

The Brazilian defense industry in the era of irregular warfare: the main contributions and its technological challenges


La industria de defensa brasileña en la era de la guerra irregular: las principales contribuciones y sus desafíos tecnológicos

Abstract: The objective of this article was to understand the main contributions and technological challenges of Irregular Warfare in Brazil. Taking into account that this type of belligerence presents States with the rebirth of a way of fighting a war, it is necessary to understand what are the implications of asymmetric wars in a State. As irregular wars make effective use of technology in their combat, it is important to discuss the impacts and challenges of this for the Defense Industrial Base for the Brazilian Defense Industry. Thus, through documentary research and qualitative analysis, in order to conceptualize, describe and understand the Irregular Warfare, Brazilian Defense Industrial Base and its relationship with the State. After understanding the challenges for the State when fighting an Asymmetric War, it can be concluded that Brazil initially needs to recognize the presence of this threat in its territory, in addition to investing in effective technologies in combating this type of conflict.

Keywords: Irregular Warfare. Defense Industrial Base. Technology. Innovation. Sovereignty.

Resumen: El objetivo de este artículo fue comprender los principales aportes y desafíos tecnológicos de la guerra irregular en Brasil. Teniendo en cuenta que este tipo de beligerancia presenta a los Estados con el resurgimiento de una forma de combatir la guerra, se hace necesario comprender cuáles son las implicaciones de las guerras asimétricas en un estado. Como las guerras irregulares hacen un uso efectivo de la tecnología en su combate, es importante discutir los impactos y desafíos de esto para la Base industrial de defensa para la Industria de Defensa brasileña. Así, a través de una investigación documental y análisis cualitativo, con el fin de conceptualizar, describir y comprender la guerra irregular, la Base Industrial de defensa brasileña y su relación con el Estado. Después de comprender los desafíos para el Estado al librar una guerra asimétrica, se puede concluir que Brasil inicialmente necesita reconocer la presencia de esta amenaza en su territorio, además de invertir en tecnologías efectivas para combatir este tipo de conflicto.

Palabras-clave: Guerra Irregular. Base Industrial de Defensa. Tecnología. Innovación. Soberanía.

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1 Introduction

War, understood as a violent confrontation between politically organized groups, is an intrinsically political phenomenon and, like every historical-social phenomenon, its understanding is subject to the perspective of the observer (SAINT-PIERRE; VITELLI, 2018).

Modern Warfare has gained distinct contours and motivations over time. Currently, the conflict is characterized by the loss of the State's monopoly, whose dispute is decentralized and groups can even act against their own country. Thus, "it won't be the big changes in how the enemy fights, but who will be fighting and what for", says Lind (2005, p. 17) when dealing with Irregular Warfare. The author further states that unlike the previously mentioned concept of war, "many different entities – not just the governments of countries – will wage war and do it for many different reasons, not just as 'a promotion of policy by other means' (LIND, 2005, p. 17).

Nations must always seek to maintain their survival and their physical and political integrity. The State must always invest in the binomial defense and security. Defense, according to the National Defense Policy (NDP), is a "[...] set of attitudes, measures and actions of the State, with emphasis on military expression, for the defense of the National Territory, sovereignty and national interests against preponderantly external threats, potential or manifest" (BRASIL, 2012b, p. 77). National Security, on the other hand, is "[...] the condition that allows the preservation of sovereignty and territorial integrity, the realization of national interests, despite pressures and threats of any kind, and the guarantee to citizens of the exercise of rights and constitutional duties" (BRASIL, 2012b, p. 79).

In order for the State to maintain its sovereignty, it is necessary to ensure that its Armed Forces (AF) are always prepared for any external threat, so that citizens can exercise their rights and duties in a safe and peaceful manner.

According to Visacro (2019), despite being a very efficient method of combat, irregular warfare has established itself as the alternative fight of the weak because it is the last resort to be used by fighters. Lind (2005, p. 14) states that "[a]ll over the world, the military finds itself fighting non-state opponents such as al-Qaeda, Hamas, Hezbollah and the Revolutionary Armed Forces of Colombia."

