These phases can be carried out in both top-down and bottom-up approaches, with the MoD and the AF being responsible for coordinating the integration and consolidation of results within the CBP process (Silva, A., 2020). Throughout these phases, real and potential gaps and deficiencies in capabilities will be identified, whether at the national, joint, defense-military, or single-force military level (Brasil, 2014; Brasil, 2021).

Table 1. Correspondence between CBP scope, levels, responsible parties, and products

Scope	Level	Responsible entity	Product
National Planning	Political	Federal Government (Supreme Commander, Ministries, and political leaders)	National Capabilities (expressions of National Power): Economic, Scientific, Technological, and Psychosocial Capabilities. Defense Capabilities (military and non-military means)
Sector Planning	Strategic	MoD and AF	Joint Operational Capabilities
Sub sectoral Planning	Operational	AF and MoD	Military Defense Capabilities: Naval, Land, and Aeronautical
	Tactical	AF	Military Capabilities of the Single Forces (Activities and Tasks)

Source: Adapted from Brasil (2014) and Brasil (2021)

Charles Domingues da Silva (2020) developed a capability classification for diagnosing an AF, which, once identified, highlights gaps and deficiencies in capabilities. This classification results in three types of capabilities that an AF must achieve or develop: immediate, expanded, and future. Immediate capability refers to the capacity that is readily available and provides the minimum conditions to address a threat. This type of capability requires ready-to-use technological solutions that can be acquired if needed. Expanded capability focuses on overcoming the AF's technological gaps by ensuring sufficient resources to fulfill its constitutional missions and which can be obtained through international markets or developmental efforts. Finally, future capability is the desired capacity to address potential threats in projected future scenarios. It encompasses the fulfillment of the other two capabilities and is achieved through developmental efforts.

Based on the analysis by Charles Domingues da Silva (2020), it is clear that the application of CBP focuses on planning the acquisitions of the AF in the short, medium, and long term, depending on the identified gaps and defined strategic objectives. Thus, Table 2 presents a consolidation of this vision.

Table 2. Capability gaps and how to obtain them

Type of Capability Gap	Solution Features	Acquisition
Immediate	Minimum conditions to address threats	Immediate availability
Expanded	Fulfill all constitutional missions	International suppliers or domestic development
Future	Prospecting for future threats	Internal development

Source: Adapted from Charles Domingues da Silva (2020)

The capacity-building plan will address the capability gaps that must be bridged. Execution will occur through defense acquisition processes, encompassing both capabilities requiring the acquisition of a solution already available on the market and those necessitating the development of a solution. Thus, when prioritizing efforts to address identified gaps, consideration should be given to factors such as the technological maturity of the solutions to be acquired and the future management of their respective life cycles (Furcolin, *et al*., 2013).

In this comprehensive process of preparing the CBP—which engages the national, sectoral, and sub sectoral levels of National Defense—distinct planning characteristics can be identified: utilizing medium- and long-term future scenarios; influencing the structuring of the AF; promoting modernization and innovation by addressing research and development needs; requiring strategic and prospective intelligence for the AF's actions; considering the technological and industrial development of the defense sector, as well as the budgetary and financial capacity of the AF, enabling the identification of essential and feasible military powers (Brasil, 2021).

With this methodology, the CBP will offer several advantages: the enhanced collaboration between the MoD and the AF for effective and integrated planning; the synergy between capabilities for joint operational use by the AF; precision in defining capabilities, minimizing resource waste; cost savings through investment rationalization and efficient resource allocation; and the feasibility of technological advancements aligned with established financial constraints (Brasil, 2021).

2.2 The Life Cycle of Defense Systems

Faulconbridge and Ryan (2018) define the life cycle of a system as the set comprising the sum of the phases and activities a system undergoes throughout its existence. This life cycle can be described as a model that represents the conceptualization of operational needs, their realization, utilization, evolution, and eventual elimination and disposal (Blanchard; Fabrycky, 2014).

Designed systems are created and operated within a life cycle (Walden *et al*., 2015), as they come into existence at a certain point (conception), function during their operational phase (utilization), and ultimately cease to exist when discarded, once they can no longer fulfill the purpose for which they were created (Faulconbridge; Ryan, 2018).

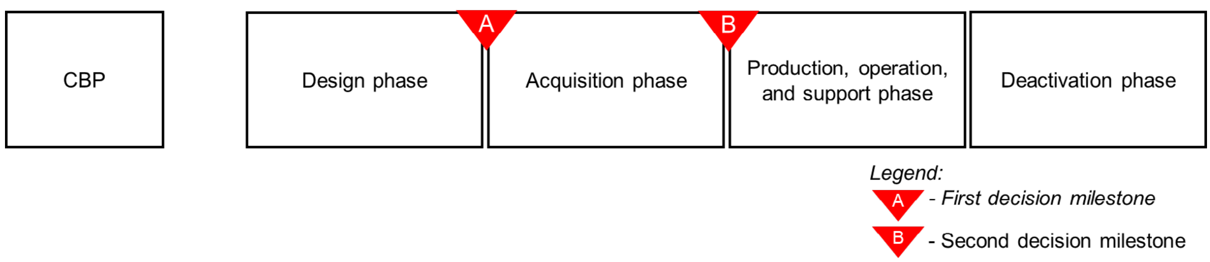
According to ISO 15288 (2023), a system progresses through its life cycle as a result of actions executed and managed by individuals within organizations, using processes to carry out these actions. This progression occurs as the system transitions through the various phases of the life cycle in which it was conceived, developed, utilized, supported, and deactivated (Walden *et al*., 2015).

Thus, to ensure that a system operates effectively, efficiently, and remains economically competitive, attention must be focused on the initial phases of its development. In other words, efforts should not be predominantly applied after the system has been implemented and becomes operational but rather during the initial stages of design and development, that is, in the early phases of the life cycle (Blanchard; Fabrycky, 2014). These considerations are even more critical for defense systems, which are characterized by prolonged periods of use, resulting in life cycles significantly longer than those of many comparable civilian systems. Consequently, initial decisions have a substantial impact on the future budgets of government defense bodies (Bucur-Marcu *et al*., 2009.

