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BEYOND EXQUISITE: EUROPE'S DEFENCE STRATEGY IN THE ERA OF PRECISE MASS

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Introduction

Since the end of the Cold War, European defence strategies have been shaped by the emphasis on technological superiority and high-end military systems, a legacy of their reliance on exquisite, low-quantity platforms. For decades, Western powers, namely the United States, have led the world in precision strike capabilities (Horowitz & Schwartz, 2024b). However, the rapid evolution of modern warfare, characterised by the proliferation of precision-guided weapons at lower costs, is challenging the traditional model. European states are now facing a strategic dilemma: how to balance quality and quantity in military procurement and force structure, strengthening their deterrence power in the era defined by 'precise mass'. Operation Desert Storm in 1991 showcased the destructive power of precision strike technologies, with US precision-guided weapons—just 8 per cent of total bombs—causing 75 per cent of serious enemy damage (Horowitz & Schwartz, 2024a). The coalition forces delivered strikes against Iraqi forces so effectively and accurately that the conflict marked a paradigm shift, with multiple states reconsidering their modernisation efforts in terms of doctrine and capability development.

Recognising the overwhelming superiority of the US military did not deter emerging powers from seeking to counterbalance this advantage, acquiring technologies and guaranteeing an arsenal of guided stand-off weapons. Consequently, Washington increased its investments in cutting-edge technologies to procure relatively low numbers of exquisite capabilities that few countries could match (Horowitz & Schwartz, 2024a). However, the impossibility of reaching similar levels of defence expenditure led adversaries, both states and non-state actors, to adopt an asymmetric approach, focusing on mass to balance US superiority, which remained unparalleled in symmetric competition (Horowitz & Schwartz, 2024b). Over the last decade, the rapid progression of technological change has narrowed the gap between quality and quantity, notably reducing costs and making advanced systems developed for the commercial sector available to global actors at affordable prices (Horowitz, 2024).

Due to budgetary constraints and industrial strategies favouring advanced but limited platforms, European military forces have historically prioritised exquisite systems. However, as precision-guided and mass-produced weapons reshape modern warfare, European defence planners must rethink their force structures and procurement approaches, integrating attritable capabilities into their arsenals. This article explores the implications of precise mass on European security, arguing that Europe must recalibrate its defence strategy and strike the right balance between quality and quantity. It begins with an analysis of how modern warfare is increasingly characterised by the combination of accuracy and scale, especially concerning the employment of swarms of drones. Subsequently, it focuses on the implications this trend has on European states in their investment and procurement strategies, and it concludes by highlighting, from a historical perspective, the importance for European states to narrow the quantity gap with potential adversaries while preserving their technological high competitiveness.

1. The Rise of Precise Mass: The False Dichotomy Between Precision and Scale

The era of precise mass has emerged, characterised by comparatively cheap and highly accurate uncrewed systems deployed at scale (Horowitz & Schwartz, 2024b). The proliferation of precision strikes entails that the dichotomy between cheap but imprecise and expensive but precise has lost its function as a paradigm to explain investment decisions. Today, accuracy can be achieved through affordable platforms produced in large numbers and several times less expensive than exquisite weapons systems, challenging the belief that technological superiority alone guarantees success on the battlefield (Horowitz, 2024). Besides blurring the distinction between precision and scale, this paradigm shift marks the overcoming of a strict interpretation of the concepts of attritional and manoeuvre warfare. Effective but cheap drones may bypass the traditional front line and strike deep into the adversary's territory, demonstrating a form of strategic manoeuvre that disrupts logistical and industrial nodes. As the Ukrainian case has shown, these strikes may produce operational- and strategic-level effects, or tactically support a ground offensive or penetration (Kagan et al., 2024). Moreover, Iranian-backed Houthi militias in Yemen have employed drones for years to attack ships in the Red Sea, threatening global supply chains (Defense Intelligence Agency, 2024). These inexpensive, long-range aircraft were used similarly to missiles, crashing into targets to cause explosions (Ingram, 2024).

