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# **High-Intensity Warfare** What Challenges for the French Armed Forces?

Security Studies  
Center

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Élie TENENBAUM

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# Abstract

The new French Military Programming Law for 2024–2030 resolutely commits the French armed forces to the path of high-intensity. However, this term continues to be the subject of debate and confusion within the defense community. To better understand its scope and implications for France, we need to offer a strict definition of the notion. In military terms, high-intensity refers first and foremost to a type of engagement deploying a high level of kinetic energy within a limited space and duration. Added to this energy factor is the level of technological sophistication of equipment (capital intensity) and the lethality resulting from these two elements. A concept of high capability intensity is thus emerging, based on the triptych energy-technology-lethality.

This capability intensity must be distinguished from the political intensity, or virulence, of an armed conflict, which depends above all on the interests at stake. When the stakes are very high for one of the parties, the conflict takes on the aspects of a major war, in which its very survival is at stake. Conversely, when real but non-existential interests are at stake, the result is limited war. While military history offers examples of conflicts combining high political and military intensity, it has also recorded cases of limited wars involving high capability intensity. It is this configuration that seems most relevant to France, where, in principle, the nuclear deterrent protects against any threat to the nation's vital interests.

This then opens up a wide range of scenarios that fall short of vital interests but lie beyond the capability and operational horizons of the last three decades, which have been characterized above all by crisis management and on which the current format of the French armed forces has been constructed. Strategic solidarity within the framework of the Atlantic Alliance or defense agreements, confrontation with a large or medium-sized power in peripheral areas, confrontation with a “proxy” third-party actor supported by a powerful state, or confrontation in isolated common spaces (the high seas, exo-atmospheric space, cyberspace, the seabed, etc.) are all hypothetical scenarios that would fall within the scope of high capability intensity.

With this in mind, the French armed forces must be prepared to operate in high-intensity environments. Missions in these environments will be characterized by two major factors. The first is high attrition owing to the lethality of a battlefield marked by quantity. To cope with this, we will need to rethink the trade-offs between volume (equipment, ammunition, etc.) and survivability. The second factor is the adversary's contestation of the commons (air, sea, cyber, information), which will call into question all the

elements of military superiority in the Western war model. As a result, operating in the high-intensity arena means giving priority once again to missions of environmental superiority, in order to regain a freedom of action that will be increasingly challenged. For their part, ground forces will no longer be able to take joint support for granted and will need to regain autonomy of maneuver in order to contribute to multi-domain action.

High-intensity warfare is therefore an important prospect for the French armed forces, and one that cannot be brushed aside on the grounds that France has a permanent deterrent. The advent of an unstable world marked by multidirectional strategic competition calls for a thorough reconsideration of the conventional formats and missions of the French armed forces, if decision-makers are to retain their freedom of action on the strategic scale.

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# Introduction

The war in Ukraine has propelled into the foreground a phenomenon whose resurgence analysts and practitioners in France and elsewhere had already noted over recent years: high-intensity warfare<sup>1</sup> Today this notion is on everyone's lips and appears frequently in the media and in political and military speeches when discussing the challenge of future wars.<sup>2</sup> In his speech at Mont-de-Marsan in January 2023, for instance, Emmanuel Macron spoke of a “pivot toward high-intensity”,<sup>3</sup> and one of the objectives laid down in the report annexed to the Military Programming Law (Loi de programmation militaire, LPM) for 2024–2030 is for France to ensure its armed forces have “the capability to take on a major engagement and high-intensity confrontations”.<sup>4</sup>

This formulation, as ambitious as it may seem at first sight, raises more questions than answers. And for good reason: today, the concept of high-intensity is the source of debates and misunderstandings within the French defense community.<sup>5</sup> What exactly is a high-intensity confrontation? On what scale are we to understand the term? How does it differ from a major combat operation? How does it relate to nuclear deterrence? While it is the prerogative of politics to retain some ambiguity in its directives, it is up to the military strategist to interpret or clarify them.

In order to do so, we must first examine the notion on a theoretical level and then place it in its political and strategic context by distinguishing high degree of political intensity in war from high degree of military capability intensity. After revisiting how this notion relates to that of deterrence and suggesting a few potential scenarios of engagement for France, we will finally identify the tactical characteristics of the high-intensity battlefield and deduce from these the development priorities for the French armed forces.

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1. Note that the notion has been emphasized by various chiefs of staff during speeches and parliamentary hearings since 2019. See for example the hearing of General Jean-Pierre Bosser, Chief of Staff of the French Army, Assemblée nationale, June 5, 2019.