The Army addresses this issue in its *Instruções gerais para a Gestão do Ciclo de Vidas dos Sistemas e Materiais de Emprego* Militar (General Instructions for the Life Cycle Management of Military Employment Systems and Materials), the EB10-IG-01.018(2024). This internal regulation establishes the framework and mechanisms for managing the life cycle of defense systems within the Army. Opting to standardize this management process—rather than merely defining the life cycle itself—enables the division of the complex challenges of the life cycle into manageable components, an approach that ultimately integrates these components to achieve the intended objectives (Sage; Rouse, 2009). According to Vieira e Bouras (2013), implementing product life cycle management is essential, as its absence makes it challenging to define a project's scope in detail or efficiently manage integration, communication, and other processes.

In Figure 1, the CBP and the four life cycle phases adopted by the BA are illustrated. The CBP block, which is not classified as a life cycle phase under the standard, is depicted as the source of strategic information addressing the gaps that need to be resolved through acquisitions, effectively functioning as a pre-phase of the life cycle. Charles Domingues da Silva (2020) demonstrate that CBP outputs will directly inform the initial phases of a defense system's life cycle, which, in the case of the BA, are the design and acquisition phases. They typically last between four and eight years, while the subsequent phases of a defense system's life cycle can extend up to 30 years or more.

Figure 1. The life cycle of military employment systems and materials in the Army



Source: Adapted from EB10-IG-01.018(2024)

This form of graphical representation of the life cycle phases, which appears linear, independent, non-overlapping, and sequential, fails to convey that, in practice, the activities within these phases are interdependent, overlapping, and competing. Additionally, the processes within the life cycle exhibit incremental, iterative, and recursive behaviors (Walden *et al*., 2015).

2.3 Obtaining Defense Systems in the Army

The process of obtaining defense systems in the Army typically begins with an order issued by the Army High Command (AHC) or the Army Chief of Staff (ACoS). This statement is based on the fact that the order marks the beginning of the life cycle management process for the system to be acquired and includes a directive for the Army General Staff, the Army's General Management Body (GMB), to conduct studies aimed at identifying a technological solution capable of addressing a gap and/or maintaining a capability derived from the Army's Strategic Planning and/or the Capability Development Plan (CDP). These documents are developed within the scope of the *Sistemática de Planejamento do Exército* (SIPLEx – Army Planning Systematics). While not regulated by the EB10-IG-01.018(2024), they are embedded within the tactical-level context of the CBP, which is executed within the scope of each AF (Table 1).

Once the process is initiated, the Design phase is conducted under the coordination of the GMB, which relies on input provided by the CBP. This body will appoint a multidisciplinary team to develop the documentation that will characterize the defense system to be obtained. The main artifacts produced during this phase include the concept of operations (CONOPS), doctrinal constraints (CONDOP), operational requirements (OR), technical requirements (TR), technology map (MAPATEC), test and evaluation plan (T&E), feasibility study (FS), conceptual system design, and *Plano de Apoio Logístico Integrado* (PALI – Integrated Logistics Support Plan).

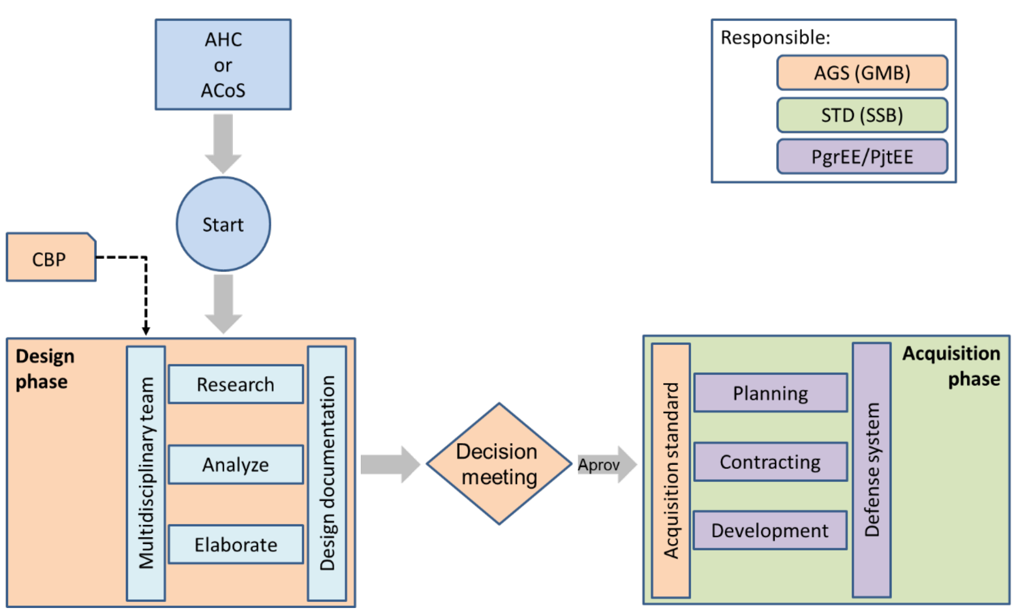
Among these artifacts, the FS is the one that provides information highlighting the temporal and evolutionary perspective of capabilities. It presents analyses on the following acquisition approaches: acquisition through special or off-the-shelf procurement, and acquisition through research, development, and innovation (RD&I) (EB10-IG-01.018, 2024).

The artifacts produced during this phase, along with conclusions regarding the process's continuation, are submitted to decision-making authorities for review. This step represents the first decision milestone (Milestone A, as shown in Figure 1), signaling the transition from the Design phase to the Acquisition phase. The GMB, through one of its Sub-Heads or the Army Project Office (Escritório de Projetos, EPEx), is responsible for presenting these results to decision makers and determining whether the process will proceed.

Upon approval of the process's continuation, the Acquisition phase begins. At this stage, two lines of action may be pursued, aligned with the results of the FS at the conclusion of the Design phase, which includes obtaining a solution through special or off-the-shelf acquisition or pursuing one through RD&I. In the first line of action, the decision directs the acquisition of a technological solution that already exists in the defense market and may be available from either national or foreign suppliers. In the second line of action, the decision involves continuing the process to develop an innovative solution tailored to meet the strategic and operational needs of the Army.

When opting for RD&I acquisition, as summarized in Figure 2, the General Management Body (GMB) assigns one of the Army's Sectoral Steering Bodies (SSB)—typically the Department of Science and Technology (DST)—to oversee these activities, which is executed through one of its subordinate units, which handles the acquisition process and provides the necessary administrative support to the appointed project manager. The project manager will be responsible for defining the acquisition strategy—proposed in this article—that best aligns with the project's objectives, ensuring its successful delivery to the operational units, i.e., the end users (Etemadi; Kamp, 2021).