In Brazil, this type of belligerence is present in the intense combat between the State and organized crime, this type of activity manifests itself in communities, where the action of the State is not always really effective. The lack of quality basic services forms the perfect scenario for the installation of both criminal factions and militias.

Given the above, the Defense Industry is now facing an enormous challenge, because, due to the characteristics of its structure, a monopsony market, it needs to modernize in order to provide, in a more efficient way, its only client, the State. In view of this, this study is justified by the need to discuss both the concept of Irregular Warfare and the existence of this type of belligerence in Brazil, in addition to the contribution of the Brazilian Defense Industry in the fight against organized crime. It is understood that it is necessary to modernize the Defense Industry for the purpose of assisting the State with regard to internal security.

2 The evolution of war

The structure of war has undergone quite a lot of changes over the years. Before the Treaty of Westphalia, many institutions (religions, families, tribes and cities, for example) used different means and had different motivations to participate in conflicts actively (LIND, 2005).

War as it is known today is a product of the Treaty of Westphalia¹. After the Westphalian pact, the State had a monopoly on war and only the armed forces capable of fighting. From there, the military culture of order was developed, which includes the use of uniform, salutes and hierarchical degrees; then the so-called Modern War is born, which has four generations (LIND, 2005; VISACRO, 2019).

Lind (2005), Pimentel and Neto (2014) and Sardinha Monteiro (2018) describe the generations of war from the following perspective:

- 1st Generation (Line and Column Wars) - the apex of the first generation wars happened during the Napoleonic expeditions. Ranging from 1648 to 1860, the battlefield is extremely formal and orderly. In this period, most of the elements that today distinguish the military from the civilian environment were created.
- 2nd Generation – it covers conflicts between 1860 and 1918. It was developed by the French army and aimed at friction. Its apex occurred during the First World War. Obedience was the most important aspect, to the detriment of initiative and the conduct of battles.
- 3rd Generation – it became known as *Blitzkrieg* or Maneuver War. Developed by the German Army, it is characterized by non-linear combat and based on speed, surprise and mental and physical displacement. Initiative became more important than obedience.
- 4th Generation – the current generation had its milestone after the terrorist attacks that occurred on September 11, 2001, which brought a new form of conflict. It is characterized as the most radical change since the Peace of Westphalia.

Irregular Warfare consists of “a primitive form of conducting war” (VISACRO, 2019, p. 13). Characterized mainly by the lack of knowledge on the battlefield, Irregular Warfare establishes a universal crisis of State legitimacy and presents one of the greatest challenges for the State Armed Forces as the military cannot deal as well with its enemies as for years, they got used to fighting in an orderly and precise manner (VISACRO, 2019).

In Brazil, the Irregular Warfare began to be recognized from the actions initiated by the organized crime. Conflicts are manifested in communities, where State action is not always really effective and whose lack of quality basic services reveals the perfect scenario

¹ Signed in 1648, the Treaty of Westphalia aimed to end the Thirty Years' War and established the principles that characterize the modern State as sovereignty, legal equality between States, territoriality and the principle of non-intervention (LIND, 2005).

for the installation of both criminal factions and militias. The peripheries unassisted by the State open up space for the action of criminal groups that come to control the local economy (VISACRO, 2019).

The offer of public services by criminal organizations is a prerequisite for the construction of a kind of parallel State, being “one that operates with the function of the official State in a collateral way, taking upon itself certain attributions that should be a State monopoly, outside the legality and government tutelage in a given territory” (MANESCO, 2014, p. 1). When this analogous structure is not effectively contained, it becomes a direct threat to state sovereignty, and the State has its power reduced in the areas commanded by such factions.

From the 1970s, organized crime intensified in Brazil with the creation of groups such as Comando Vermelho (CV) (Red Command), in 1979, in the penitentiary of Ilha Grande: “Initially, an organization called the “Falange Vermelha (Red Phalange)” emerged. As a result of that first faction, the faction called “Comando Vermelho” (CV) developed within this prison” (SHELAVIN, 2011, p. 59). Later, the group unfolded into other criminal organizations.

There are also other organized crime groups in the country, the militias, which are made up of police officers, firefighters, prison officers, community leaders and politicians, in an “attempt” to ensure the safety of their communities in exchange of monthly payments². For Shelavin (2011), the militias settle in the communities under the facade of combating drug trafficking and ensuring security, but soon begin to control the local economy.

