

The art of war in the 21st century: advancing to the *Multi-Domain Battle*

El arte de la guerra en el siglo XXI: avanzando hacia la Multi-Domain Battle

Abstract: This research provides the examination of the current models of operations adopted by the Armies of the United States of America and Brazil, under the prism of War Theory. The research used a qualitative approach, examining two operational concepts - “Multi-Domain Battle” (USA) and “Full Spectrum Operations” (Brazil) - in order to infer the impact of the respective models on the application of Military Power of both nations. The study indicated that the American concept models a way of fighting that prioritizes a possible conflict of interstate bias, attentive to the advance of China, Russia, North Korea and Iran. It also indicated that the Brazilian concept combines offensive, defensive attitudes and cooperation/coordination with agencies, enabling the coping of fluid threats to security and defense. Finally, it was verified that both concepts form a way of fighting proper to the Land Military Power of each country, requiring specific capacities and investments.

Keywords: Defense. War. Military Power. Multi-Domain Battle. Full Spectrum Operations.

Resumen: El presente artículo consiste en el examen de modelos de operaciones actuales adoptados por los ejércitos de los Estados Unidos de América (EEUU) y de Brasil bajo el prisma de la Teoría de la Guerra. La investigación empleó un abordaje cualitativo a fin de examinar dos conceptos operacionales: *Multi-Domain Battle* (EEUU) y *Operações no Amplo Espectro* (Brasil). Al final, se infiere acerca del impacto de los respectivos modelos en la aplicación del poder militar de ambas naciones. El estudio ha indicado que el concepto estadounidense esculpe una forma de luchar que prioriza un posible conflicto de sesgo interestatal, atento al avance de China, Rusia, Corea del Norte e Irán. Asimismo, ha indicado que el concepto brasileño alía actitudes ofensivas, defensivas y de cooperación/coordination con agencias, lo que habilita el enfrentamiento de amenazas corrientes a la seguridad y defensa. En suma, se verificó que ambos conceptos forjan una forma de luchar propia al poder militar terrestre de cada país y requieren capacidades e inversiones específicas.

Palabras clave: Defensa. Guerra. Poder Militar. *Multi-Domain Battle*. *Operações no Amplo Espectro*.

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1 Introduction

After more than fifteen years of the creation of the Brazilian Ministry of Defense and in light of the four-year cycle of updating the National Defense documents (the policy, strategy and white paper), there is an opportunity for discussion of perspectives specific to the 21st Century. Such an opportunity becomes a necessity as the current world order (KISSINGER, 2015) highlights recurrent volatility in geopolitical - global and regional - scenarios, prompting discussion of new approaches to the use of Military Power¹.

Since the beginning of the 21st century, especially since September 11th, the globalised world has been dealing with a complex set of risks. Several aspects have influenced this scenario: the ease of communication; the perception of knowledge as raw material; the interdependence in the international financial market; the decentralisation of properties business throughout the planet; the frailty (political and regarding security) of the various nations; and the strengthening of criminal organizations and terrorists (BOUSQUET, 2009).

As a consequence, immersed in a reality that is increasingly volatile, societies have lived with diffuse threats - transnational organized crime, international terrorist groups, insurgent groups, regional frictions, humanitarian crises, epidemics, etc. - that render relative the perception of sovereignty and patrimony, creating complex challenges for States and their Armed Forces. Such a context encourages the need to revisit the assertion that “war is more than a true chameleon, which adapts its characteristics to a certain situation” (CLAUSEWITZ, 1976, p. 93, our translation) in order to rethink this phenomenon in the 21st Century.

In this vein, the United States of America (USA) have been prominent in the development of perspectives that reflect the state of the art in the application of Military Power, leveraged by its recurrent participation in conflicts, global and regional, in the 20th and 21st centuries. In particular, the military thinking in American contemporary include “to think, discuss and debate ‘how we fight’ across all levels and domains [...] diverse dialogue in capturing the wide variety of perspectives and expertise is critical to understanding the evolving nature of the future operational environment”² (PERKINS, 2017, preamble). Such a perspective fosters the construction of answers that can account for the unpredictability and consequent mutability of the art of war in the 21st Century.

For its part, Brazil outlines the National Defense as “the set of measures and actions of the State, with emphasis on the military field, for the defence of territory, sovereignty and national interests against threats [...]” (Brazil, 2012a, p.15, our translation). As such, the Art. 142 of the Federal Constitution establishes that the Armed Forces “are intended for defense of the Homeland, guarantee of constitutional powers and, by initiative of any of these, of law and order” (BRASIL, 1988, our translation). Thus, inserted in the twenty-first Century, increasingly Brazil demand a Military Power capable of confronting the threats of diffuse and volatile, enabling

1 From a macro perspective, it concerns the ability to use force, or the threat of use, in order to influence the behavior of other states and, in a more specific sense, refers to the Armed Forces of a nation, encompassing the personnel, material and infrastructure of the national military apparatus.

2 General David Perkins was the commander of the *United States Army Training and Doctrine Command* (2017-2018).

the capacity³ to: promote interoperability between forces; operate in non-linear battle spaces; to act in an environment of inter-agency; face robust irregular forces; carry operations information; conduct actions in the cyber space; expand the degree of protection (individual and collective), etc (BRASIL, 2014).

In light of this context, the objective of this article is to review current models of operations elected by the Armies of the United States of America and Brazil, under the prism of the Theory of War in the twenty-first century. In this way, the study brings a case study that examined the operative concepts of “Multi-Domain Battle” (USA) and of the “Full Spectrum Operations” (Brazil), inferring about the impact of the respective models in the application of Military Power of both nations in the twenty-first Century. Ultimately, this study seeks to instigate scientific research in Military Sciences by covering a topic that directly converses with terrestrial military doctrine, overflowing dividends to the debate on security and defense in the 21st century.