2. P. Mirallès and J. L. Thiériot, “Rapport d'information sur la préparation à la haute intensité”, Assemblée nationale, February 17, 2022.

3. Speech by President Emmanuel Macron on French defense policy, Mont-de-Marsan, January 20, 2023.

4. “Projet de loi relatif à la programmation militaire pour les années 2024 à 2030 et portant diverses dispositions intéressant la défense”, annex report, June 29, 2023.

5. See, for example, J.-B. Jeangène-Vilmer, “La haute intensité : Limites du concept et implications pour la France”, *Le Rubicon*, June 30, 2022, available at: [lerubicon.org](http://lerubicon.org).

# Theoretical approach and scale of application

As with any complex matter, the first step in analysis is to circumscribe the topic. Although the concept of high-intensity is strikingly polysemic, it may first be approached in its most prosaic form, that of physical magnitude, by transposing the notion of electric or luminous intensity onto the battlefield. This is the approach developed by the researchers Thierry and Éloïse Berthier in a recent article in the *Revue Défense Nationale*, where they define the intensity ( $I$ ) of a battle as the relationship of the kinetic energy ( $E_k$ ) that enters onto the battlefield over the product of the volume ( $V$ ) of the battlefield and the duration ( $T$ ) of combat<sup>6</sup>:

$$I = \frac{E_k}{V \cdot T}$$

This simple equation has intuitive appeal as it relates intensity to the idea of the “density” of military means and to a certain kind of “concentration of efforts”: if a great deal of kinetic energy (in which we include any moving object, from a warship to an explosive munition) on a battlefield of relatively small volume and duration, the intensity will be greater. Conversely, the more this energy is diluted in space and time, the lower the intensity of combat.

This initial formal approach then pulls in a number of correlated notions that allow us to refine the concept. First, the ability to generate a large amount of kinetic energy is structurally linked to the complexity of military equipment and to its technological sophistication, and therefore to capital intensity—a notion drawn from economics. For instance, combatants equipped with hand-thrown missile weapons (arrows, javelins) are less able to produce high-intensity than those equipped with anti-tank missiles. It therefore makes sense to judge the intensity of a combat only as a function of a given technological age: a Roman legion may have been high-intensity in its day, but faced with twenty-first-century equipment, it would constitute a low-end threat.

In addition, looking at the question in terms of capital intensity suggests a revision of the strictly energetic approach to intensity, since the technological sophistication of equipment is only partly aimed at increasing kinetic force. For instance, progress in materials and communications, and

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6. T. Berthier and E. Berthier, “Mesurer la (haute) intensité d’un combat”, *Revue Défense Nationale*, Vol. 860, No. 5, 2023, pp. 61–75.





or “conflicts”. There is therefore an essential uncertainty as to the scale under consideration. As those who have taken part in it often remind us, tactical combat will very quickly feel “intense” to any individual immersed in it: for the French soldiers engaged on the Vrbanja bridge in Bosnia in 1995, in the Alasay valley in Afghanistan in 2009, or in the Adrar in Mali in 2013, each of these engagements could be said to be of high-intensity—certainly at the individual level, and in some cases at the tactical level.<sup>9</sup>

However, if we take into consideration the total duration of these conflicts—twenty years of war in Afghanistan, ten years in Mali—and the spatial volume of many hundreds of thousands of square kilometers within which they took place, then globally speaking, their capability intensity was rather low. One of the reasons for this is the asymmetry of means between the two sides in these conflicts. In an asymmetrical conflict, the kinetic energy that the weaker of the two adversaries is capable of applying in space and time is very much limited by its economic, technological, and military resources. This will prompt it to maximize other factors such as mobility, stealth, and above all the role of immaterial elements (ideology, psychology, information, etc.) in order to pursue its strategy. As for the stronger of the parties, it will also tend to place limits on the amount of energy deployed for political reasons connected to domestic constraints, social as well as economic, and to the limited nature of the interests at stake in the conflict.<sup>10</sup>

As we can see, once we go beyond the tactical level, the capability intensity of a conflict depends upon more widely encompassing aspects of the power balance. The American unipolar moment at the end of the Cold War meant that, for Western powers at least, the specter of high capability intensity wars could be viewed as an unlikely prospect, given their often-crushing superiority in the military but also economic and technological domains. Of course, that did not spell the end of war but rather the beginning of a new mode of conflict characterized by the asymmetry mentioned above, which would eventually come to be reflected in circumventions of, rather than direct challenges to, Western military power.