That is not to say that a small drone, such as the Iranian-made Shahed-136, extensively employed by Russia in Ukraine and worth between $10,000 and $50,000 (Horowitz, 2024), might be in any way comparable to advanced aircraft, like the $32 million US MQ-9 Reaper, originally known as Predator B (U.S. Department of Defense, 2020, p. 1-6). These platforms serve different functions, and the superior software and sensors adopted by the second, albeit more expensive, perform much more effectively than the first. However, cost disparities mean that a swarm of drones might replace a single high-end platform to achieve comparable effects (Hammes, 2014). While the swarm is made of drones that are relatively easy to shoot down, quantity ensures effectiveness, and the low cost makes these systems expandable (Kahn, 2023). Such systems do not need to be highly reliable or reusable, since it is sufficient for a few to reach the target (Hammes, 2014). Their inherent attritable nature is changing military planning. Although commanders expect their swarms to take significant losses in every operation, they are less reluctant to withstand them due to each system's limited cost and high replaceability (Freedberg, 2023; Hamilton & Ochmanek, 2020).). As a collective force, swarms might even overwhelm adversaries' technologically advanced capabilities through sheer numbers (Scharre, 2015).

Although there might be the temptation to invest in anti-electronic warfare protection, which is proving effective against swarms, cost-benefit analyses suggest that absorbing losses is more cost-efficient than attempting to protect every system (Freedberg, 2023). As an asset becomes cheaper, it can be deployed in riskier missions, guaranteeing a high return on investment (Freedberg, 2023). Moreover, these conditions of employment increase the chances for 'graceful degradation', as the loss of one of these platforms is significantly less impactful on total combat power's reduction (Kahn, 2023). In contrast, officials hesitate to deploy exquisite capabilities in high-risk scenarios due to potential losses' financial and strategic impact (Scharre, 2015).

These systems' accessibility and affordability will offer militaries room to experiment, integrating them into existing doctrines or elaborating new strategies to ensure interoperability (Kahn, 2023). These decisions will stem from the understanding that, while precision warfare can counter and complement mass, it cannot substitute it, as Michael Kofman of the Center [RC1] for Naval Analyses (CNA) clearly stated (The Economist, 2023). This revolution will result in changed production plans and an overall reconsideration of how different systems can be employed in various contexts, including changing the paradigms of power projection, thanks to their range (Hammes, 2014). The cost-exchange ratio will likely favour cheap assets to use en masse (U.S. Department of Defense, 2024).

From regional powers and their proxies in the Middle East to China, from the Russian war of aggression on Ukraine to the United States, advances in autonomous systems, combined with commercially available technologies and reduced costs, are allowing militaries and non-state combatants to reintroduce mass—one of the traditional decisive factors for the outcome of a war—to the battlefield (Kahn, 2023). While mass and precision have been regarded as substitutes for decades, if not centuries, modern technologies are collapsing the binary between quantity and sophistication (Horowitz, 2024). Accuracy, once a prerogative of exquisite weaponry, has become an attribute of much cheaper systems produced and deployed at scale (The Economist, 2023). The actual military revolution does not consist of the mere return of attritable capabilities, nor in the extraordinary advances in artificial intelligence and autonomy, but in the combination of the two (U.S. Department of Defense, 2024). Modern systems will not be limited to shaping the traditional domains of warfare, as they may populate new environments unexplored by mankind, from the depths of the oceans to outer space (Horowitz, 2024). The Russian full-scale invasion of Ukraine and the following stages of the conflict demonstrated that the war of attrition is still a concrete reality, with new technologies integrated into vehicles to inflict increased damage to the adversary (The Economist, 2023). Employing attritional unmanned vehicles for high-risk reconnaissance operations or even on suicide missions will likely constitute a central trend in future warfare (Scharre, 2015). The capacity of command structures to choose the right mix of exquisite, expensive platforms and automated, cheap, and attritable vehicles will contribute to determining the outcome of most operations. Finding this synergy will entail coordinating attacks by attritable drones, often equipped with improvised explosive devices (IEDs), to overwhelm an adversary's defence and more sophisticated, precise and decisive strikes conducted via exquisite capabilities, thus more likely to hit the primary target (Horowitz & Schwartz, 2024b). The dispersion of combat power will reveal crucial by forcing adversaries to spend more munitions to strike multiple targets (Kahn, 2023). Even if the attacks were repelled, these low-cost capabilities might saturate and exhaust the enemy's inventory of air defence missiles (Hamilton & Ochmanek, 2020). Finally, an advantage of these swarms is that they can be replenished faster than the enemy's countermeasures.