To this end, the article was structured into five sections, started by this brief introduction. The following presents the perspectives, epistemological and methodological, dealing with the way of thinking and conducting research. Moving forward, we have a theoretical and conceptual framework about the theory of contemporary war, making instrumental the analytic lens of research. In the core, the operative concepts adopted by the armies of the USA and Brazil are examined. Finally, there is the conclusion, inferred about the impact of such models for the application of the Military Power of both nations.

2 Perspectives: epistemological and methodological

In a preliminary way, considering the scope of this research, it is worth paying attention to the fact that “support to the study of issues posed by National Defense is necessary and beneficial, not admitting that the defence and the security of the country can be ensured by means of the exclusive concern of the military, diplomats and intellectuals” (DOMINGOS, 2006, p. 149, our translation), being the object of attention, both in Political Science, and Military Science. Expanding this arena, the National Defense Policy indicates and highlights the need to raise awareness of all Brazilian society about defense issues (Brazil, 2012a, 2012b).

In this effort, since 2010, Brazil has been counting on a Defense Education Policy, which has established initiatives to: spread word about defense in the academic world; promote the equivalence of courses in military and civil education systems; expand the exchange between civil and military educational institutions; and stimulate Defense Research. In particular, the Brazilian Army has activated a process of transformation, attentive to the Military Sciences, included in the list of science studied in the country, in 2001, by the National Council of Education. In this context, the Military Sciences were disciplined as “the system of knowledge related to war art, obtained through scientific research, practices in the military sphere, experience and observation

³ This is the ability required of a force to carry out a certain mission or task.

of the phenomena of wars and conflicts, using the methodology of military Higher Education” (BRASIL, 2010, p. 9, our translation).

Under this prism, it is worth revisiting a “Trinity of War”, outlined by Clausewitz (1976), which served as a basis for thinking this survey and which contains three elements, the principal agents: “violence”, as a force of nature and blind; “uncertainty/probability”, as the assumption of a creative spirit and free; and the “policy”, as an instrument of subordination of the war, making this phenomenon rational. In particular, Clausewitz used the chameleon figure to indicate the changeable and unpredictable character of war, resulting from the infinite variability of interactions between its elements.

In addition, Bassford (2007) observes a model of “Chaos Theory”⁴ in Clausewitz’s thinking, since the “Trinity of War” is self-inclusive and universal, encompassing subjective and objective elements as well as the intellectual, emotional and physical components of war.

As a consequence, considering that the war is a mainly socio political phenomenon, subject to uncertainty, Complexity was the epistemology selected to filter the knowledge recruited for this research, since the mechanistic paradigm it is not enough to absorb the plurality of perspectives that involve the phenomenon. It should be noted that the complexity had its origin in the research in systems of nature and, currently, it has advanced to the social systems. In particular, the research of nonlinear behavior within systems that cannot be described by a single rule or synthesized to a single explanation is highlighted (STACEY, 1995). Thus, to analyze the models of operations of both the U.S. Army and the Brazilian Army, this study encompasses *Complexity Thinking* (RICHARDSON; CILLIERS, 2001), extending the limits to think about the subject and its various nuances.

Advancing to the methodological aspects, the research adopted a qualitative approach, organizing a case study, supported in two micro studies, to then examine the operational concepts of the armies, the US and Brazil, respectively. In this context, in order to collect the necessary impressions, the techniques of documentary and bibliographic research were used to integrate descriptive and analytical efforts in the micro studies (YIN, 2001). At the end, supported by the descriptive and analytical articulation, it was inferred about the impact of the respective models on the application of the military power of the USA and Brazil.

In particular, for the gathering of primary sources, documentary research has selected a list of documents (policies, strategies, doctrines, etc.) referring to the investigated armies in the following websites: Army University Press⁵, the Ministry of Defence⁶ and Command of Ground Operations/Portal of the Army Doctrine⁷. As it pertains to the collection of secondary sources, bibliographic research gathered scientific articles from a list of periodicals previously organized on the basis of editorial adherence to Political Science and Military Science.

4 The “Chaos Theory” deals with complex and dynamic systems, rigorously deterministic, but which present a fundamental phenomenon of instability called sensitivity to initial conditions which, modulating an additional property of recurrence, makes them unpredictable in long-term practice.

5 Available at: <http://www.armyupress.army.mil/>

6 Available at: <http://www.defesa.gov.br/legislacao>.

7 Available at: <http://www.cdoutex.eb.mil.br/>

In addition, the CAPES Journal portal indexers⁸ and Scientific Electronic Library Online⁹ were employed in the collection in question. In the research effort, the search was carried out in the Portuguese, English and Spanish languages, respecting the nuances of each database. For this purpose, the following descriptors were used: security, national defense, war, national power, military power, model of military operations, army, United States of America and Brazil.

3 Theoretical and conceptual framework

In order to outline the analytical framework of this study, perspectives that circumscribe the constructs of power and war, once they become entangled and integrated, were contemplated.

In this sense, initially, Teixeira and Migon (2017), revisiting the Theory of Power, dealing with the perception of the pessimistic Hobbes (1974), based on the maximum of the “war of all against all”, highlight the association between power and violence. From this point of view, the hobbesian perspective proposes a “[...] general inclination of all mankind, a perpetual and restless desire of power after power, that ceased only in death” (HOBBS, 1974, p. 86).

In a second moment, one observes the approach of power as domination (*power over*), based in Weber (1946), Dahl (1957), Bachrach and Baratz (1962). In this context, Weber indicates that power flourishes from the conflict that arises from the dynamics of life in society, considering that men act according to their interests and not by their ideals. Consequently, in politics, the ethical bipolarity between responsibility and conviction makes the struggle for domination, in the full exercise of power *per se* (TEIXEIRA; MIGON, 2017).

Moving forward, one has a third perspective, the approach of power as capacity (*power to*), being Arendt (1970) its defender. In this context, Teixeira and Migon (2017) indicate that the author embraces the dual concepts of “power and violence”, hosted by the vision traditional policy, with the understanding that they are opposites, and that violence *per se* is an instrument, which could degrade the appearance of quality in power. In turn, Arendt presents the binomial “power and consensus”, prioritizing the observation of the public space and thus the instrumentalization of authority and legitimacy for the use of power.