From the turn of the 2000s, while the Western powers were caught up in peripheral conflicts, a profound transformation was taking place: the emergence—first economic, then technological and, inevitably, military—of China, but also of India and, to a lesser extent, Brazil; the strategic resurgence of Russia—in its traditional stomping grounds, but also in the Middle East and in Africa; and the challenges posed by regional powers such as Iran and Turkey. Today, the strategic landscape is being disrupted by a combination of, on the one hand, growing military means (with a spectacular rearmament of non-European countries over the last

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9. M. Goya, *Sous le feu: La mort comme hypothèse de travail*, Paris: Tallandier, 2014.

10. S. Metz, “La guerre asymétrique et l’avenir de l’Occident”, *Politique étrangère*, Vol. 68, No. 1, 2003, pp. 26–40.

fifteen years) and, on the other, attempts by various powerful states to revise the post-Cold War international order.

This combination of means and intentions on the part of certain actors is reflected on the geopolitical scale by what has become known as “strategic competition”,<sup>11</sup> which brings with it a potential return to clashes between great and/or middle powers, either directly through military confrontation or more discreetly via the challenging of one power by another in ways that remain below the threshold of war. In this regard, the triptych “competition–dispute–confrontation”<sup>12</sup> presented in 2021 in the strategic vision of the French Chief of the Defense Staff should be understood not so much as successive phases of the international system but as nested spheres, with strategic competition encompassing the other two.

High-intensity warfare can therefore be understood as one of the military forms taken by strategic competition, as one of its two faces, the other being that of hybrid war and so-called gray zone operations.<sup>13</sup> In both we find the same protagonists, but armed with different means and modes of action: hybrid action mostly below the threshold of armed aggression, high-intensity confrontation clearly above it. The former can make it possible to avoid the latter in cases where the cost and risk associated with aggression seem too high. High-intensity warfare, on the other hand, implies the complete disinhibition of an actor who believes, rightly or wrongly (as in the case of Russia in Ukraine), that it is capable of absorbing these costs and risks.

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11. M. J. Mazarr, B. Frederick, and Y. K. Crane, “Understanding a New Era of Strategic Competition”, Rand Corporation, 2022.

12. “Vision stratégique du CEMA”, 2021.

13. É. Tenenbaum, “Le piège de la guerre hybride”, *Focus stratégique*, No. 63, Ifri, 2015.

# High-intensity and major operations

This highlighting of the international conditions for the emergence of high-intensity conflict leads us to rethink its relationship with the level of political engagement. High-intensity conflict is often associated with the notion of “major operation”, or even “major war”.<sup>14</sup> Essentially a political-strategic term, major war implies political intensity, or the virulence of a conflict, in which essential or even vital interests are at stake for at least one of the two parties. The higher the stakes, the greater the political intensity: at the upper end of this spectrum lies the total mobilization of the population, the economy, and all aspects of the life of the nation. It is often this imaginary of “total war” that is summoned up and sometimes conflated with the notion of high-intensity conflict itself, only to be immediately rejected or denied, at least in the French debate, since the nuclear deterrent is designed precisely to protect the country from any such extremity.<sup>15</sup>

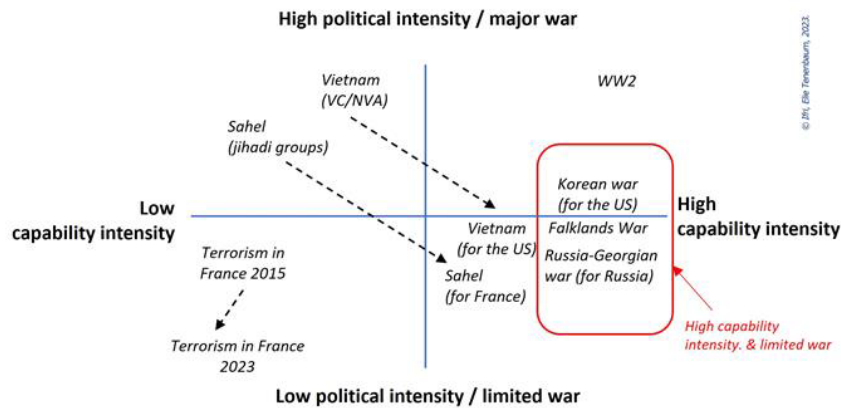
This understanding of high-intensity is in fact clouded by historical examples of total wars from the pre-nuclear era, such as the Napoleonic Wars and the American Civil War in the 19<sup>th</sup> century, and above all the two world wars of the 20<sup>th</sup> century, in which high political intensity coincided with high capability intensity. This combination of two registers of intensity is however just one possible configuration. The study of asymmetrical conflicts shows, for example, that high political intensity does not only occur in tandem with high capability intensity: during the wars of decolonization, irregular combatants waged total war with means that were very limited even in relation to the capabilities of the era. And this is still the case today in the Sahel, for example, where Jihadi groups are waging a war with high political intensity but low capability intensity. In confronting them, Western powers have at their disposal a superior capability intensity—albeit below their potential maximum—but a far less intense political commitment, given the limited nature of the interests at stake for them.