And in the country with the largest number of slums in the world, Irregular Warfare creates a universal crisis of State legitimacy and draws one of the greatest challenges for the Armed Forces, which is to fight without knowing its enemy and its real war power (LEITÃO; DE LENNOY, 2020).

In order to illustrate the similarities between Irregular Warfare and organized crime, Table 1 presents the main characteristics observed.

Table 1 – Irregular Warfare vs. Organized Crime

	Irregular Warfare	Organized Crime
Type of combat	Decentralise	Decentralise
Type of armament	Handguns, grenades, assault weapons and specialized weapons, car bombs, UAVs, among others	Handguns, assault weapons and specialized weapons
Type of combatants	Non-State combatants	Non-State combatants
Combat tactics	Return to old practices of war such as guerrillas	Resembles drug trafficking
Motivations	There are distinct reasons E.g.: Financial issues, belief, struggle for land, political reasons, among others.	There are financial reasons

² Such an organization configures crime, according to art. 288-A of the Brazilian penal code, inserted by Law No 12.720/12.

	Irregular Warfare	Organized Crime
Relationship with the State	Creates a universal crisis of State legitimacy	Creates a crisis of sovereignty by controlling parts of the national territory
Uniformization of troops	No	No
Defined battlefield	No	No
Main difficulty for the Armed Forces	Difficulty differentiating enemy from friend	Difficulty differentiating enemy from friend
Main examples	Guerrilla, terrorism, drug trafficking, among others	PCC, Comando Vermelho, Militias
Role of technology	Main strategic element	It is combined with criminal activities. Specialists from various fields are used
Relationship with the population	Integration with civil society entities so that they are protected	Cultivate fear and need

Source: The author, based on Vissacro (2019), Lind (2005) and Shelavin (2011).

It can then be concluded, through the above table that irregular warfare and organized crime have some similar characteristics, one of the main ones being the wide variety of motivations beyond politics, as already previously mentioned throughout this article.

3 Defense industry: a market in monopsony

The “White Paper on National Defense” defines the Defense Industrial Base (DIB) as: “a group of state and private organizations, civil and military, that carry out or conduct research, projects, development, industrialization, production, repair, conservation, review, conversion, modernization or maintenance of a defense product” (BRASIL, 2012, p. 131).

To address the relationship of the Defense Industry with the State, it is necessary to understand the existing competition in this type of structure. A market structure can be “perfect”, in the presence of a large number of bidders and claimants. In imperfect competition, there is no balance between sellers and buyers, with price manipulation power. With regard to demand, the presence of monopsonies stands out, which comprise a market with several producers and only one buyer. The term was introduced into economics by the British Joan Robinson (PINDYCK; RUBINFELD, 2013).

The defense industry falls within this market structure: “it is an area whose main actor is the State, [...]. Thus, the famous market structure in pure and perfect competition does not apply, even because it is a clear case of monopsony” (SANTOS, 2017, p. 68). A monopsony

structure has its prices directly influenced by its sole plaintiff, which in the case of the Defense Industry is the State (PINDYCK; RUBINFELD, 2013).

The defense sector, traditionally, stimulates the technological innovation process by firms through government purchases (ROHENKOHL; SANTOS; SILVA, 2020). With regard to government purchasing power, Edquist, Hommen, and Tsipouri (2000 apud SQUEFF, 2014, p. 10) states that

purchases could be additionally used to increase demand, stimulate economic activity and employment, protect domestic firms from external competition, increase competitiveness among firms by attracting domestic champions to perform R&D activities [...].

According to Rohenkohl, Santos and Silva (2020), dependence on State demand makes the production of security articles and services intermittent. Companies in the sector tend to diversify their production by meeting the market for military and civilian goods and services. That is, to escape from a limiting structure, firms make use of dual technology.

According to the list of the 100 largest revenues at the international level with sales of military products and services carried out by the *Stockholm International Peace Research Institute* (SIPRI, 2014 apud FIPE, 2015), firms in the sector have only 32% of their budget linked to products or services destined for the defense sector and 68% of sales destined for civilians (ROHENKOHL; SANTOS; SILVA, 2020, p. 78-79, emphasis added).