Figure 2. The macroprocess of obtaining defense systems through RD&I.



Source: prepared by the authors

At the conclusion of the acquisition phase, the second decision-making milestone (Milestone B, as shown in Figure 1) occurs. At this point, the results of the phase are analyzed to decide whether to approve the production and procurement of future batches of the developed system. If approval is granted, the GMB will coordinate these activities in collaboration with the other relevant SSBs).

3 METHODOLOGY

This research can be classified as applied research in nature, as it focuses on the practical application of the knowledge developed (Matias-Pereira, 2019). Regarding the approach, this is a qualitative research, as it is based on the authors' interpretation of the information researched to generate the product of the study analysis (Pereira *et al*., 2018). Regarding its objectives, the research is descriptive. It begins with an exploratory bibliographic review to better understand the process of obtaining defense systems, followed by a detailed description of the characteristics of acquisition strategies (Vieira, 2010).

Based on bibliographic and documentary research, using primary and secondary sources (Bastos; Ferreira, 2016), this study was conducted to analyze the applicability of the evolutionary acquisition strategy in the defense system procurement processes coordinated by the Army Strategic Programs (Programas Estratégicos do Exército, PgrEE).

As data sources, the CAPES Journal Portal (SCOPUS, Web of Science, Wiley), Google Scholar, DAU/DoD resources, and the national framework of standards on defense acquisition were utilized.

The theoretical framework addresses how strategic planning for the acquisition of defense systems is conducted, involving capability-based planning and the life cycle management process for the Army's military employment systems (AMES). Building on this foundation, the study examines the regulatory environment for PgrEE acquisitions and the traditional and evolutionary acquisition strategies, focusing on incorporating these approaches into the procurement processes coordinated by PgrEE.

4 THE ACQUISITION STRATEGY

The obtaining process can essentially be split into three primary activities: deciding what to acquire, how to obtain it, and executing the acquisition process. While these activities may appear straightforward, in the context of defense systems—with their stringent requirements, high acquisition and maintenance costs, and market constraints—they demand specific requirements and procedures (Bucur-Marcu *et al*., 2009).

Moreover, as defense systems incorporate increasingly advanced technologies, thereby raising their complexity, acquisition process managers must continually refine their methods to ensure the timely delivery of these technologies to operational units (Mortlock, 2020). To address this, standards governing the obtaining process are being updated to integrate more modern techniques and procedures (Wong *et al*., 2022).

However, traditional methods have been unable to meet all current operational demands, leading many developed nations to adopt new strategies and acquisition processes aimed at expediting the delivery of operational capabilities and addressing performance gaps more swiftly. As a result, the well-known evolutionary acquisition strategies were developed, utilizing various development approaches to deliver greater capabilities within shorter timeframes compared to traditional processes (SHIMAN *et al*., 2022).

4.1 Analysis of Acquisition Standards

Despite being a topic treated with certain restrictions in the defense environment, the acquisition strategy has been employed in defense system acquisition programs in the USA (Shiman *et al*., 2022), Australia (Henderson; Gabb, 1997), and England (Birkler *et al*., 2002). The USA has been the most transparent in addressing the issue, openly promoting discussions since the 1990s and considering acquisition strategy crucial for the execution and oversight of defense programs and projects coordinated by the DoD (Shiman *et al*., 2022). This importance is reflected in the legal provision for this type of document in federal acquisition regulations, specifically in the Federal Acquisition Regulation (FAR), Part 7 (United States, 2023b). Given that the acquisition strategy is already utilized by other nations, this study adopts the premise that such an approach is also suitable for the BA.

In Brazil, government acquisition processes are continually evolving, and defense-related processes are no exception, as illustrated in Table 3. The most recent developments in this area include the enactment of the new bidding and contracting law (Law No. 14,188) and the Directive for the Joint Acquisition of Defense Products and Systems in 2021, as well as the publication of the 3rd edition of EB10-IG-01.018 in 2024.

Nevertheless, national legislation, including federal and MoD standards, does not require defense acquisition program managers to develop an acquisition strategy. Consequently, such documentation is not mandated within the Army' internal standards for program, project, or life cycle management. Added to this is the fact that the Army's internal regulations do not differentiate between program and project typologies in a way that allows for the specific categorization of those involving defense system acquisitions. If such differentiation were established, it would allow for the classification of programs delivering advanced defense technologies versus those providing the organizational structure necessary for these endeavors (Thomas; Utley, 2006; Farmer *et al*., 2014).

Table 3. Evolution of standards for defense acquisition

Standard	Scope	Predecessor
Special Standards for Purchasing, Contracting, and Developing Defense Products and Systems (Law No. 12,598, March 21, 2012)	National	-

Standard	Scope	Predecessor
Standards for the Preparation, Management, and Monitoring of Projects in the Brazilian Army – NEGAPEB (EB20-N-08.001:2013)	BA	Standards for the Preparation, Management, and Monitoring of Projects in the Brazilian Army (EB20-N-08.001:2007)
Standards for the Preparation, Management, and Monitoring of the Portfolio and Strategic Programs of the Brazilian Army – NEGAPORT (EB10-N-01.004:2017)	BA	-
Defense Product Acquisition Policy – POBPRODE (Normative Ordinance No. 15/MD, April 4, 2018)	MoD and AF	-
Systematic Military Strategic Planning (Normative Ordinance No. 94/GM-MD, December 20, 2018)	MoD and AF	Systematic Military Strategic Planning (Ordinance No. 998/SPEAI/MD, August 24, 2005)
Standards for the Preparation, Management, and Monitoring of the Costs of the Brazilian Army's Portfolio, Programs, and Strategic Projects (EB20-N-08.002:2019)	BA	-
Manual of Good Practices for the Life Cycle Management of Defense Systems (MD40-M-01:2019)	MoD and AF	-
Bidding and Administrative Contracts Law (Law No. 14,133, April 1, 2021)	National	Standards for Public Administration Tenders and Contracts (Law No. 8,666, June 21, 1993)
Guidelines for the Joint Acquisition of Defense Products (PRODE) and Defense Systems (DS) (Ordinance No. 4,070/GM-MD, October 5, 2021)	MoD and AF	-
Standards for Governance and Management of Public Acquisition within the Scope of COLOG (EB40-N-70.001:2022)	BA	Standards for Governance and Management of Public Acquisition within the Scope of COLOG (EB40-N-70.001:2020)
General Instructions for the Life Cycle Management of Military Employment Systems and Materials (EB10-IG-01.018:2024)	BA	General Instructions for the Life Cycle Management of Military Employment Systems and Materials (EB10-IG-01.018:2022)

Source: prepared by the authors

From the current legal framework outlined in Table 3, Federal Law No. 14,133/2021 (the new Bidding Law) represents the most significant advancement in defense acquisition processes. It simplified and formalized new procedures for waiving bidding requirements for contracts involving defense products and services. One notable improvement is the streamlined procedure for defense acquisitions involving both high technological complexity and national defense. The new law removed the requirement for an opinion from a designated special commission, which was mandated under the previous regulation, Law No. 8,666/1993.