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14. F. Ramel and J.-V. Holeindre (eds.), *La fin des guerres majeures?*, Paris: Economica, 2010.

15. J.-B. Jeangène-Vilmer, “La haute intensité : limites du concept et implications pour la France”, *op. cit.*

**Figure 2: Representation of conflicts as a function of their political and military intensity**



Inversely, there are wars that are politically limited but involve high capability intensity, that is to say, wars in which the whole range of military means—short of nuclear weapons—are brought into play, faced with an adversary capable not only of defeating them but also of challenging their effectiveness, their durability, and even their survivability. This was the case with the Korean War, for example, during which Washington decided not to fully mobilize the country’s economy but did deploy 300,000 men (30% of its military resources), including armored divisions, fighter squadrons, and strategic bombers.<sup>16</sup>

This was also the case, in a very different strategic context, with the Gulf War of 1991 (in which 500,000 men were deployed against Iraq in a conflict whose stakes fell below the level of vital national interests), and for Russia in the Russo-Georgian War of 2008. The Second Nagorno-Karabakh War of 2020 is another example: neither Armenia’s nor Azerbaijan’s survival was at stake, but they nonetheless “activated all operational functions” and decided to deploy the greater part of their capabilities. However, there was no general mobilization and no sense of vital panic in Yerevan or in Baku.

Finally, the war in Ukraine was from the start a high capability intensity war, whose political intensity was not in question from Kyiv’s point of view but prompted confusion in Moscow, with the Kremlin emphasizing the “existential” nature of what was at stake while doing its best to maintain a semblance of normality in the everyday life of the nation, going so far as refusing to call it a war. Further down the road, political intensity keeps creeping up in Russia, and the recurring nuclear rhetoric tends to back this up. But, at the same time, Moscow has remained cautious not to escalate the war to this level, and not to expand it, or force the West into belligerence.

16. This example becomes the archetype of “limited war” in the work of the political commentator Robert Osgood, *Limited War: The Challenge to American Strategy*, Chicago: The University of Chicago Press, 1957.

# The shadow of the nuclear deterrent

The distinction between political intensity and capability intensity is something that especially needs to be considered in France, where the protection of vital interests is ensured by the nuclear deterrent, something that to a large extent has determined the armed forces model to this day.<sup>17</sup> The existence of nuclear weapons and the deterrence they imply may not be a guarantee against the risk of high-intensity war, but they place an upper limit on the field of possibilities. And yet there remains a broad spectrum of scenarios which, while remaining below the threshold of vital interests, go well beyond the capability requirements associated with the type of crisis management operations that have prevailed over the last thirty years. Like any strategy, deterrence can be circumvented under certain conditions—all the more so if the power involved has agreed to renounce other capabilities, in a sense opening up security gaps in which armed coercion may be exerted against it at a level sufficient to defeat its conventional forces, but which would not make brandishing the nuclear threat in retaliation a credible option.

## Below the nuclear threshold, beyond the capability horizon

At the heart of these scenarios, we naturally find some of France's commitments to collective defense within the Atlantic Alliance: whether on NATO's "Eastern flank" or elsewhere, an act of aggression or even a security crisis could bring into play key elements of high capability intensity without Paris wanting to bring its deterrent into the picture. Beyond this framework, it is not difficult to envisage a request being made in a context of a high capability intensity conflict by one of the countries with which France has defense agreements containing binding assistance clauses—as is the case with Greece, the United Arab Emirates, and Djibouti—or even by one of the "strategic partnerships" that have proliferated over recent years in increasingly distant zones.

The problem of so-called "proxies" is therefore an important factor in these engagement scenarios. Any direct confrontation between France and another major nuclear power would involve, at some point in the logical unfolding of the security dilemma, the setting in motion of the deterrent

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17. C. Brustlein, "Forces nucléaires françaises : Quel renouvellement?", *Politique étrangère*, Vol. 82, No. 3, 2017, pp. 113–24.

mechanism. This is why the hypothesis of a major war is something that is often seen by France as a distant prospect. On the other hand, France's political resolve and military credibility could well be tested in the future by a local actor, whether a state actor or otherwise, militarily "boosted" by the support of one or several global powers. In near proximity to Europe, theaters such as Belarus, Transnistria, and the Caucasus come to mind. One might also think of the case of the Lebanese Hezbollah or the Houthi militias in Yemen; a confrontation with them or even a deployment within their zone of activity would doubtless quickly turn into a high-intensity situation given the capabilities they have developed.