2. Europe at a Crossroads: Industrial and Technological Challenges

The return of a war of attrition should raise red flags for many European states. Before the Russian full-scale invasion of Ukraine, not only did these states fail to meet NATO's two per cent GDP target in defence spending, but they also directed significant funds towards developing promising, pioneering capabilities (Falkenek, 2024). For example, the ambitious Franco-German-Spanish Future Combat Air System (FCAS) programme was delayed by three years compared to the initial deadline, due to disagreements between the two leading companies in charge of its development (Machi, 2022). Similar issues have led to a stalemate in the Main Ground Combat System (MGCS) project, which remains in the research and design phase despite being launched in 2017 (Club Défense De L'Aege, 2023). Its extended timeline, now between 2040 and 2045, has not made it appealing to European states with urgent security needs (Ministère des Armées, 2023). Moreover, even costly projects assigned to a single company, like the Airbus' A400M military transport plane, have exceeded the allocated budget and faced severe technical issues over time, resulting in reductions in customers' initial orders (Knight, 2016; Nikolov, 2025; Reuters, 2009). On the contrary, disposable systems offer a solution to increasing costs because cheap platforms, sensors, and networks can be mass-produced, thanks to the advances in manufacturing and software (The Economist, 2023; Kahn, 2023). These characteristics make them suitable for attrition warfare, allowing for greater operational flexibility.

Reintroducing mass into the military planning of European states might reduce dependency on a few expensive assets in favour of complementary, often uncrewed, weaponry (Kahn, 2023). However, scaling up production remains a significant challenge for the EU's Defence Technological and Industrial Base (EDTIB). Already under pressure from increased demand to meet European states' new security needs (Sabatino, 2024), contemporarily undergoing a process of modernisation and renovation will likely complicate the current situation. Moreover, this will alter investment decisions and potentially require additional funds for the entire sector, which must compete with other priorities for access to relatively constrained budgets. Finally, but not surprisingly, increased coordination at the EU level would prove essential to maximise efficiency and reduce duplication, as repeatedly highlighted in the report on the Future of European Competitiveness (2024).

Small numbers of high-end weapons might not be sufficient to deliver victory anymore (Horowitz, 2024). European agencies and bodies (European Commission, 2023) have analysed the importance of large swarms of drones as a threat to counter but have since failed to develop a coherent production or procurement strategy. While the affordability of these weapons systems makes them dangerous and easily accessible to non-state actors and economically weaker states, viewing them solely as a threat to be countered is a limiting approach. As NATO allies across the Atlantic have already acknowledged, counting exclusively on cutting-edge technologies and exquisite capabilities might not always guarantee advantages in operational scenarios (Kahn, 2023). European states have reached high technological levels, but their industrial bases are still unprepared to raise production. Mostly privileging qualitative production, also due to constrained budgets, almost every EU Member State lagged in quantity (European Commission, 2024a).

3. Strategic Reassessment: From the Second Offset Strategy to the Imperatives of Precise Mass

Starting from the late 1970s, the US adopted the so-called 'second offset strategy' to counter the Soviet Union's numerical superiority in Europe (Horowitz & Schwartz, 2024b). This involved boosting investments in expensive, high-tech equipment to win the technological race and guarantee itself a deep strike capability vis-à-vis the Warsaw Pact. The Soviets recognised this new military concept's 'revolutionary potential' (Horowitz & Schwartz, 2024b). However, in the early post-Cold War age, acquiring a sophisticated precision strike capability was challenging as it involved developing or purchasing expensive and advanced systems for intelligence, surveillance, reconnaissance (ISR), and target purposes (Horowitz & Schwartz, 2024b). Generally, when states face highly advanced adversaries, the incentives for symmetrical competition decrease, as they are discouraged about the possibility of matching their capabilities (Horowitz & Schwartz, 2024a).

Although the US has maintained a clear edge over allies and adversaries since the late 1980s (Watts, 2013), other global powers, mainly Russia and China, benefitted from a strategic culture encompassing the importance of mass, high quantities of manpower and systems, in warfare (Horowitz, 2024). Knowing they could not eclipse the quality of American capabilities, many countries tried investing in more asymmetric strategies (Horowitz & Schwartz, 2024a). Contrarily, the human tragedy of World War Two and the American protective umbrella during the Cold War drove Western European policymakers to reduce defence spending and focus on developing cutting-edge weapons systems, albeit not matching US capabilities (SIPRI, n.d.). This decision stemmed from the hopes a high-intensity war would never again bring destruction to the continent and call European states to arms. The decline of great-power competition, with a new focus on smaller conflicts, counterinsurgency and counterterrorism operations, even increased the trend of developing a few very accurate platforms for targeted strikes, especially in states where civil society may pressure governments against indiscriminate attacks in densely populated zones (Horowitz, 2024). While the US decided to prioritise efficiency and accuracy over scale (Kahn, 2023), EU states seized the opportunity of the end of the Cold War to reduce their defence spending, despite a few notable projects being developed in the three decades after the fall of the Berlin Wall, like the Eurofighter Typhoon (2023) programme.