Federal Law No. 12,598/2012 further advanced the sector by establishing a set of rules aimed at fostering strategic defense. Under its provisions, Strategic Defense Companies (SDC) have exclusive rights to supply Strategic Defense Products (SDP), which are deemed of strategic interest for national defense given their technological content, difficulty of procurement, or indispensability. The law also allows for bidding processes specifically designed to acquire defense products and services produced or developed domestically, utilizing national inputs, or incorporating innovation developed in Brazil and ensures that domestic defense product manufacturers or Scientific and Technological Institutions (STIs) benefit from the transfer of technological knowledge or participation in the production chain.

The MoD has also significantly contributed to improving acquisition processes. Numerous regulations have been published to standardize procedures across the MoD and AF. The Policy for the Acquisition of Defense Products (POBPRODE), published in 2018, is one of the key efforts to establish strategic guidelines for standardizing procedures for acquiring defense products. It focuses on four main axes: acquisition based on military capabilities, joint acquisition of defense products of interest to the MoD and AF, human resource training for the MoD and AF, and the promotion of the Defense Industrial Base (DIB). Building on POBPRODE, the MoD defined the Joint Acquisition Guidelines for Defense Products and Defense Systems in 2021, which includes several annexes that detail the procedures for establishing a joint analytical process for the acquisition of Defense Products (PRODE) and Defense Systems (DS), aiming to coordinate joint projects, enhance interoperability among the Singular Forces, and promote the DIB. It is worth noting that there is no formal standard for Capability-Based Planning on the part of the MoD, as this process is still under discussion. This is due to the need to reconcile differences in the characteristics and particularities of the various Armed Forces.

The Army has also made progress in its internal standards to improve processes and adapt to national legislation and MoD standards. In 2017, it published NEGAPORT, which reorganized its portfolio of strategic projects into programs, enhancing the entire process of program implementation and management. This initiative was a response to the high volume of large-scale projects, reaching strategic levels, which were being implemented within the Army and could not fully fit within the framework of NEGAPEB, which had been updated in 2013 to align with the latest practices adopted at that time in the PMBoK. Finally, in 2024, the 3rd Edition of EB10-IG-01.018 was published. This edition refined certain life cycle management concepts but removed the requirement to specify the system development methodologies (*waterfall, vee*, spiral, and agile) to be implemented by project teams, as outlined in the 2nd edition of the standard. Another notable aspect is the absence of a provision for alignment with the CBP, which had been included in the 1st edition of the standard. On the positive side, the 3rd edition incorporates several points that have already been standardized with the other AF in the life cycle management documents of the MoD.

4.2 Purpose and Composition of the Acquisition Strategy

Acquisition strategies are plans developed by program and project management teams and must be approved by the competent authorities overseeing the undertaking in which they are being formulated (Etemadi; Kamp, 2022). Within the DoD's complex defense acquisition process, these strategies have been identified as one of the main factors contributing to the success of defense acquisition programs (Delano, 1998). Another point worth highlighting is that acquisition strategies also serve as a guiding tool for defense companies in developing their respective business strategies (Dombrowski; Gholz, 2003; Eren; Erenel, 2018).

Creel e Ellison (2008) Describe acquisition strategies as high-level roadmaps that guide the acquisition process toward successful outcomes in terms of cost, schedule, deliverability, quality, and risk management while encompassing the system's entire lifecycle, from the initiation of capability acquisition to the operation, utilization, and support phases.

The Defense Acquisition University (DAU) defines them as comprehensive master plans detailing how the program's goals and objectives will be achieved, serving as roadmaps for program execution, covering all phases from inception to post-production support. These strategies must outline the key elements of the program, such as requirements, resources, testing, contracting approaches, and open systems design, along with their interrelationships, which are tailored to meet the specific needs of each program (Brown, 2010; Wong *et al*., 2022).

In the context of defense acquisition programs that deliver high technology, their acquisition processes critically depend on effective and rigorous engineering processes. Without such processes, it is impossible to develop operationally viable and sustainable weapons systems (Brown, 2010). To address this criticality, acquisition strategies are employed to guide the development of more detailed plans that will direct program execution (Ward *et al*., 2006), including program management and systems engineering documents (Pahsa, 2012).

This set of documents, created by the defense acquisition program management team, supports the execution of the program's key activities, with the ultimate goal of ensuring the success of the endeavor (DSMC, 2022). The activities should be organized in a way that provides the program manager with the information necessary to balance the well-known factors of cost, schedule, and performance (Brown, 2010). These documents will also be used to guide the respective project managers, who must develop project plans based on the definitions established in the acquisition strategy, program management, and systems engineering (Townsend, 1994).

Table 4. Elements of the defense acquisition strategy

Strategy element	Citation	Correspondence in National, MoD, or BA Standards
Program structure	[1] - [2] - [4] - [5] - [10]	EB10-N-01.004: 2017 (NEGAPORT)

Strategy element	Citation	Correspondence in National, MoD, or BA Standards
Capability gap	[7] - [8] - [9] - [10]	Systematic military strategic planning
Acquisition approach	[1] - [2] - [3] - [4] - [5] - [6] - [8] - [9] - [10] - [11]	-
Timeline	[1] - [4] - [5] - [8] - [9] - [10]	EB10-N-01.004: 2017 (NEGAPORT)
Risk management	[1] - [2] - [3] - [5] - [7] - [8] - [9] - [10] - [11]	EB10-N-01.004: 2017 (NEGAPORT) EB10-P-01.004 (Brazilian Army Risk Management Policy)
Bidding approach	[2] - [3] - [8] - [9] - [10] - [11]	Bidding and Administrative Contracts Law
Contracting approach	[4] - [11]	EB40-N-70.001 (Standards for Governance and Management of Public Acquisitions within the Scope of COLOG)
Resources	[4] - [5] - [8] - [9]	EB10-N-01.004: 2017 (NEGAPORT). EB20-N-08.002:2019
International engagement	[2] - [8] - [10] - [11]	Ordinance No. 4,070/GM-MD, October 5, 2021
Industrial capacity and production readiness	[5] - [8] - [9]	Ordinance No. 4,070/GM-MD, October 5, 2021