We must also take into consideration scenarios involving an unwanted escalation with a powerful state in a peripheral theater—the Mediterranean, the Middle East, or Africa—or even involving certain overseas territories that an aggressor might assume not to be among France's vital interests. In other words, a scenario along the lines of the 1982 Falklands War, a brief but high capability intensity conflict during which British forces were effectively forced to deploy all their operational functions and their most advanced capabilities in the face of a symmetrical, albeit inferior, enemy.

Finally, the problem of the "commons" must also be emphasized, given their somewhat disinhibiting effect on escalatory dynamics. The opacity and/or low occupation and low visibility by the civilian world of domains such as the high seas, outer space, seabed, and cyberspace may lead them to become the object of a high capability intensity engagement without necessarily triggering a major war. For the deterrent mechanism is more difficult to activate when the complexity of attributing an aggressive act or the low political visibility of the aggressor does not allow escalation to be justified and exposes insufficiently robust conventional capacities.

In all of these scenarios, the issue of conventional-nuclear connection must be articulated. Even though conventional forces do not directly take part in nuclear deterrence, they do contribute to it in an assistive capacity, in particular through their ability to lend credibility to a political determination. This was the role of the French 1<sup>st</sup> Army during the Cold War: to demonstrate French resolve in the face of an invasion by the Warsaw Pact. The projected deployment of three army corps in Germany was at the time considered a sufficient pledge to make the threat of a nuclear strike credible.

In many regards, the deployment of French forces as part of the Enhanced Forward Presence (eFP) in Estonia in 2016—and subsequently in Romania in 2022—is an example of this same logic of "credibilization" of the collective defense posture, designed to show France's solidarity with NATO's "eastern allies". Be that as it may, the substance of any such arrangement must be backed up in such a way that, as the French *National Strategic Review* puts it, "conventional forces [would be] sufficiently robust to preserve the President of the Republic's freedom of action and to prevent

deterrence from being circumvented from below”.<sup>18</sup> In other words, the size of conventional forces and their ability to engage in high-intensity combat must be sufficient to make sure the head of state is not forced into an all-or-nothing nuclear alternative if his resolve is tested by an adversary in a way that falls below the threshold of vital interest.

## High-intensity warfare and military requirements

The variety of scenarios in which France might become involved in high-intensity warfare ultimately poses the question of the relationship between high-intensity conflict and the “hypothesis of major engagement” (*hypothèse d’engagement majeure*; HEM). Unlike the political notion of major war, the HEM is an “operational contract” defined in the Military Programming Law to designate the theoretical maximum conventional contribution of the French armed forces to what NATO doctrine calls a “major combat operation”.

**Table 1: Hypothesis of major engagement according to the LPM**

Pledged capabilities	
<b>Ground</b>	1 “Division” made up of: 2 combined arms brigades (unspecified size) Artillery, engineering, communications, logistical, medical support (unspecified quantity) 1 air assault brigade (quantity unspecified)
<b>Air</b>	40 combat aircraft 8 strategic transport and air refueling aircraft 1 AWACS and 15 tactical lift aircraft 2 multi-layer air defense systems 2 MALE ‘systems’ (6–8 MALE aircraft in total)
<b>Naval</b>	1 aircraft carrier group with its carrier air wing (30 fighters) 2 amphibious helicopter carriers 8 first-rank destroyers and frigates 2 nuclear-powered attack submarines (SSNs)
<b>Joint</b>	Strategic and operational staffs, intelligence resources, special operations forces, etc.

Source: LPM 2024–2030, Senate amended version, June 2023.

18. *Revue nationale stratégique 2022*, Paris, République française, November 2022, pp. 20–31.