Under a fourth vision, producing the possible intersection between the previous approaches, Foucault (1980) argues that power is in everything and manifests itself in all ways, implying the existence of a relationship between power and knowledge. In particular, it points to the direct relationship between the social knowledge that the actors use to shape the social structure and the consequent relationships of domination established from this knowledge.

Already moving on to the discussion from the perspective of power within the State, Morgenthau (1948) introduced the concept of realistic concept of National Power, alternating the vision of power as the goal for the vision of power as the means to achieve the goals. Such means

8 Available at: <http://www.periodicos.capes.gov.br/>.

9 Available at: <http://www.scielo.org>.

would be materialized by capabilities linked to human resources (population), natural resources (territory), infrastructure (industry) and weapons (armed forces).

In another perspective, already at the heart of the Cold War, Raymond Aron (1962) bases his thinking on defining the willingness of a political entity to impose its will on other entities. Thus, it is proposed to develop three main elements, albeit abstractly, to define the concept of power: the space occupied by political units; the available resources and the management of knowledge to transform it into a weapon, as well as transform men into soldiers; and, finally, collective action corresponding to the various elements (the army, the solidarity of citizens, etc.). In particular, the last element may unbalance the course of conflict, in the case of the success of the Algerian guerrillas against the French troops during the Algerian war of independence.

In addition, the author makes a distinction between power in a situation of war and power in a time of peace. During peace, the means used by power clearly differ from those used in wartime, and further a distinction between defensive and offensive power. In this sense, in the Cold War, the relations of power between States were expanded by means of their own instruments: international relations, foreign policy, defence strategies etc. (ARON, 1962).

In a tight synthesis, based on this brief review of power, politics can be characterized as the tool that directs power within the scope of the State, both in terms of power as resources, and as behavior, in order to obtain predetermined results (NYE JR, 2012). Consequently, the construct of war is an instrument of contingency - the continuation of politics by other means - enabling the State to legitimize the use of violence and thus use force for its national interests (CLAUSEWITZ, 1976).

Inevitably, the theories of power are connected to the theories of war, since hostility is not only manifested by physical violence, but can arise in other ways: economic, psychological and diplomatic (BOBBIO, 1987). Furthermore, in order to give direction to the war, it becomes necessary to apply a tool - the strategy - whose genesis comes from the art of the general (*estrategos*), initially applied to move and park armies in the Ancient Age and, currently, seen as the “bridge” that connects political purpose to Military Power (GRAY, 2006).

Focusing on the perception of The Theory of War, Lind et al. (1989) characterize the evolution of the art of war within the scope of generations, in the light of technological, economic and political-social factors, as summarised in Table 1.

Table 1 - War Generation Taxonomy

Generation of Wars	Main Features
1 st Generation	use of mass and linear combat
2 nd Generation	use of firepower and linear combat
3 rd Generation	use of motion, manoeuvre and non-linear combat
4 th Generation	massive use of technology, asymmetric and loss of state monopoly on the use of force
5 th Generation	massive <i>cyber war job</i> , asymmetrical, informational and hybrid

Source: Lind et al. (1989) adapted by the authors.

From this point of view, the 1st Generation deals with wars based on the principle of mass, evidenced from the Peace of Westphalia (1648) until approximately the American Civil War (1861-1865). In this context, the manoeuvres of absolutist armies were noteworthy, where the smooth soul muskets were the technology that implied the concentration of soldiers in successive lines. In general, it was characterized by a linear battlefield and an orderly military culture.

Next, the 2nd Generation brings together the wars centered on firepower, provided by the technology of automatic loading and machine guns, instigating a linear and frictioned combat. In this sense, it was observed the model of the French Army, during and after World War I, centered in the war of friction by fire. In particular, the 2nd Generation maintained the 1st Generation order culture, observing a centralized, hierarchical decision-making based on detailed orders. On the other hand, the evolution of the size, scale and complexity of the combat imposed a contradiction between the internal culture of the order of the armed forces, and the external reality of a battlefield is increasingly cluttered (LIND, 2004).

Looking at the 3rd Generation, there are wars based on movement and maneuver, where combat began to explore non-linearity in the battle based on: the use of armored vehicles and airplanes; the wide use of radios; and the use of other apparatus derived from scientific and technological development. In this scenario, the so-called “maneuver war”, was developed by the German Army before and during World War II. In particular, speed replaced firepower as the capacitor element, observing a decentralized decision-making focused on the enemy. To this end, the intention of the commander was modeled as a focus to be followed by leaders, from the different levels, in obtaining the results that each situation required, instigating the exercise of the initiative and thus reducing the centralization of actions.

Moving on to the 4th Generation, we observe wars that highlight the relevance of technology in the composition of military power, strengthened by the use of computer, internet, electromagnetic pulses and robotics. From the last years of the Cold War, the fourth generation also reached the spectrum of space war and cyber warfare (LIND et al, 1989). His Prelude was in the Gulf War (1991) on the occasion of the Kuwait liberation campaign.

Adding to this scenario, following the terrorist attacks against the US (2001), the world has seen the strength of terrorist and criminal organizations, which have come to challenge States, making complex threats. In dealing with this new dynamic, military power was dragged into a framework of asymmetric and irregular friction, often intra-state. In this way, Lind (2004) points to the rise of the 4th generation as the greatest change in war since the Peace of Westphalia, since it highlights the end of the state monopoly on war and, just as before 1648, many entities, not just States, are fighting wars.

As a result, new security and defence strategies were modelled, and as early as the 1990s the so-called Revolution in Military Affairs¹⁰ broke out. Next, perspectives on the application of military power were broadened by the lessons of the wars in Afghanistan (2001) and Iraq (2003), making the US and the North Atlantic Treaty Organization (NATO) radiating new concepts and strategies for the art of war.