However, for different reasons firms encounter barriers, because the innovations that occur in the military sector end up not overflowing into the civilian sector (SANTOS, 2017, p. 70). Technological overflow (*spin-off*), does not always occur satisfactorily on account of gap existing in the military and civilian environment, as well as among developed and underdeveloped countries (CAMARGO, 2018, p. 7).

“[The] strategic use of government demand can improve the government’s performance in the actions under its responsibility and ensure faster achievement of certain projects” (SANTOS, 2017, p. 73-74). Through government demand the DIB could consolidate, as it happened during the period of military governments.

Government procurement is regulated by Law No. 8.666/93, which establishes general rules on bidding and administrative contracts. Law 12.349, of December 15, 2010, amended Law No. 8.666/93 with the intention of promoting sustainable national development, whose “objective is translated mainly by the establishment of a margin of preference of up to 25% of the price for goods and services produced in Brazil” (SQUEFF, 2014, p. 22), and this preference “may be extended, totally or partially, to goods and services originating in the States Parties to the Southern Common Market – Mercosur” (BRASIL, 2010).

The Differentiated Contracting Regime (DCR) also presented some advances (FIUZA, 2012, p.18), which are: “the inversion of phases, integrated hiring, supplier registration and variable remuneration”. The DCR establishes, as a tiebreaker criterion, that the preference is for companies that invest in R&D in the country. The laws and regiments created seek to elevate the DIB to the category of an industrial complex of relevance to the national scenario. However, due to the worrying budget constraint, there are “other demands and urgencies regarding social spending” (SANTOS, 2017, p. 72).

The set of public policies aimed at the sector includes the creation of specialized documents such as the NDP, the National Defense Strategy (NDS), the National Defense Industry Policy (NDIP) and the National Defense White Paper (NDWP). The Brazilian government has also invested resources aimed at promoting Science, Technology and Innovation (ST&I). The Defense Industrial Base Promotion Law (2012) allowed the establishment of “special rules for the purchase, contracting and development of defense products and systems” and “provides for incentive rules for the strategic area of defense” (BRASIL, 2012a). Another relevant aspect contained in the Law was “the implementation of the Special Tax Regime for the Defense Industry (Retid), which aims to stimulate companies in the sector through the exemption of various taxes” (ANDRADE; FRANCO, 2015, p. 34).

In this context, a need emerges to promote the training of the armaments and systems industry, in order to promote national production and intensify the generation of patents in the area, exceeding the limits of the defense industrial Base (DIB) by, “leaving the simplistic debate of the need for demand forecasting, through monopsony, with the main action of the Brazilian State, enriching the discussion with a focus on competitiveness and the opening of external markets” (MORAES; TERNUS; PINTO, 2020, p. 9).

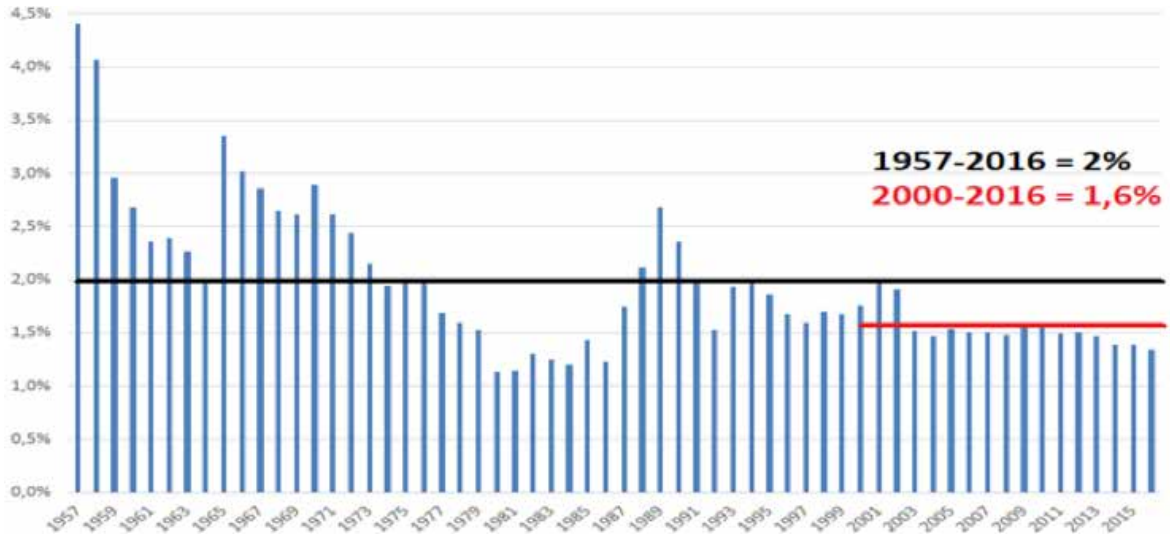
4 The defense industry and its contribution to the fight against irregular warfare