Even today, European industries struggle to produce vehicles at scale and reasonable prices (European Commission, 2024a). On the other hand, adversaries now have a greater ability to use a large quantity of relatively cheap—but precise—systems to destroy a single exquisite asset (Horowitz & Schwartz, 2024b). The financial burden is often greater for the defending force than the offensive when large-scale attacks are launched. As shown by the Iranian attack on Israel on April 13th, 2024, using million-dollar missiles to destroy one-way attack systems that cost tens of thousands of dollars or less is a losing proposition over time (Horowitz & Schwartz, 2024b). It has been estimated that Israel and its allies have spent around $1 billion to repulse almost all the 300 weapons directed against its territory, which in turn cost around $80 million (Horowitz, 2024). Consequently, even if missile defence can intercept incoming missiles and aircraft, the cost-exchange ratio favours the attacker (Scharre, 2015). Therefore, investing in disposable and more cost-effective technologies, like laser, jamming and Electromagnetic Pulse (EMP), might be the way forward (Horowitz, 2021). However, unmanned aircraft will be increasingly adopted, as they can be produced quickly to face the increasingly unstable geopolitical landscapes. For example, Ukraine has acquired the capacity to produce four million drones annually and has extensively employed them, reportedly losing thousands monthly (Horowitz & Schwartz, 2024b). This has demonstrated that quantity might be as effective as the highest quality if these swarms are operated strategically (Kahn, 2023).

While Western adversaries have already recognised the importance of precise mass and the benefits it can bring on the battlefield, several European NATO allies have only recently begun to acknowledge this reality. In line with this shift, SWARM-C3, a notable project that was selected by the European Defence Fund in 2023, aimed to “bring a radical new vision to the adoption of multi-X swarms in modern armed conflicts" (European Commission, 2024b, p. 1). Furthermore, improvements in manufacturing and the diffusion of know-how about precision guidance, as well as growth in autonomy, robotics, nano-materials, and AI, mean that the fundamentals of the precision strike strategy are available to state and non-state actors (Horowitz & Schwartz, 2024b). Additionally, nano-explosives—energetic materials that incorporate nanoscale components to enhance their explosive properties—could significantly increase the lethality of these systems, making them up to ten times more powerful than conventional explosives (Hammes, 2014, 2020). Despite potentially improving exquisite systems, autonomous technologies will mainly affect lower-cost alternatives to make them more capable. Besides finding new ways to defeat a coherent mass strategy, European militaries might have to develop their own. Investment decisions regarding procurement will have to be taken according to the decreasing cost of mass systems compared to exquisite ones' increasing price as cutting-edge technology is adopted. Moreover, modular architectures and the possibility of applying robotic kits to existing vehicles at a low cost might change how European militaries approach land forces' manoeuvres, highly impacting ground warfare (Scharre, 2015). Military strategists will thus have to question which capabilities are most useful for which purpose and on which to invest more to accomplish specific missions (Horowitz, 2024).

Conclusion

Future full-spectrum wars will likely be characterised by high-low mixes of capabilities—large, expensive, and exquisite systems will collaborate with small, cheap, numerous, and smart vehicles (U.S. Department of Defense, 2024). Facing the dangers of the precise mass era entails acknowledging a fusion of old and new paradigms: the ancient decisiveness of mass, mainly in land warfare, and the extraordinary precision of modern, high-end capabilities (Kahn & Horowitz, 2023). European states find themselves at a critical time to position in the race for developing advanced technologies with military applications and acquiring a production capacity sufficient to fill in the gap with its potential adversaries. The inefficiency of most current defence systems in contrasting mass attacks generates a structural fracture in the traditional war models. While countermeasures will evolve in the future, much will depend on the ability to develop adequate, scalable, and cheap defence systems against swarms of drones and attritable systems in general (Hammes, 2014).

This article has highlighted the growing importance of balancing mass and precision in European defence strategy as low-cost, attritable systems reshape modern warfare. European states will have to adapt their procurement decisions and develop scalable and cheap technologies in addition to their pioneering capabilities. Despite the initial, necessary, and considerable financial requirements, European policymakers may embrace the paradigms of precise mass because, when deployed at scale, these platforms provide advantages to the armed forces, especially if coordinated attacks aim to saturate enemy defences. Assessing the threats and potential of such systems and adapting investment strategies accordingly, mainly balancing technological superiority with mass production, will prove crucial to strengthen the EU and NATO conventional deterrence posture and ensure long-term operational effectiveness for European armed forces.

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