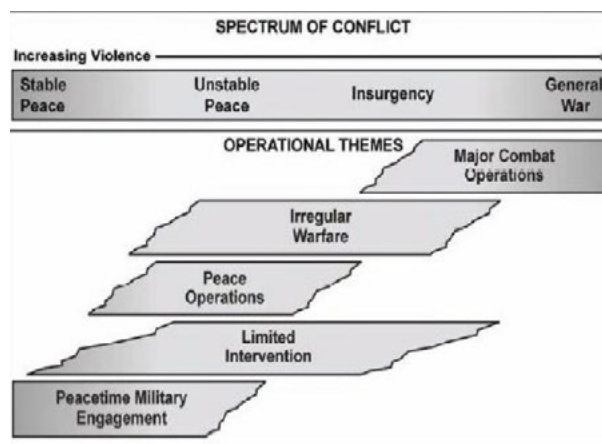
¹⁰ It's the discussion about the theory of the future of war, usually linked to organizational and strategy issues, taking into account the impact of new technologies.

In this span, Colón (2011) reports that the Effects Based Operations, instrumentalized in the Gulf War, foreshadowed a model of action for dealing with crisis situations, integrating the military and civilian effort. However, as a product of the modest results in campaigns in Afghanistan and Iraq, the *Effects Based Operations* have been replaced by a working model based on the integration of the entire national potential - the Comprehensive Approach - becoming the paradigm of contemporary management of crisis and conflict, integrating civilian and military approaches.

Currently, the course of the Syrian war (2011) and the war against the Islamic State of Iraq and Syria¹¹ (2014) began to highlight kinds of conflicts that transcend geographic spaces, overflowing virtual, cyber and social boundaries. In particular, the asymmetry became a characteristic aspect, since “the fighting can hang against groups of enemies formed and recognizable moving between civilians, against enemies disguised as civilians and, with and without intent, against civilians” (SMITH, 2008, p. 325, our translation). In addition, there was a recurring duality in current conflicts, arising from the alternation of scenarios of “war” and “non-war”, as well as the presence of transnational actors in the battle space. This has required a continued adaptation of strategies and tactics for the conduction of operations (SCHNAUBELT, 2009).

In particular, with or without state sponsorship, lethality and the capacity of non-state armed groups have increased and thus encouraged states to explore non-traditional war models (Figure 1). In the current scenario, the military forces have fought mostly non-state opponents - Al Qaeda, Hamas, Hezbollah, Islamic State, Revolutionary Armed Forces of Colombia etc - strengthened by a diversified military apparatus. In this sense, the term “Complex Operations” is used to define “[...] military and civilian activities to restore and secure order. These are also sometimes called stability operations, irregular warfare, or counterinsurgency [...]” (FRANKE et al., 2014, p. 1), summarizing the employment profile today.

Figure 1-the spectrum of violence and conflict



Source: United States of America (2008, p. 3-20).

11 A *jihadist* organization known as the Islamic State of Iraq and Syria or the Islamic State of Iraq and the Levant that operates mostly in the Middle East.

Consequently, as a result of the complexity of the contemporary scene, the scope of a 5th Generation War is already being discussed, extending the use of 4th generation perspectives with the operationalization of drones¹², biotechnology, nanotechnology etc. Within this generation, the concept of “hybrid war” flourishes, perceived as the amalgamation of different types of war, encompassing conventional capabilities, irregular tactics, terrorist actions, the induction of violence and coercion. Such concept has the potential to be instrumentalized, both by state and by non-state actors strengthened by military apparatus, combining strategies of regular and irregular Wars. In particular, it should be noted that the regular forces of a hybrid threat are governed by international laws, but the others escape their reach, hindering the limitation as to the level of violence they employ or the type of target they engage (HOFFMAN, 2007).

Therefore, advancing in the volatility of the spectrum confrontational today, the art of war has been marked by interdisciplinarity (simultaneous actions by military, police, and civilian) and by the multi-dimensionality (integral approach of National Power), in the light of an effort by the inter-agency and of the mass application of technology (BOUSQUET, 2009). It is worth noting that this does not represent the end of traditional or conventional warfare, but it does impose a complicating factor in the conduct of operations, requiring “thinking” about the art of war in the 21st Century (ARQUILLA, 2007).

4 Thinking of The Art Of War in the 21st century

The case of the US Army model

The introduction of the airplane, the submarine, and the aircraft carrier in World War I, and the incorporation of mobile radio communications and radar systems in World War II, vastly increased the strategic commander’s ability to operate across several domains simultaneously. More recently, the development of Air-Land Battle in the 1980s and then Air-Sea Battle in 2013 show military thinking, evolving along the same general line - how to win decisively, even if outnumbered or technologically overmatched, by integrating operations in multiple domains to present enemies with multiple dilemmas (BROWN¹³, 2017, p. 5).

12 These are all types of aircraft that can be controlled on the 3 axes and that do not require pilots on board to be guided. They are controlled at a distance by electronic and computational means, under the supervision of humans, or even without their intervention, by programmable logic controllers.

13 General Robert B. Brown (US Army) is the general commander of the *United Army Pacific (USARPAC)*.

Over generations of wars, the US has sought to design operating models capable of shaping how to fight in the face of each new domain added to the dynamics of the art of war. In light of the contemporary scenario, US military power identifies that its opponents are adapting more and more rapidly to technological competition and have become able to challenge the US in the various domain: human; terrestrial, air, maritime, space and cyber.

In this context, according to the US National Security Strategy: “China and Russia challenge American power, influence, and interests, attempting to erode American security and prosperity” (UNITED STATES OF AMERICA, 2017, p. 2). In particular, the Strategy indicates that these countries act to make economies less free, to expand their military apparatus, to control the flow of information in order to suppress their societies and thus expand their influence. In addition, the document identifies both the Democratic People’s Republic of Korea, and the Islamic Republic of Iran, as dictatorships that violate their respective regions and, consequently, threaten the U.S. and its allies.