Organized crime has been progressively challenging the State and its institutions. And as already mentioned in the course of this article, the budgetary constraint faced by developing countries brings, more significantly, the *guns vs. butter dilemma*³ which basically means the “transfer of the allocation of resources from the social area to the defense area” (SANTOS, 2017, p. 70).

That is, unlike the developed countries, which can choose more freely to invest in their defense sector, the developing ones, as is the case of Brazil, “[d]ue to the *free-rider* behavior of the actors, there will be a charge for investment in other areas –health, education and leisure, for example– leading to a trade-off between investment in the defense area and the social area (*guns vs. butter dilemma*)” (SANTOS, 2017, p. 67).

3 Guns vs. Butter: Analogy for the choices between defense spending and civilian spending.

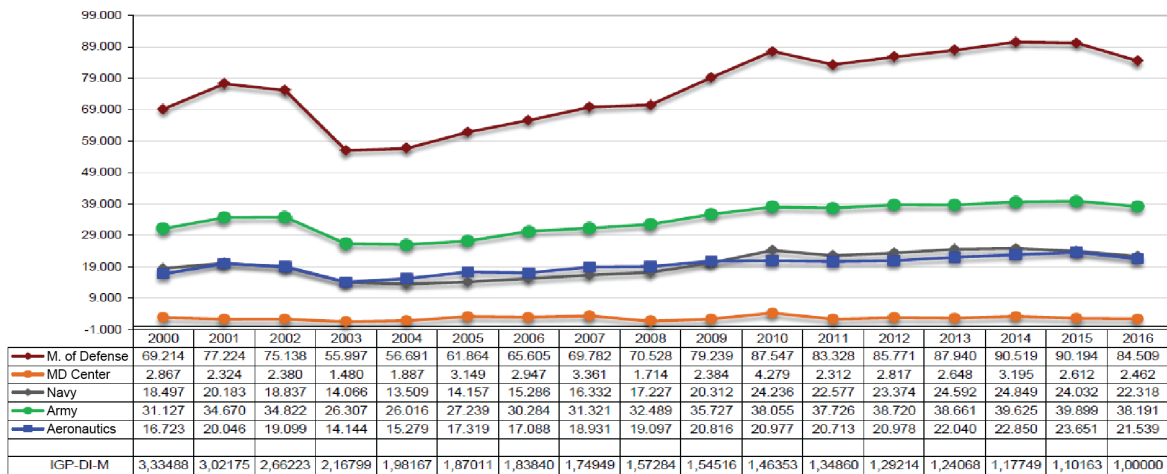
Graph 1 – Defense expenses as a percentage of GDP



Source: Silva (2017) prepared with SIPRI data .

However, in a report made by SIPRI in 2017, it is possible to observe that the Brazilian budget aimed at the military has shown stability, when compared to the country's Gross Domestic Product (GDP) in recent years (Graph 1).

Gráfico 2 – Evolução Orçamentária do Ministério da Defesa (2000-2016)



Source: BRASIL (2016 apud SILVA, 2017).