Strategy element	Citation	Correspondence in National, MoD, or BA Standards
Intellectual Property	[8] - [11]	EB10-D-01.011 (Intellectual Property Directive of the Brazilian Army)
Lifecycle support	[1] - [2] - [5] - [8] - [10] - [11]	EB10-IG-01.018:2024
Testing and evaluation	[1] - [2] - [3] - [4] - [5] - [7] - [8] - [9] - [10]	EB10-IG-01.018:2024
Legenda: [1] - (Birkler; Smith *et al*., 2000); [2] - (Ward *et al*., 2006); [3] - (Creel; Ellison, 2008); [4]-(Brown,2010);[5]-(Navsea,2010); [6] - (Boehm; Lane, 2010); [7]-(Pahsa,2012);[8]-(DSMC,2013); [9] - (Mortlock, 2020); [10] - (Anton *et al*., 2020); [11] - (United States, 2023a)		

Source: prepared by the authors

For an acquisition strategy to be effective in a defense program, it must incorporate a set of strategic elements during its formulation. Each element represents a decision or plan that defines how to handle a specific aspect of program execution (Ward *et al*., 2006). Over the years, the set of elements has undergone some variations, but there remains a well-defined core group that forms the essence of an acquisition strategy, as shown in Table 4.

Among the elements that make up an acquisition strategy, it is noted that the element of "Acquisition Approach" does not correspond to any of the standards currently used by the Army for defense acquisition activities, as the topic is not addressed in any of these standards. However, this element is often confused with the acquisition strategy itself (Riposo *et al*., 2014; Shiman *et al*., 2022), as it tends to represent the type of strategy adopted—either traditional or evolutionary—since its purpose is to define the approach the acquisition program will use to achieve full operational capacity (Ward *et al*., 2006).

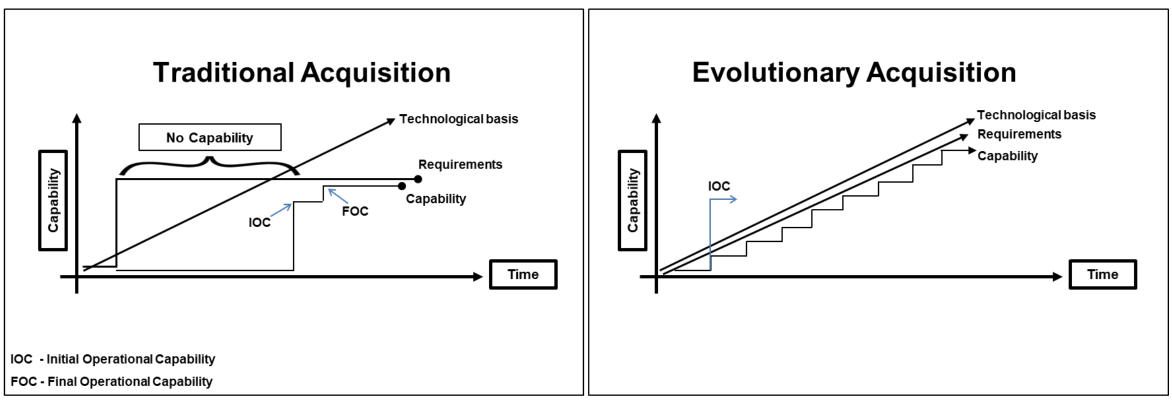
Despite the current normative advancements related to defense acquisition processes and the existence of planning within PgrEE, there is still room for the implementation of an acquisition strategy and its corresponding acquisition approach to be adopted.

4.3 Acquisition Approaches

The acquisition strategy must define which approach—whether traditional or evolutionary—will be adopted for the acquisition process to deliver the expected total capability, referred to as the Final Operational Capability (FOC). As illustrated in Figure 3, the primary advantage of the evolutionary approach over the traditional one is that operational elements can gain access to some operational capability earlier. In other words, they receive an Initial Operational Capability (IOC) before the program or project is fully completed (Mortlock, 2020).

Acquisition approaches are closely correlated with lifecycle development models. Consequently, the chosen approach will influence how the projects responsible for developing the capabilities execute the primary system development activities, which also impacts how the systems engineering processes are adapted to manage the program's and project's technical activities (Boehm; Lane, 2010;Director of Systems Analysis within the ODDR&E Systems Engineering (SE DoD, 2017).

Figure 3. Approaches to the acquisition of defense systems

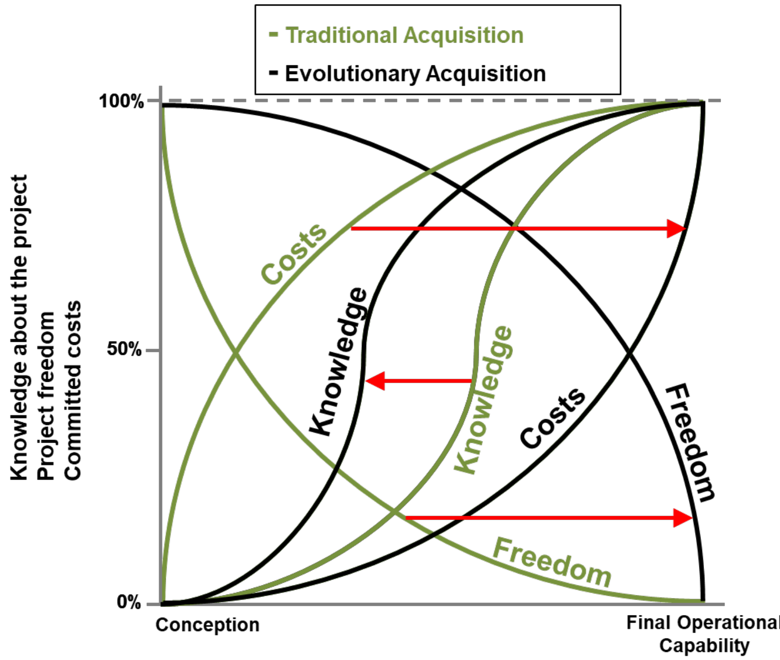


Source: Adapted from Mortlock (2020)

Adopting an acquisition strategy with an evolutionary approach instead of a traditional one introduces a paradigm shift, aligning with the "knowledge-cost-freedom" curve of a project (Romli, 2009). Figure 4 illustrates this dynamic, as the evolutionary acquisition strategy ensures that knowledge about the system under development becomes available earlier. With each increment, the system incorporates new capabilities, which are subject to user feedback and can refine subsequent increments, supplemented by insights gained from R&D into the requirements of future increments.