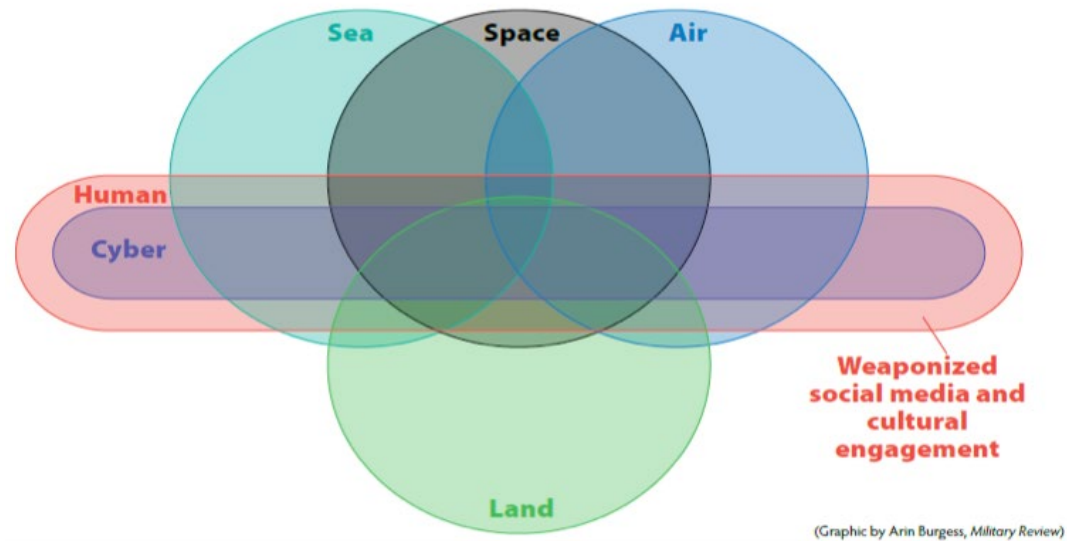
In this scenario, one of the biggest challenges in the United States lies in the fact that much of its contemporary military apparatus is based on technological tools that depend on the use of digital connectivity. Inevitably, in the face of billions of devices connected to the Internet, there is a latent danger in cyberspace and, consequently, a dependence on space resources to enable connectivity. Therefore, the search for the interruption of the opponent’s ‘decision making cycle’ - ability to observe, guide, decide and act (OGDA) - is a primordial aspect so that the military forces can lead the opponent to a situation of disadvantage. From this degradation, the opportunity is built for the imposition of multiple dilemmas that ultimately impute the opponent the challenge of acting in a chaotic environment (BROWN, 2017).

It is clear that the advantages of the US are diminishing as rival states modernize and build nuclear and conventional forces. Still, many actors have become skilled in operating below the threshold of traditional military conflict, triggering covert and clandestine hostilities. In this dynamic, the “fog of war”¹⁴ becomes increasingly more intense in the twenty-first Century and the military thought of the U.S. indicates that “[...] creativity and innovation, when nurtured by an organizational culture that encourages prudent risk taking, is both a force multiplier on the battlefield and the only effective response to the inevitable fog of war” (PERKINS, 2017, preamble).

From this point of view, the U.S. Army has developed and currently hosts the operative concept called “Multi-Domain Battle” (*MDB*). Such a model has been outlined to support the design and conduct of operations able to create a “window of superiority” through multiple domains (Figure 2), which make up the battle field today - human, terrestrial, air, maritime, space and cyber - allowing U.S. military forces to be able to obtain, retain, and exploit the initiative forward to the new profile of their opponents (UNITED STATES OF AMERICA, 2017).

14 A phrase coined by Clausewitz (1976) to describe the unpredictability and fluidity of the phenomenon of war.

Figure 2 - the perspective of the battle in multiple domains



Source: Brown (2017).

The model welcomes the premise that the US will be challenged by sophisticated adversaries, who may be able to present a Multi-Domain defense, in order to deny the creation of a “windows of superiority” by U.S. forces. Such a perspective implies the need for a combat system that is integrated and resilient, and not interdependent, making it possible the maintenance of freedom of action for the application of military power, without depending on the performance in a single domain. Soon, the model proposed by the concept of “Multi-Domain Battle” seeks to ensure the minimum conditions to which military force can prosper and exploit the initiative (physical and psychological) in the context of the other domains that are not denied by the opponent (UNITED STATES OF AMERICA, 2017).

From this point of view, military thinking naturally advances to joint operations¹⁵, as an approach that makes possible the integration of the individual forces and the maximum synchronization of their actions. In this context, the scope of the Goldwater-Nichols Act, signed on October 4, 1986, by then-US President Ronald Reagan, should be revisited. This law reorganized and remodeled the U.S. Department of Defense, historically established by the National Security Act (1947). In particular, the command structure has been reformulated, increasing the powers of the Commander of the Joint Staff, so as to simplify the chain of command, which began to flow from the President, via the Secretary of Defense directly to the commanders of the Fighters Unified Commands. As a result, since then, the commanders of each unique force - the Army, Navy, Air Force and Marines - have accepted the responsibility principle to train and equip the human resources, mobilise the unified fighters commands, going to play a consultative role with the President and the Secretary of Defense.

15 These are operations characterised by the use of a large number of resources, two or more individual forces, which are conducted under single command. They usually take place at the operational level and have a permanent joint operational staff, which develops standard plans and procedures.

Since the passage of the Goldwater-Nichols Act, joint operational approaches have proved themselves in combat. [...]. However, work remains, especially when considering the rapidly changing global operational environment. Further, the joint task force doctrinal structure used over the past 15 years to promote joint capability has actually driven some incorrect habits of mind that are detrimental in the evolving operational environment. [...] these habits drive the service components to think about their respective operating areas as if in a vacuum (BARTELS; TORMEY; HENDRICKSON, 2017, p. 71).