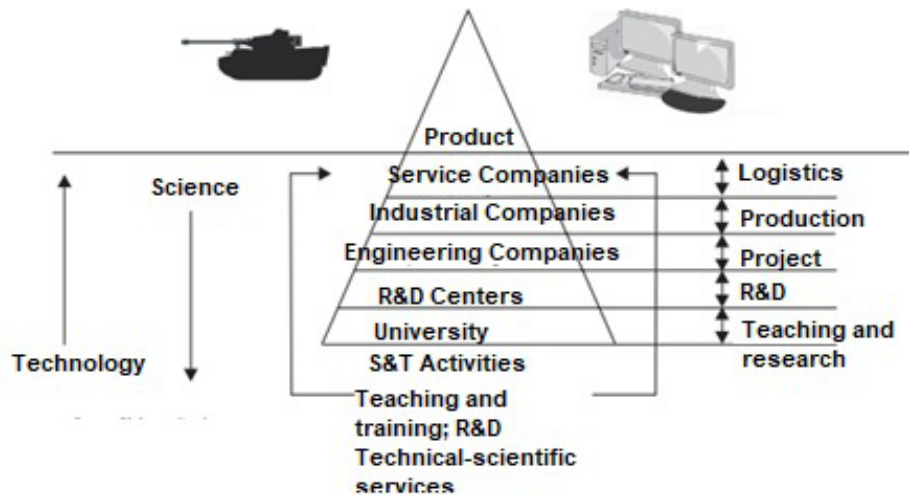
However, there is an evolution of the Ministry of Defense (MD) budget between 2000 and 2016 (Graph 2). In addition to the budget issue, technology is now taking a greater role in the fourth generation of Modern Warfare. From cutting-edge technologies, war strategies begin to expe-

riment “i) concentrated energy, lasers and electromagnetic pulses; ii) robotics, unmanned vehicles and artificial intelligence; and iii) information technology, network systems and virtual superviruses” (LIND et al., 1989, p. 24-25).

Countries that prioritize the defense industry have been investing in war technologies such as “complex anti-aircraft, anti-ship and cruise missile systems with ever-larger ranges, challenging the conventional parameters of distinction between notions of “short” and “medium” range” (SILVA, 2017, p. 30). The application of these technologies has modified the military planning of conventional and irregular forces.

This Revolution in Military Affairs (RMA) is characterized as complex and increasingly technological and “based on the evolution of military impact technology, man has maintained combat conditions, over time, by building a functioning and effective iceberg” (AMARANTE, 2012, p. 11, emphasis added). Figure 1 shows how this structure would be given, having above the “water line” the products and services, which configure the most visible elements and below is the DIB. “The closer to the base of the iceberg a particular participating institution is, the greater the scientific content of its work; and, the closer it is to the user, the greater the technological content of its activities will be” (AMARANTE, 2012, p. 12, emphasis added).

Figura 1 – Iceberg científico-tecnológico militar



Fonte: Amarante (2012, p. 12).

It becomes necessary, however, to understand that military technological advancement does not always represent an effective combat improvement. This is because the “increase or development of a more modern weapon or procedure does not always produce enough tactical effects to justify it” (DUARTE, 2012, p. 16).

Technological advancement produces a number of uncertainties about its usefulness and safety in combat. In strategic matters, technological evolution is considered useful when the new armament allows a greater concentration of forces in the theater of operations. “In an offensive campaign, for example, it matters not only the tactical capability of the armament, but also whether the quantities available confer the effect of superiority in the theater of operations” (AMARANTE, 2012, p. 19). According to Marcelino (2015), technological advances are not effectively decisive for the achievement of “tactical and strategic superiority in the war effort, where the way technology is undertaken also becomes a decisive factor that composes war tactics” (MARCELINO, 2015, p. 12).

Since the Armed Forces often operate in environments of constant insecurity, their tactical procedures are based on constant repetitions. Therefore, its innovation only becomes “possible in times of peace and with the generational alternation of officers” (DUARTE, 2012, p. 17). The Brazilian territory presents conflicts of an asymmetric nature and the adaptation to such conditions makes it even more difficult, which leads the AF to opt for simpler armaments and easy to handle, even if they are less effective.

Therefore, an armament that can be made available in greater abundance may be more important than an armament that performs better than the opponent's equivalent. Similarly, a more resilient or easier to repair/replace armament is more important than a high-performance armament that, due to its high complexity, is more susceptible to wear, damage or that is difficult to repair/replace (DUARTE, 2012, p. 17).