Segmenting the system into operationally usable increments provides partial operational capabilities until the final version is achieved, which ensures greater flexibility in system design, allowing the knowledge acquired throughout the project to enhance the development process incrementally. As a result, there will be a shift in the committed cost curve, as, by planning the delivery of capabilities incrementally and allowing the development and evolution of requirements throughout the various projects to be implemented, this approach delays cost commitment and provides more room to assess the accuracy of the path being charted for the development of the project.

Figure 4. Paradigm of shift in the development process



Source: Adapted from Romli (2009)

This paradigm is supported by the fact that acquisition approaches are correlated with life cycle development models. The chosen approach influences how projects execute primary system development activities and adapt systems engineering processes to manage the technical program and project activities (Boehm; Lane, 2010; DoD, 2017).

4.3.1 Traditional Acquisition (Single Cycle)

The traditional approach, also known as a single cycle, follows the strategy of "do everything at once" or "perform each step only once." In this strategic model, user needs are identified, requirements are defined, the system is designed, implemented, tested, errors are corrected, and the final delivery is completed—culminating in the achievement of final operational capability (Ward *et al*., 2006). As a result, this process often adheres to a linear development model, where the completion of one activity triggers the initiation of the next. This approach typically employs the *waterfall* development model (Henderson; Gabb, 1997). Well-understood and executed by managers, it requires defining entry and exit criteria for each phase, which helps mitigate risks (Townsend, 1994).

However, in this traditional approach, the capability gap persists until the product developed in the project is delivered (Mortlock, 2020). This situation can create another issue in terms of technology. When development, production, and operational deployment timelines are excessively long, there is a risk that the delivered technology may no longer be suitable for addressing current threats or may become obsolete in countering emerging threats shortly after entering operation (Rozenfeld *et al*., 2006). These factors make this strategic approach unsuitable for managing rapidly changing or poorly defined requirements and inadequate for solving highly complex problems (Townsend, 1994).

This acquisition strategy is widely employed by the PgrEE, as the Army's acquisition process is guided by the definition of nearly all requirements at the program's outset. This procedural approach is consequently replicated in their respective projects, conditioning programs, and projects to rely on more linear innovation models. This has resulted in certain constraints and reactive responses, whether due to the emergence of new technologies or user feedback on systems developed under this strategy.

Examples of programs that adopted this strategy include the Guarani armored vehicle and the *Sistema de Apoio à Decisão* (SAD – Decision Support System) for *Sistema Integrado de Monitoramento de Fronteiras* (SISFRON – Integrated Border Monitoring System). By adopting a traditional acquisition strategy for development, the initial requirements for both the Guarani vehicle and the SAD-SISFRON projects were only modified due to external factors, such as changes in suppliers or verification tests. Thus, after the contract was signed, the delivered solution lacked any innovation or technological advancements resulting from the evolution of requirements. As a result, the solutions provided at the conclusion of the respective projects were based on requirements defined 8 and 11 years earlier, respectively (Bastos Júnior *et al*., 2015; Peretti Junior, 2020).

In the case of SAD-SISFRON specifically, it was originally planned for implementation across the entire border within a ten-year period (2013 to 2023). However, the program's first phase alone took nine years to complete (Brasil, 2023). Despite the challenges encountered during the development and implementation of these programs, the efforts have undeniably brought significant benefits to the national defense industry (Bello *et al*., 2020).

Therefore, the conclusion of these projects, coupled with the lack of prospects for new developments or advancements, will turn these technological gains into obsolescence in the medium term, driven by the global progress of R&D in the defense sector (De Rezende *et al*., 2018; Ramalho *et al*., 2019). Additionally, the challenges of project closures and the absence of forward-looking initiatives fail to foster changes in the existing innovation culture at the Defense Industrial Base (DIB), which invests relatively little in R&D compared to comparable defense companies in other nations (Leske, 2018).

4.3.2 Evolutionary acquisition

The evolutionary acquisition approach began to be researched in the 1970s as a strategic option to improve cost control for defense projects (Perry *et al*., 1971). During the 1980s in the United States, it began to gain prominence in defense programs and projects, and in 1989, the DoD adopted it as the preferred approach for developing IT system architectures. In 1991, the evolutionary acquisition approach was incorporated into DoD standards as an "alternative strategy" for developing command and control systems (Shiman *et al*., 2022). This shift was driven by the success of defense acquisition programs that employed this approach, as they were able to deliver new capabilities, based on more mature technologies, to operational elements more quickly (Brown, 2010).

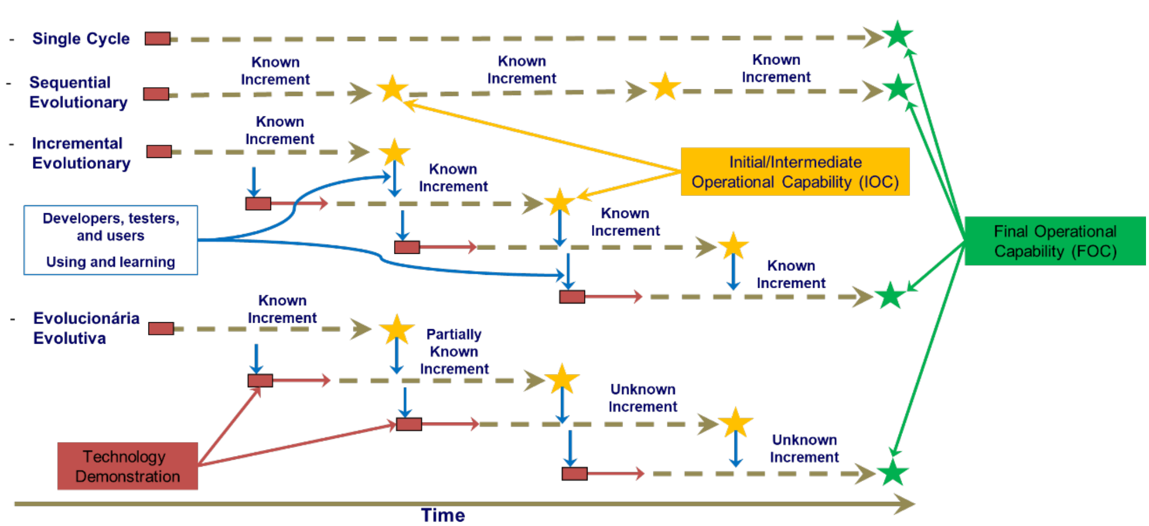
When implementing the evolutionary approach, it is expected that an initial version of the system, referred to as the first increment, will be delivered, which will include an initial operational capability comprising mature, readily available technologies (Mortlock, 2020). From this initial delivery, additional versions of the system are provided through new increments, each adding new operational capabilities, where increment must include a specific set of requirements, parameters, and appropriate objectives (United States, 2010).