This level of operational ambition has been continually reducing since the 1994 *White Paper*. The ground component has progressively dropped from three divisions (50,000 men) in 1994 to two (30,000 men) in 2008, and then to one division (15,000 men) in 2013. For the purposes of comparison, the Ukrainian war currently mobilizes around 300,000 combatants on each side of the 800 km front. Whereas the 2019–2025 LPM gave precise details on the number of armor vehicles, helicopters, or artillery guns, the new annex report remains rather evasive.<sup>19</sup> As far as the air component is concerned, the level of ambition has once again fallen over the last five years, going from 45 to 40 fighters, from 9 to 8 refuellers, and from 4 to 2 MALE systems. As for the naval component, it has remained at its former level. While these figures are consistent with the organic scope and size of the French armed forces, they raise questions as to the place of a French contribution in certain scenarios, thus emphasizing the fact that the HEM is far from being the sole answer to the challenge of high-intensity. The relevance of this format must therefore be evaluated in the light of the operational characteristics of modern high-intensity warfare.

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19. See by comparison the Law 2018–607 of July 13, 2018, relative to military programming for the years 2019–2025, which contains various defense-related provisions.

# Operating under a high-intensity environment

“You go to war with the army you have, not the army you might want or wish to have at a later time”. Donald Rumsfeld’s blunt assessment of the inadequacy of US forces in Iraq in 2004 ought to resonate strongly with the French defense community as it plans a gradual transition to high-intensity combat capabilities by 2035. While this date may seem relatively distant in relation to the daily fluctuations of the strategic landscape, it should play a part in guiding the preparation of forces and their capability development in line with the characteristics of a high-intensity operational environment. In this respect, two issues deserve special mention here: the lethality of the battlefield and the contestation of the commons.

## Attrition and depletion: two challenges for “bonsai armies”

The lethality of the high-intensity battlefield is a daily reality in Ukraine. On the ground, this is overwhelmingly the result of massive indirect fire. As a consequence, attrition (through death, wounding, equipment destroyed or damaged) plays a major role. After one month, over 200 Ukrainian battle tanks had been destroyed (equivalent to the entire French Leclerc fleet). A similar observation can be made in the air domain: tactical drones, used in large numbers, have a “life expectancy” of only four flights for quadcopter mini-drones, and around six flights for larger, fixed-wing platforms<sup>20</sup>—an almost disposable use that we might want to compare with French stocks of such devices. While these figures must be treated with caution—France would never have found itself in a situation strictly similar to Ukraine, if only because of key factors such as possession of nuclear weapons, NATO membership, etc.—they nonetheless give some sense of the level of attrition attendant upon a high-intensity environment.

There is no simple solution to this attrition. It would seem difficult to totally avoid the issue of “mass”<sup>21</sup>: one cannot replace quantity with quality indefinitely—however high-performance the army, it will run up against

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20. M. Zabrodskyi, J. Watling, O. V. Danylyuk, and N. Reynolds, “Preliminary Lessons in Conventional Warfighting from Russia’s Invasion of Ukraine”, Royal United Services Institute, November 2022.

21. R. Briant, J.-B. Florant, and M. Pesqueur, “La masse dans les armées françaises : Un défi pour la haute intensité”, *Focus stratégique*, No. 105, Ifri, June 2021.

problems if it is thinned out.<sup>22</sup> Whatever its quality, an army must have a minimal capability to take losses, without which systems that are essential but too few in number will end up simply not being deployed through fear of their potential destruction. Armed forces without mass means that regeneration becomes impossible—as if they can be deployed once and once only, considerably limiting the options of the political authority and in all probability forcing its decisions. However, it seems equally futile to build military of pure mass, which would just result in fatally degrading their technological and human quality. The aging demographics of European societies also attest to the irrelevance of such an undertaking. As to a combination of quantity and quality—necessarily the ideal to aim for—it now seems out of reach for societies struggling to maintain a defense effort at 2% of GDP.

Faced with attrition, the alternative to sheer mass is to invest more in survivability.<sup>23</sup> The issues of passive protection and armor are of course part of this equation, but so are self-protection via electronic warfare systems and multi-layered integrated air defense system (IADS) capable of assisting forces by forming a mobile shield around them. Mobility and speed (including command structures), stealth and even secrecy, and situational awareness are all key factors in enhancing survivability in even the most lethal environments. Finally, the ability to regenerate an armed force is essential—firstly in human terms, with medical support which must be reviewed in the light of expected lethality, but also for the equipment, with forward maintenance, armored recovery vehicles, spare parts, the correct tools, and a corps of mechanics trained in sufficient numbers. Finally, training is a full-fledged capability to be taken into account in any long-term conflict scenario: faced with attrition, even the most efficient army can lose its competence in a few years or even a few months if it does not have an appropriate cycle of operational preparation capable of bringing appropriately retrained troops to the front.