“The current revolution in military affairs, the epicenter of which is located in the United States, is grounded in the so-called ‘system of all systems’ [...]” (AMARANTE, 2012, p. 8). The author states that there is a worldwide trend towards automation, that is, security problems, if the AF begin to use this system in their operations, they would return to systems security. Cyber defense is another point to be considered by the AF. Cyberspace also became the scene of a kind of asymmetric warfare. Knowledge of this new extent of war is important for any State. Their lack of knowledge leads to significant losses in the “communication and surveillance capacity, and it is extremely important that the DIB turns to such dimensions” (MARCELINO, 2015, p. 13).

The current problem, however, lies in the negligence of the State in recognizing the existence of irregular warfare in national territory. From the moment that national institutions see the presence of organized crime in the country as an asymmetric initiative of war, the development of war material specific to their reality could be beneficial to their combat. Accordingly, Marcelino (2015, p. 14) states that

[the] problem in question would be to establish the central objective of the Armed Forces and the strategy that should guide them, whether it is merely to defend itself,

or a possible projection of power – being its objectives and strategies well defined, one should trace the production planning for the DIB, that is, the type of war material that should be produced and for what purpose.

In the case of the “typical threats of so-called complex irregular wars are, fundamentally, between state actors and non-state actors” (REZENDE, 2015, p. 8), the State needs not only armaments, but also patrol materials, like Unmanned Aerial Vehicles (UAV's), with the aim of preparing for any possible attack.

Also considering cyber defense as a tool to neutralize irregular forces, according to data from the *National Cyber Security Index* (NCSI), Brazil is the 61st place in the list of countries that invest the most in this aspect. President Jair Bolsonaro in early February 2020 instituted Brazil's First National Cyber Strategy (E-Cyber), that “aims to make the country a nation of excellence in cybersecurity” (STRONELL, 2020, n.p., translated by the author).

Marcelino (2015, p. 17) argues that the structure of ST&I “is much broader than the defense industry itself, therefore being the defense industrial base”. So this is the area that should be well structured for the purpose of being the producer of military technology in the country, even more so when it comes to fighting the fourth-generation modern war. However, due to the complexity of the innovation process it is necessary to master techniques and procedures (*know-how*), as well as the science behind (*know-why*). The technological domain directly contributes to greater national autonomy and helps to reduce the vulnerability of the AF, considering that “in the event of conflict or war, one of the parties can obtain specific information about the armaments used by the enemy, and thus prepare against this type of war material” (MARCELINO, 2015, p. 19).

Amarante (2013) argues that there is a technological curtailment, which “is a set of judicial measures normally taken by developed States against developing or emerging States, in order to prevent access to sensitive technologies” (AMARANTE, 2013, p. 80), by countries that have technological knowledge and have no interest in their division, preventing the development of certain military technologies.

Given this, States should seek strategic partnerships, aiming at cooperation and technology transfer. In the last decade, Brazil has signed agreements with several countries, such as the one signed with Mozambique. In 2009, the first bilateral defense cooperation agreement was signed between the two countries. In 2014, a specific agreement was instituted on “training for peacekeeping, joint military exercises, training of military pilots in Brazil, participation of Brazilian instructors at the Higher Institute of Defense ‘Lieutenant-General Armando Guebuza’. [...]” (BUSSOTTI; MACAMO, 2018, p. 128).

The creation of the Surface Means Obtainment Program (PROSUPER - Programa de Obtenção de Meios de Superfície) also contributed to the transfer of technologies between nations, whose objective was to renew the Brazilian Navy's surface fleet and the protection of the Blue Amazon. In view of this project, “[s]everal companies from seven countries – Germany,

South Korea, Spain, France, Italy, the Netherlands and the United Kingdom – showed interest in participating in PROSUPER, accepting the requirements of technology transfer and construction of equipment in Brazil” (WIESEBRON, 2013, p. 119). Although having made important agreements, Brazil has been denied access to sensitive knowledge because of technological curtailment.