One of the benefits of this dynamic is its positive impact on the defense industry, as this approach tends to encourage continuous technological development and maintain a robust technological base. Thus, through an evolutionary strategy, the industry would be incentivized to sustain constant R&D activity, fostering long-term planning (Wong *et al*., 2022). This would result in the development of an innovation culture in the defense sector (Leske, 2016), focused on specific strategic niches and aligned with the objectives to be established by the CBP.

Additionally, through an evolutionary approach, operational elements would be equipped with new capabilities throughout the project, reducing the waiting time for a technological solution to support the execution of their operational missions (Brown, 2010). Unlike the traditional strategy, not all requirements in this approach need to be defined at the beginning of the project. This allows for the possibility of requirements being supplemented, refined, or evolved over time, even enabling new capabilities to be added as the project progresses (Whalen *et al*., 2004).

As a result, it not only enables faster delivery of the IOC but also allows the system to keep pace with technological advancements throughout the project. This contributes to reducing the risk of the system being completely outdated in its final version, the FOC. The dynamic nature of the evolutionary approach, as illustrated in Figure 5, allows for multiple implementation methods, with its main variations being sequential, incremental, and evolutionary.

Figure 5. Variations in acquisition approaches



Source: Adapted from Boehm, Lane (2010)

The sequential evolutionary approach aims to rapidly develop an initial operational capability, which is then updated and refined based on operational feedback. This approach operates within a rapid delivery cycle, with updates (main deliveries) expected to occur every 6 to 12 months and fixes to be provided within 30 days. These periods make the agile development model particularly well-suited to this acquisition approach. While its primary application is in software-based systems, it is also applicable to hardware-software systems, particularly in the IT sector (Boehm; Lane, 2010;Director of Systems Analysis within the ODDR&E Systems Engineering (SE Modigliani; Chang, 2014).

The incremental evolutionary approach is characterized by identifying requirements and dividing them into two groups: well-understood and stable requirements (low risk) and unstable requirements (high risk). Low-risk requirements are used to develop the initial version of the system, which is deployed as the first increment. Consequently, the remaining requirements are developed for integration into the system as the technologies mature sufficiently for incorporation. To enable the system to accommodate these increments, the system architecture is designed to support the addition of new technologies by including the necessary interfaces for this process (Townsend, 1994; Boehm; Lane, 2010). By addressing issues related to technological maturity or user needs for the early use of certain capabilities, this approach offers greater flexibility than the traditional approach. However, it may lead to increased costs and/or extended timelines (Ward *et al*., 2006).

The evolutionary progressive approach is particularly well-suited for development programs where the requirements are not fully known or when strong guidance from system users is needed. This approach results in delivering a high-quality capability that tends to increase user satisfaction and usage, as defects in requirements are minimized. Nevertheless, it will also demand significant systems engineering effort, as it involves managing constant changes to the development baseline, plans, and specifications for upcoming increments, while maintaining stability for the increment currently in development. Due to its cyclical development nature, this approach typically employs the spiral development model. However, this constant evolution complicates the definition of support contracts, given the lack of well-defined requirements at the program's outset, making it more suitable for developments requiring extended periods of evolution (Townsend, 1994; Boehm; Lane, 2010).

4.4 Discussion on the Implementation of Acquisition Strategies

Starting from the premise that the absence of regulation on the topic of acquisition strategy—and its key component, the acquisition approach—was identified in the documents supporting the defense systems acquisition process, a discussion was conducted on the strategies presented to identify areas for improvement in the planning and execution of defense programs whose aim was to align these programs with the best practices already adopted by other nations.

The first point to highlight is that the gap caused by the lack of regulation on the topic of acquisition strategy, and its respective acquisition approach, prevents managers of strategic programs and projects from gaining awareness of the possibilities regarding development types and capacity delivery methods available to them. This shortcoming impacts the evolution of defense acquisition processes managed by PrgEE, as they fail to become more responsive to operational elements by not employing methods and processes that would enable the timely delivery of planned operational capabilities in the field.

Of the strategies analyzed in this article, there are two primary approaches: the traditional and the evolutionary. The traditional approach is currently employed in the strategic programs and projects of the FA. The evolutionary approach, on the other hand, has been widely adopted by other nations developing defense systems, gradually replacing the traditional model.

Regarding the traditional acquisition strategy, even though it is not formally mentioned in acquisition documents, it is the approach used in the Army's defense acquisition programs. In this approach, the programs align with the strategic planning of the AF. However, this type of strategy does not demand a legal provision in the Army's regulations to ensure alignment with the CBP. It is worth noting that the first edition of EB10-IG-01.018, published in 2016, included this provision, but it was removed in the third edition, the latest version. This removal impacts the management of operational capability gaps that should be addressed by the programs, as the lack of alignment with CBP may lead to a misalignment with the needs of National Defense.

The most significant observation regarding the traditional approach, however, is that development contracts only anticipate the delivery of a final operational capability. This means there is no provision for the evolution of requirements throughout the development process. This results in a lack of planning to incorporate incremental technological evolutions through development starting from an initial operational capability. One impact of this shortfall is on fostering the development of the defense industry, as the absence of continuous incentives tends to push the industry back into a state of technological obsolescence in the medium term. This phenomenon may occur despite the technological gains achieved with defense systems developed in recent years using the approach adopted by PrgEE.

Regarding the evolutionary approach, it can be implemented in three ways: sequential, incremental, and evolutionary. These methods differ in execution and how they handle requirements throughout the development process, but their commonality lies in allowing requirements to evolve during development. Given this evolving scope of requirements, there is a need to implement a process within PrgEE to identify, prioritize, and manage adjustments to requirements to meet the changing demands of operational capabilities and technological advancements. Programs must also define how the management and prioritization of identified gaps and opportunities will be ensured to fulfill the operational capabilities under PrgEE's responsibility.