The problem of attrition is compounded by that of ammunition consumption. In Ukraine, in terms of artillery, 10,000 to 20,000 shells fired per day on the Russian side and around 5,000 on the Ukrainian side amounts to 150,000 per month, far more than the European industry as a whole produces in a year. Even the Americans have been caught out: the Pentagon has announced that it intends to increase its monthly production of 155 mm ammunition from 15,000 to 90,000 by 2025.<sup>24</sup> The problem of complex ammunition, which is prevalent in the air and naval sectors, is even more striking. In France (as elsewhere in Europe), purchases of air-to-air, anti-

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22. M. Handel, “Numbers Do Count: The Question of Quality Versus Quantity”, *Journal of Strategic Studies*, Vol. 4, No. 3, 1981, p. 228; R. Briant, J.-B. Florant, and M. Pesqueur, “La masse dans les armées françaises : Un défi pour la haute intensité”, *op. cit.*

23. R. Hémez, “La survivabilité sur le champ de bataille : Entre technologie et manœuvre”, *Focus stratégique*, No. 72, Ifri, March 2017.

24. J. Ismay and E. Lipton, “Pentagon Will Increase Artillery Production Sixfold for Ukraine”, *The New York Times*, January 24, 2023.

ship, and land-attack cruise missiles remain on-demand, with considerable production times, making such munitions ill-suited to the type of usage that might be anticipated in high-intensity situations.<sup>25</sup>

Here once again (although there is no escaping the need for a minimum of mass), volume is not the only answer to the problem of consumption: precision is obviously an essential asset in minimizing the quantity of ammunition required—although it comes at a far higher cost. But even precision is by no means a panacea, since it implies the need for sufficient targeting resources. Recent military exercises such as HEMEX ORION in France have demonstrated how difficult it is for a French division or even more an army corps to honor its “kill contract” of 30% enemy attrition in the deep area with current firepower (Unitary Rocket Launchers and 155mm CAESAR howitzers), not only because of the lack of tubes and their limited range, but also because of the insufficient availability of sensors for the acquisition of targets, which are very numerous on a high-intensity battlefield.

## **Fighting for the commons: The role of superiority missions**

In an environment of high capability intensity, the adversary is capable not only of applying a higher level of lethality, but also of challenging the very fundamentals of operational superiority. Such superiority almost always depends upon “command of the commons”,<sup>26</sup> including the air, sea, space, electromagnetic, and information domains. The development of anti-access strategies is therefore posing a challenge to the ability to exercise the main “enablers” that have maintained the Western military advantage over the last three decades.

The air domain is without doubt the most illustrative case. As demonstrated by the war in Ukraine, the absence of air superiority—made impossible by the proliferation of surface-to-air threats, more or less integrated into multi-layer air defense systems—results in a ground battlefield similar to those of the First World War, partly immobilized and extremely destructive for the forces present.<sup>27</sup> Insofar as such a prospect is neither desirable nor indeed viable for a Western model that is far less focused on the quantitative than the Russian or Ukrainian armies, there is no choice but to reinvest significantly in air superiority missions—air combat but also and above all the neutralization of enemy air defenses using both

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25. R. Briant, “La filière munitions française face à la haute intensité : Des équilibres à redéfinir ?”, *Briefings de l’Ifri*, Ifri, January 17, 2022.

26. B. R. Posen, “Command of the Commons: The Military Foundation of U.S. Hegemony”, *International Security*, Vol. 28, No. 1, 2003, pp. 5-46.

27. J. Bronk, N. Reynolds, and J. Watling, “The Russian Air War and Ukrainian Requirements for Air Defence”, Royal United Services Institute, November 2022.

kinetic (anti-radiation missiles or deep fires) and electronic (offensive jamming) means, something the French forces currently lack.<sup>28</sup>

The maritime domain is also increasingly contested. It had remained a sanctuary since the end of the Cold War, but the increase in the range of anti-ship strike capabilities, the proliferation of submarine systems both manned and unmanned, and, more broadly, widespread naval rearmament have all brought to the fore the increasingly tangible prospect of sea combat.<sup>29</sup> The remote, uninhabited nature of the high seas makes them a particularly attractive domain for testing an adversary's resolve to escalate in the event of potential high capability intensive confrontations in a context of political limitation. The nature of naval platforms, which tend to be few in number and highly capital-intensive, also makes them particularly attractive targets for an adversary in search of a decisive success—an army can recover from defeat in the middle of a war, but a destroyed fleet will take years to reconstitute.<sup>30</sup> Lastly, the characteristic opacity of the underwater domain lends itself well to anonymous aggression, shifting the responsibility for escalation onto the defender. Here too, the prospect of a return to high-intensity naval combat calls for a reinvestment in superiority capabilities, notably in anti-submarine and anti-mine warfare, but also in anti-ship strikes with sufficient firepower, given the chronic under-armament of French frigates.