The result of this history, in spite of the undisputed success of the American systematics of joint operations, such a dynamic has created a dependency, on the part of the Military Land Power, of the joint capabilities also provided by other forces (fires, air defense, anti-aircraft, electronic warfare etc). On the other hand, currently, in light of the concept of “Multi-Domain Battle”, it is evident the necessity of the Military Land Power of the USA to bring together capabilities that enable the conduction of operations overflowing to the multiple domains. In this way, the current model encourages the military force to operate in joint and integrated teams, in favor of simultaneous and successive operations, acquiring capabilities to trigger: kinetic and non-kinetic actions, electromagnetic war, cyber war, integrated anti-aircraft defense and deep and surgical fires.

The concept contemplates the fact that the adversary uses urban centers as spaces to gain an advantage in the dynamics of the conflict. Therefore, it recognizes the need to model the operating environment for the creation of “windows of superiority” in areas that focus on the urban environment, realizing that competition for such windows will be constant. As an example, it is visualized that the launch of static balloons of electronic warfare can create communications restrictions to the opponent, in their electromagnetic domain, in a certain portion of the battlefield and, from there, make possible the creation of a “window of opportunity” in that domain. Next, if explored, this window of opportunity will enable access to other domains, outlining a “window of superiority”, in a given time and space (UNITED STATES OF AMERICA, 2017).

In this context, situational awareness about the enemy is paramount, coming from intelligence efforts that will ultimately allow us to see through the “fog of war” and thus impose a more fluid rhythm of battle than that of the opponent. To this end, according to the National Security Strategy, it is necessary to ensure that American military superiority resists and, in combination with other elements of national power, is prepared to protect Americans against sophisticated challenges. In this sense, President Donald J. Trump points out that “as long as I am President, the servicemen and women who defend our Nation will have the equipment, the resources, and the funding they need to secure our homeland, to respond to our enemies quickly and decisively, and, when necessary, to fight, to overpower, and to [...] win” (TRUMP, 2017, p. 25).

In short, when thinking of the art of war in the twenty-first century, it turns out that the model of the U.S. Army, based on the concept of “Multi-Domain Battle”, is structured in three elements, who were the principal agents: joint integration, the synergy of technological capabilities

and developing leaders that thrive in chaotic scenarios, strengthening the “*Mission Command*”¹⁶. Furthermore, the concept includes the ability to sustain the continuity of the conduct of joint and integrated actions, both simultaneous and successive, in multiple domains, with emphasis on resilience. Ultimately, the concept extends the strategic options¹⁷ of the National Power to achieve US objectives in the 21st Century (BROWN, 2017).

The case of the Brazilian Army model

Brazil outlined a military defense doctrine based on the perspective of national power, defined as the capacity resulting from the integration of the nation’s means, driven by the national will, with the aim of maintaining and conquering the national objectives (BRASIL, 2007). For this purpose, the construction of national power is manifested in five expressions: political, military, economic, psychosocial and scientific-technological. In particular, political expression stands out among the others, setting national objectives, while the military has in the use of force, or in the possibility of using it, its core foundation (ESCOLA SUPERIOR DE GUERRA, 2009).

In this way, aware of the current scenario, the Brazilian State, identifies eleven threats to national security - actions which are contrary to national sovereignty, actions which are contrary to the democratic rule of law, weapons of mass destruction, cyber attacks, illegal activities involving goods of dual use/sensitive technologies, corruption, organized crime, espionage, foreign interference, sabotage, and terrorism - all listed on the National Policy of Intelligence (BRASIL, 2016).

As a consequence, the Brazilian Armed Forces have experienced complex challenges, however, far from war situations *per se*, the result of the reasonably stable framework of the Brazilian strategic environment (OLIVEIRA, 2009). In turn, the Doctrine of Joint Operations in Brazil considers the application of Military Power, both in situations of “war” (employment in the defence of the motherland itself, with the maximum use of violence), and “not war” (jobs such subsidiary, in which the use of violence will occur, in a limited way, or not). Furthermore, it comprises two perspectives of the confrontation: the traditional, between States or coalitions; and nontraditional, coping with non-state actors that promote hostile actions, gathered under the prism of hybrid threats¹⁸ (BRASIL, 2011).

In the face of this plural demand, in the context of the Brazilian Army, since 2013, the document entitled “Bases for the Transformation of the Army” has guided the introduction of

16 It is a command concept, derived from the prussian tactical doctrine, that promotes initiative, freedom and speed of action, within certain restrictions. In this sense, the subordinate, understanding the intention of the commander, his own mission and the context of that mission, is informed of the effect to be achieved and the reason why it needs to be achieved. From then on, he decides, within his delegated freedom of action, how best to accomplish his mission.

17 It should be noted that, currently, the term *Multi-Domain Operations (MDO)* is an evolution and improvement of the concept of the *Multi-Domain Battle (MDB)* published in 2017. It reflects more than two years of experiments, training and exercises (joint and multi-national). The *MDO* expands the *MDB*’s ideas and describes how the Army should contribute with the joint force to deter and defeat strategic contenders, both in friction and in armed conflict.

18 These are a mix of activities, with the frequent combination of conventional and non-conventional military methods, which can be used in a coordinated manner by state and non-state actors but remain below the threshold of a formally declared war.

foundations and perspectives in order to incorporate skills and competencies necessary for the performance of the Military Land Power in the Twenty-First Century. The following, in 2014, the Military Land Doctrine selected a set of values, concepts and tactics to optimize the direction of the preparation of the human resources and the development of means and infrastructure of Military Land Power (BRASIL, 2013, 2014).

As a result, the Army adopted the systematic generation of forces through the system called “Capacity-Based Planning”. This model focuses on meeting the needs arising from the desired effects on military campaigns, aimed at the execution of actions and linked tasks. In this way, the systematic prioritizes the permanent analysis of the conjuncture and prospective scenarios, reducing the risks of misplaced planning, thus increasing the readiness for security and defense. In this process, the architecture is harmonized by the synergy of the seven factors - doctrine, organization, training, material, education, personnel and infrastructure - synthesized in the acronym DOAMEPI. Ultimately, the model promotes a continuous investigation about the effectiveness of the Military Land Power, so as to customize and enhance the fighting power in the face of threats (BRASIL, 2014).