The management and prioritization of these gaps enable the PrgEE to realign with any strategic reorientation by the Armed Forces Command, a flexibility that contrasts with the rigidity of the traditional approach in managing requirements. Moreover, the evolutionary approach must, as in the traditional approach, detail how the program aligns with the strategic objectives of the AF and the relevant concepts of joint operations. However, it should also incorporate relevant aspects of CBP once they are approved by the MoD.

At the execution level, the evolutionary approach requires PrgEE to carry out integrated planning of defense projects, systems, and products that will be executed, acquired, or developed under the program. This integration is essential to coordinate technological solutions with the operational capabilities being delivered. Thus, as with the traditional approach, it will be necessary to detail how PrgEE will obtain, develop, acquire, deliver, transition, and sustain all defense systems and products that constitute the planned operational capabilities.

However, as this approach anticipates delivering an initial operational capability that will be enhanced with new technologies as they are developed, the PrgEE must establish R&D goals and identify innovation opportunities to enable the integration of successful innovations into the program's scope and the achievement of operational capabilities.

This R&D effort will require greater integration among program and project teams, both within the AF and the companies involved in development activities. Such integration will foster R&D initiatives within the DIB, encouraging continuous updates to its technological capacity. Consequently, the PrgEE must detail the opportunities and constraints of the DIB, including strategies to maximize the participation of national industries in critical technologies of national interest, which will also contribute to reducing underutilization of national productive capacity.

In this context, aimed at exploring how the evolutionary acquisition strategy could support the advancement of defense acquisition processes, this discussion has identified a set of actions required for implementing this strategy. These actions are not intended to replace the traditional approach employed by the PrgEE but to complement it. For an evolutionary acquisition strategy that incorporates these actions to effectively enhance the PrgEE acquisition process—encompassing the development of defense systems—it should include the following:

- A detailed explanation of how a program aligns with strategic Defense objectives, capability-based planning, the Armed Forces' strategic objectives, and relevant joint operational concepts.
- The ability to adapt to any strategic reorientation from the Army Command.
- Assurance that the program's identified gaps and opportunities are managed and prioritized to meet the operational capability outcomes targeted by the program.
- An integrated planning vision for the projects, systems, and defense products to be executed, acquired, and/or developed by the program.

- A detailed description of how the program will handle acquisition, development, delivery, transition, and sustainment of all defense systems and products that will comprise the planned operational capabilities.
- The definition of R&D goals and innovation opportunities, including methods to incorporate successful innovations into the program and the achievement of operational capabilities.
- A detailed assessment of the opportunities and constraints of the DIB at the program level, including opportunities to maximize national industry participation in critical technologies of national interest, as well as to enhance national production capacity throughout the program's lifecycle; and
- The process for identifying, managing, and prioritizing requirement adjustments within the program to address the evolving needs of operational capabilities, technological developments, and the program itself.

Therefore, by adopting an evolutionary approach strategy that incorporates these elements, programs would benefit from a new acquisition strategy, fostering the advancement of the defense systems process. This approach would enable programs to provide operational elements with access to technological solutions addressing certain capability gaps within a shorter period compared to the traditional approach, even before the delivery of the final version of the defense system.

5 CONCLUSION

This article aimed to analyze the applicability of implementing an evolutionary acquisition strategy and incorporating various acquisition approaches into the processes of obtaining defense systems for the BA. This aligns with the continuous evolution of defense acquisition processes, which strive to be more responsive to operational elements, ensuring planned operational capabilities are fielded as quickly as possible, while reducing risks and improving process efficiency.

The first section of this article presented the strategic acquisition planning process, illustrating the relationship between CBP and the AMES life cycle management. The CBP product will enhance the design phase of the life cycle. Once completed, the documents produced during this phase will be submitted for a Decision Meeting. Approval of this phase marks the start of the acquisition phase, requiring PrgEEs to define an efficient acquisition strategy to achieve objectives and deliver the expected operational capabilities, aligned with the capability gaps and deficiencies identified through CBP.

Following this, the article identified a gap in the documents supporting defense system acquisition processes regarding acquisition strategy. The evolution of standards governing defense acquisition processes does not impose any requirement for PrgEEs to develop an acquisition strategy, despite it being a critical document for such activities and already implemented by other nations. To enhance the planning and execution of defense programs and align them with best practices already implemented by other nations, such strategic documentation can be incorporated into PrgEE processes.

Furthermore, the analysis revealed that among the key elements constituting an acquisition strategy, the acquisition approach—the primary component—is not directly addressed by any Army or MoD standards. This lack of guidance means managers of strategic programs and projects are not provided with instructions on the types of development or capability delivery methods that can be adopted. The possibilities identified in the literature and already implemented in defense acquisition programs by other nations can be classified into traditional and evolutionary approaches.

The traditional approach is characterized by development contracts that only foresee the delivery of a final operational capability. This strategic approach does not incorporate planned incremental technological advancements stemming from an initial operational capability. Consequently, this can impact the development activities of the defense industry, potentially leading to the loss of technological advancements achieved through this approach and resulting in medium-term technological obsolescence despite any immediate gains.

In contrast, the evolutionary approach, which can be implemented in sequential, incremental, or iterative modes, allows for the evolution of requirements throughout program development. By anticipating the delivery of an initial operational capability, which is then enhanced with new technologies as they are developed, this approach enables operational elements to access a technological solution addressing some capability gaps within a shorter timeframe, even before the delivery of the defense system's final version. However, this approach requires greater integration among program and project teams. On the other hand, it tends to stimulate R&D activities within the BID, encouraging its ongoing technological advancement.

From the key differences identified between the strategies and their respective acquisition approaches, actions were identified that should be incorporated into an evolutionary acquisition strategy. These actions are considered fundamental elements to be addressed when formulating an evolutionary strategy to contribute to the advancement of defense acquisition processes.

Based on these points, it was concluded that, despite the lack of provisions in the regulatory framework governing the Army's defense systems acquisition process, there is room for the implementation of an evolutionary acquisition strategy. This implementation would complement the traditional strategy already adopted by the PrgEEs, advancing current defense acquisition processes. It includes incorporating the acquisition approach into program planning, defining not only "what will be" but also "how" the expected capabilities and corresponding defense systems will be developed and delivered.

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