The ground domain has always been a site of contestation, but up until now it has been able to count on the assurance of joint support from adjacent environments and domains to maintain at least tactical superiority.<sup>31</sup> However, the contestation of these environments by adversaries will have an impact upon the Land Army in terms of the joint support to which it has become accustomed: fire support, mobility support, intelligence support, and targeting are highly dependent upon other branches of the armed forces. With those branches busier defending their environmental superiority, ground forces will need greater autonomy: artillery and UAVs must therefore be at the top of the list of priority investments for the ground forces in a context of high-intensity.

Last of all, the space, cyber, and information domains will also play a growing role in high-intensity operations. With a cost of entry that is often prohibitive, France is currently positioned as a leader in these fields, which account for a large proportion of the investment in the upcoming LPM. However, the logic of fighting for domain superiority in each of these should be better taken into account, since otherwise their exploitation will be called

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28. C. Brustlein, É. Tenenbaum, and É. de Durand, *La suprématie aérienne en péril : Menaces et contre-stratégies à l'horizon 2030*, Paris: La Documentation française, 2014.

29. J. Bachelier and É. Tenenbaum, "Naval Combat Redux: A Renewed Challenge for Western Navies", *Éditoriaux de l'Ifri*, Ifri, January 9, 2023; A. Férey, "Par-delà le *Moskva*: La persistance du fait naval dans l'environnement stratégique", *Briefings de l'Ifri*, Ifri, July 6, 2022.

30. T. Lavernhe and F.-O. Corman, *Vaincre en mer au XXI<sup>e</sup> siècle*, Paris: Les Équateurs, 2022.

31. É. Tenenbaum, "Le rôle stratégique des forces terrestres", *Focus stratégique*, No. 78, Ifri, 2018.

into question. For example, the space domain is already facing the challenge of anti-satellite capabilities, not only from the ground but also in space itself, with the rise of space rendezvous and proximity operations (RPOs).

The cyber domain is no exception here: as France has been going full speed ahead with the digitalization of its forces, the opportunities are equaled by the risks and dangers. While the relatively early adoption of a doctrine of offensive cyberwarfare—although it was only fully declared in 2019—positions France as a full-fledged player in the domain, the very nature of cyberspace makes it difficult to conceive of any logic of operational supremacy, even if there can be an attack-defense balance, as demonstrated, once again, in the case of Ukraine.<sup>32</sup> The ability to operate in a degraded mode is a factor of resilience here, although it is essential to have the necessary training time to master a large number of skills.

Finally, the information domain, while still poorly defined, plays an important role in the high-intensity environment. At the strategic level, the importance of political support, both national and international, is obviously a key factor in success. At the tactical level, the practice of deception, intoxication, or attacking enemy morale remains an essential tool when working within a logic of economy of means, while at the same time making it possible to increase survivability through ruses and dissimulation procedures.<sup>33</sup>

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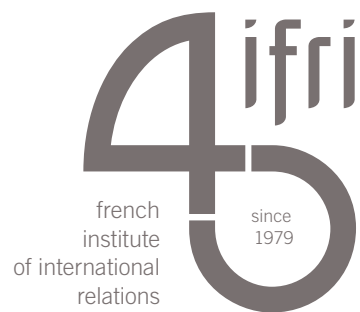
32. M. Willett, “The Cyber Dimension of the Russia-Ukraine War”, *Survival*, Vol. 64, No. 5, 2022, pp. 7–26.

33. R. Hémez, *Les Opérations de déception*, Paris: Perrin, 2022.

# Conclusion

High-intensity warfare represents a major and multifaceted challenge for the French armed forces, because it tests the limits of the current force model that was adopted at the end of the Cold War. The essential role played by nuclear weapons naturally leads the French defense community to be wary of engagement scenarios that appear to fall within the realm of major war. Nevertheless, the distinction between political intensity and capability intensity should enable strategists to anticipate configurations that fall short of the mechanism of deterrence but go beyond the crisis management that has dominated the employment of armed forces for the past three decades.

It is this delta that must be explored, testing the coherence of the French armed forces; the alternative is to risk losing credibility with allies and partners, or even being caught lacking in the field. Of course, the ability to engage in a high-intensity battlefield that may fall below the threshold of vital interests is not the sole responsibility of the armed forces. It also brings into play the moral fortitude of the nation and its ability to rise to such a challenge by accepting the price that comes with being a responsible major power and a supportive ally, a status to which France continues to aspire.



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