Figure 3 - Operating concept of the Brazilian Army



Source: Brazil (2017b, P. 2-17).

With emphasis on the premise that any future adversaries will not be passive, the preponderance of aggregation of operations - offensive, defensive and cooperation/coordination with agencies - successively or simultaneously, is modeled as the vocation of the Land Force in a singular, joint or combined effort. In this way, the operating concept called “Full Spectrum Operations”¹⁹ (Figure 3) guides the use of force, in space and time, on the part of the Military Land Power, with emphasis on the combination of attitudes and in the approach to different spectrums of the use of force, ranging from unstable peace²⁰ until the total war²¹ (BRASIL, 2017a).

In this sense, the Brazilian Army understands that “the state, by delegating power to us to exercise violence on its behalf, needs to know that we will always act for the Society of which we are servants” (VILLAS BOAS, 2017, our translation). In this vein, engaging with the perspectives of State and Society discussed by Bobbio (1987), connected to the constructs of Power and War, it is a false dichotomy in the relationship State-Society, a time that the supposed opposition between Society and the State is not greater than the synergy - “[...] understood not only in the sense of state that permeated society but also in the sense of state permeated by society” (BOBBIO, 1987, p. 51, our translation). In this sense, the motto of the Brazilian Army, “Strong Arm, Friendly Hand”, materializes the *ethos* of its operative concept, enabling it as guarantor of Defense and National Development.

Thus, this concept advocates the integration between military and civilian vectors, seeking unity of effort in the interagency environment, noting the fact that the convergence of efforts favors actions aimed at curbing the escalation of violence. In this sense, the perspective of the “Unity of Effort” is based on the premise that efforts need to be coordinated in the pursuit of collaboration in support of the objectives of the operation, which should be common between the agencies, despite differences in techniques, tactics, and procedural. In particular, the conciliation of interests and coordination of efforts should be evaluated continuously, in order to avoid the duplicity of actions, the waste of resources and, thus, to facilitate the effectiveness of the operation (BRASIL, 2017b).

For Security and Defence, the concept of “Full Spectrum Operations” enables the instrumentalization of the Strategic Conception of the Army that establishes that the Force should “contribute to the guarantee of the national sovereignty of the constitutional powers, of law and order, safeguarding national interests, cooperating with the national development and social well-being” (BRASIL, 2017b, p. 5, our translation). As such, this concept supports the implementation of the strategies of “Deterrence” and “Presence”, under the premise of the “Inviolability” of the extensive land borders of Brazil (ZAIA, 2013). In maximizing this effort, Military Land Power should be applied as part of a unified action, considering the joint employment and application of the other expressions of national power, thus defeating possible opponents and guaranteeing National Defense.

Currently, acting in favor of Internal Security (“non-war” situation) has been recurrent in operations within the framework of the Guarantee of Law and Order (GLO), in the fight

19 Was based on the concept of “Full Spectrum Operations”, established in *Field Manual 7-0 (Operations)*, U.S. Army, in 2008, which deals with the forces training modular, expeditionary to manage the operations of a wide spectrum and simultaneous - offensive, defensive, stability or civil support - in an era of ongoing conflict.

20 A situation characterised by a general level of tension and suspicion between the parties, including: uncertainty and mistrust; increasing levels of systematic frustration; increasing social and political divisions; and diffuse political instability.

21 This is the military conflict in which the contenders are willing to employ the broad range of national potential - human and material resources - both in time and space to achieve a goal.

against cross-border crimes and in subsidiary actions (CEPIK; BORBA, 2011). For both, the Complementary Law number 97 extends the jurisdiction of the Armed Forces, especially the Army, allowing their use, both in the range of the border, as in the large urban centers (BRASIL, 1999; 2004), and enabling the conduct of operations of cooperation/coordination with the agencies, under the prism of “Full Spectrum Operations”.

Pari passu, also in the scope of the situations of “non-war”, stands out the international projection of the Brazilian Army in peace operations under the aegis of the United Nations (UN). In particular, Brazil participated in the United Nations Stabilization Mission in Haiti (MINUSTAH), which began in 2004, to restore order in that country, following a series of social upheavals and insurgencies that culminated in the deposition of then-President Jean-Bertrand Aristide. In this effort, the Brazilian Army led the military component of the mission from 2004 until 2017, when the Mission was terminated, the period in which the Brazilian Armed Forces, were employed, day and more than a thousand military on the Island of *Hispaniola* (CRUZ AGUILAR, 2005). At that time, the Military Land Power combined defensive, offensive and cooperative attitudes with agencies, under the prism of “Full Spectrum Operations”, in favor of the protection of civilians and the support of that country.

Thus, under the aegis of “Full Spectrum Operations”, the variability of the degree of violence and the change in attitudes impose flexible conduct on planners of ground operations, both on national territory and in expeditionary forces. For this purpose, the Brazilian Army hosts two planning tools, used in a complementary and simultaneous way, in order to increase the production of operational conceptions specific to each mission.

In a first plan, the “Operational Design Methodology” performs the analysis of the guidelines of the upper echelons, the formulation of the problem faced and the development of an approach to solve it. Such a process guides decision-making at the tactical level²², optimizing the conditions for the use of Military Land Power, indicating “what to do”.

In a second plan, the “Situation Examination by the Commander” provides the cartesian elements to the division of the problem into parts and promotes the proposal of lines of action to resolve the crisis or conflict is presented, establishing a method of “how to do”, in the light of the concept of the operating of the “Full Spectrum Operations”.