Although cooperation and technology transfer agreements are the most common choices for States in the search for combating irregular forces, some countries and blocs have sought other alternatives, which can serve as *benchmarking*. Colombia, to combat the Revolutionary Armed Forces of Colombia (RAFC), instituted the “Plan Colombia, through which billions of dollars were sent from the United States to Colombia, with the aim of financing operations against drug trafficking and against insurgent groups present in the Andean territory” (LANGE, 2020, n.p.). For the U.S., the greatest interest in fighting the RAFC was in the hope of reducing the influx of drugs into the country.

In 2012, an agreement was signed between the Colombian government and the revolutionary group on agrarian development. The following year, the group, in turn, recognized that it left several victims in the country, in addition to the political participation of the RAFC, as of October 2013, “the guerrilla group would not only have its political representation legitimized, but also in the next two national electoral processes (2018 and 2022)” (LANGE, 2020, n.p.).

Europe, in turn, faces another kind of asymmetric war on its territory: terrorism. According to the European Council website “The fight against terrorism is one of the main priorities of the EU and its Member States, as well as its international partners” (CONSELHO EUROPEU; CONSELHO DA UNIÃO EUROPEIA, 2020, n.p.). In 2019 there were 119 terrorist attacks, counting those that failed, were aborted or perpetrated, and 1004 people were detained for terrorist offenses. In the quest to contain these advances, the European bloc has adopted some measures, among them: strengthened rules to prevent new forms of terrorism, the intensification of controls at external borders, better control of firearms and the creation of a specific body to combat terrorist propaganda online (CONSELHO EUROPEU; CONSELHO DA UNIÃO EUROPEIA, 2020).

The USA, after the attacks on the Twin Towers, assumed an even more aggressive posture in the fight against terrorism in its territory. The country acts “with the curtailment of privacy and, more generally, of the rights of suspects, through massive discrimination against foreigners of Arab and Muslim origin, repressive legal actions and interventions in the guarantee of *habeas corpus*” (CHEVIGNY, 2004, p.151-152). Still according to the author (CHEVIGNY, 2004), the American posture of creating preventive attacks is constantly seen as a danger. This is because asymmetric conflicts present themselves in a unique way and, therefore, it is up to each country to understand, within its defense strategy, such a reality. Brazil must draw inspiration from other nations to combat this type of belligerence on its territory, but must always take into account its social, military and financial situation.

5 Final considerations

This research sought to understand the concept of Irregular Warfare and its high incidence in different States, including Brazil, through organized crime, in addition to understanding irregular warfare and its similarities with organized crime, the role of the State in dealing with irregular conflicts and the relationship between the DIB and the Brazilian State. Because it is a monopsony, the prices of the companies that comprise the DIB are directly influenced by the single consumer. The State, the only client of the defense industry, assumes the role of its greatest supporter and influencer.

Government purchases, in this context, have the power to increase demand, stimulate economic activity, protect national businesses, stimulate employment, and minimize regional disparities. However, in the case of the defense industry, the State must provide purchase guarantees to encourage investments in the sector. In the absence of State support, DIB companies seek alternatives to its operation. The opportunities to escape this obstacle is the use of dual technology and the development of products used in civil and military means.

The budget issue is a limiting factor, especially in developing countries, since there are other pressing needs, such as health and education. Although there are limitations, the implementation of technologies is an important and determining factor for combating irregular warfare. Technological advancement initially generates uncertainties about security in combat, although its appropriation (learning process) allows substantial gains.

Cyber defense was another point of extreme importance in Irregular Warfare. The cyber world today represents yet another battleground, creating a need for the development of sensitive technologies to generate better communication and surveillance. Brazil has E-cyber, but such an initiative, when compared to the other nations of the world, is delayed. To try to reduce the technological gap and, considering the “technological curtailment”, Brazil has been establishing technology transfer partnerships with several nations.

Finally, this research brought some examples of what has been done by other countries in an attempt to overcome the different threats of Irregular Warfare, such as Colombia, the European Union and the United States. Brazilian institutions should be dedicated to recognizing organized crime as an Irregular Warfare initiative and promoting an investment environment in ST&I for DIB. It is necessary to discuss national security, the development of the DIB and the fight against irregular threats, in order to minimize the impacts of this type of conflict in Brazil.

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