In summary, when thinking of the art of war in the Twenty-First Century, it turns out that the model of the Brazilian Army, supported by the concept of “Full Spectrum Operations”, structures in combination of attitudes offensive, defensive, and cooperation/coordination with agencies, including the approach of different spectrums of the use of force, since the peace unstable until the total war (BRASIL, 2017a). In addition, it instrumentalizes the strategic conception of the Army, with emphasis on the presence, deterrence and inviolability of the territory. Finally, the concept moves forward in the context of joint operations, strengthening unified actions with the other forces, Navy and Air Force. Ultimately, expands the strategic options of the Brazilian State and to optimize the National Defence in the scenario of the XXI Century.

22 This is the level at which combat, logistics and support actions are carried out in general. At this level, each group of forces triggers its tactical or administrative missions, and it is up to the operational commanders to harmonize the spectrum of joint action. Furthermore, planning at this level is more mechanical, rigid and objective than creative, more tied to the campaign manuals, although it always instigates the personal initiatives of the commanders.

5 Conclusion

This article established the goal to analyze the current models of operations adopted by the Armies of the United States of America and Brazil, under the prism of the Theory of War, operationalizing a case study that examined the operative concepts of “*Multi-Domain Battle*” (USA) and of the “Full Spectrum Operations” (Brazil). Thus, as a result of the scope developed in this concluding section, there is an inference about the impact of the respective models on the application of military power, of both nations, in the 21st Century.

Initially, the study was based on the perspective that, after the Cold War, the threat of bipolarity gave way to an international scenario where the risks are diffuse and amorphous. In this scenario, new geopolitical dynamics have allowed conflicts to transcend the geographical space and to be triggered at virtual, cybernetic and social borders, highlighting that contrary to the eternal and universal realities of war, their subjective nature always changes, at different rhythms and epochs. In summary, in the contemporary scenario, it was observed that:

Not understand the war based on a reflection on the continuities and changes generates the risk about which he warned the nineteenth century theoretical prussian, Carl Von Clausewitz: to see the war as “something autonomous” instead of “an instrument of policy,” does not understand “what kind of war we are involved” and attempt to transform it “into something that is alien to his nature” (McMASTER, 2015, p. 30, our translation).

Subsequently, it was found that the volatility and the geopolitics of today’s conflicts have led to a new way of “thinking” the art of war in the twenty-first Century, considering: a vision for interdisciplinary and multi-dimensional; the participation of non-military actors; the loss of the monopoly of violence on the part of the State; the mass application of technology; and the involvement of full national potential. Similarly, the current conflict scenario demands a dual readiness on the part of the military power of states, both to overcome a conflict of low intensity, and to face conventional friction - limited, total or ultimately at the nuclear scale.

In this scope, the result of the analysis of the model of the U.S. Army, it is inferred that the operating concept of “*Multi-Domain Battle*” models a way of fighting, able to be applied in the face of a possible conflict of bias on the interstate, attentive to technological progress and geopolitical intentions of their potential contenders today - China, Russia, North Korea and Iran - which are identified in the framework of the USA National Security Strategy.

In addition, this concept directs U.S. military power to the perspective of multi-domain resilience, that is, the ability to maintain the battle rhythm in a given domain when another is denied during the conduction of military operations. To this end, it is estimated that the U.S. military will have to prospect and acquire advanced technological capabilities enabling the continuation of unified actions, both simultaneous and successive, in multiple domains. As a consequence, this demand will lead to the reconfiguration of defense products, accelerating the flow of investments in the U.S. military industrial complex and ultimately impacting the world defense economy from an “weapons race” perspective.

In turn, the result of the examination of the model of the Brazilian Army, it is concluded that the operating concept of “Full Spectrum Operations” models a way of fighting able to activate and combine attitudes offensive, defensive and cooperation/coordination with agencies, allowing operations in different spectrums of violence, so as to confront fluid threats, which holds the potential to harm the security and national defence. In addition, it is noted that this concept, by instrumentalizing the combination of attitudes, extends the Brazilian Military Power in the application of the strategies of “presence” and “deterrence”, thus contributing to the inviolability of the territory.

However, in so far as it allows the format of cooperation/coordination operations with agencies as a primary effort, this operative concept imputes to the Brazilian Military Power the need for dual readiness, both to act in the softer band of the crisis/conflict spectrum, and to meet the demand for a possible total war. As a result, such a requirement implies in investments and dressage plurals that, in the last instance, may impact on the effectiveness of the use of force in a situation of interstate conflict, as well as in the efficiency of investments and development of defense products of the Brazilian military apparatus.

On the other hand, this concept encourages the “Unit of Effort” approach (Figure 4), optimising the principle of “savings of means”, in that it avoids duplicate efforts and maximizes interoperability for optimal performance, leveraged by the pool of capabilities of the national potential. Furthermore, the “Unity of Effort” promotes common understanding of the problem generator of the crisis/conflict, shaping of a problem-oriented design and, consequently, fostering an action unified, advancing to the generation of a response to the systemic challenges of the current world, including the other expressions of National Power. Therefore, an “Unified Action” (Figure 4) is the synthesis of synchronization, coordination and/or integration of agency actions (public, private, governmental, intergovernmental and non-governmental) in the core of complex operations, whether they are joint, combined and multinational.

Figure 4 - Theoretical Model “Unit of Effort and Unified Actions”



Source: authors (2019).

In conclusion, it was found that both the model of the U.S. Army, as the model of the Brazilian Army are customized to a demand in the political-strategic arising out of the interests and of the national objectives listed in the face of the challenges to security and defense that each country faces. Thus, the concepts of “*Multi-Domain Battle*” (USA) and “Full Spectrum Operations” (Brazil) model a way of fighting proper to the Military Land Power of each of these countries, requiring postures, capabilities, and investments peculiar to their scopes.

Finally, in the list of developments of the operative concept of the “*Multi-Domain Battle*”, the result of the demand for a multi-domain resilience proposed by the US, a reconfiguration of the defense products worldwide is estimated. As a consequence, this aspect deserves a thorough examination by the Brazilian Army, as it reveals a macro-trend of the art of war, indicating to the Military Sciences a vast territory of research to investigate and prospect optimizations about the way the Brazilian Army fights in the 21st Century.

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