The Human Capital Crisis: The "Real Asymmetric War"[1]

The Jelly Metaphor and Systemic Vision

Strengthening Defence requires an organisational paradigm shift. To understand the scale of the problem, it is useful to use the jelly metaphor: to move a block of jelly, a strong punch (i.e., an isolated political action or a one-off funding allocation) is completely useless, as it simply goes through it without moving it. To achieve a systemic result, constant and distributed pressure across all surfaces of the problem is required. Only by integrating hardware production with the strategic development of human capital can we escape this illusion. Politicians must stop chasing media popularity and start investing in reliable industrial timelines and in people. Security is not announced; it is built.

The Discrepancy Between Narrative and Capability



Today, we face a critical scenario that represents a true "dramatic paradox": never before has there been such a convergence of vast financial resources, media attention, and strategic debate around defence issues; yet, at the same time, the system's actual operational readiness and industrial resilience appear vulnerable and constrained by structural bottlenecks.

The Defence sector is currently suffering from a dangerous disconnect between the political dimension, dominated by grand funding announcements, and the actual operational capacity delivered on the ground and within supply chains.

We must urgently correct a dual strategic underestimation:

- **The extreme rigidity and saturation of industrial supply chains and procurement processes:** high-tech supply chains require unavoidable lead times, qualified raw materials, and highly specialised suppliers.
- **The absolute centrality of the human factor:** without qualified skills to design, produce, and operate complex systems, technology remains useless.

[1] *This document outlines the presentation by Dr. Scotti di Uccio (CEO of AOS) at the workshop "Defence, Space, Energy: Who Will Design Them?", organized by INFORAV and held in Rome on 22 September at the Circolo Ufficiali Pio IX.*

Without a synergistic alignment of these two elements, every investment risks remaining a mere "empty shell". The current "Illusion of Deterrence" thus thrives on a harmful communication logic where what is said (the announcements) has become more important than what is actually done.

Case Studies of Misleading Announcements: The Patriot and Aster Cases

The gap between political rhetoric and manufacturing reality is not merely a theoretical issue, but a critical operational risk created by misleading announcements that promise immediate results while ignoring industrial constraints:

- **Patriot Systems and the Ukraine case:** Recently, President Zelensky expressed his belief that the agreement obtained from "Donald" to grant licenses for manufacturing Patriot interceptors directly in Ukraine could immediately solve the air defence deficit. This is a technical illusion: granting a license does not magically shorten the setup and certification times of production lines, nor does it guarantee the immediate availability of critical components further up the supply chain.

- **Aster Missiles and European misalignment:** Years ago, a conversation with a Member of the European Parliament revealed a similar systemic shortsightedness. The MEP was convinced that, having approved the production of thousands of Aster missiles for SAMP/T systems, the EU air-space protection issue was solved "instantly". He was unaware that only now, years later, are production lines slowly increasing their output rates.

The structural bottlenecks that politicians continue to ignore are:

- **Supply chain management:** Coordinating hundreds of specialised suppliers for a single missile/vector.

- **Assembly complexity:** Non-linear technical processes that do not bend to the speed of press releases.

- **Output rate uncertainty:** The impossibility of accelerating production without long-term industrial planning.

Nevertheless, politicians continue to yield to the temptation of grand announcements simply to please public opinion and gain immediate approval. This is a shortsighted strategy that mistakes perception for reality, exposing the entire system to severe risks regarding its strategic stability when real need arises.

The Human Capital Crisis: The "Real Asymmetric War"

The dominant narrative in politics and the media focuses almost exclusively on the opening of new plants, announcing the doubling or ten-fold increase of production rates. However, this vision forgets a basic principle: **it takes people to get things done**. Factories do not run by themselves; advanced machines and systems require educated, trained, and well-prepared individuals. Today, the stark reality is that these professionals, whether system engineers, specialised technicians, or high-precision workers, are simply missing from the job market.

The Asymmetry Between Authoritarian Regimes and Western Democracies

In countries with totalitarian or autocratic regimes, it is relatively simple to reorganise the industrial apparatus overnight: the State can authoritatively impose an immediate shift from one to three work

shifts, convert the production of entire private companies, forcibly recruit labour, and ignore the economic and social costs of the transition.

In our Western world, built on free markets, labour rights, and individual guarantees, dynamics are radically different. This creates a critical phase that requires our utmost attention: we cannot replicate the coercion of totalitarian regimes, so we must leverage organizational efficiency, attractiveness, and the strategic value of our human resources.

The Competition for STEM Talent

Modern defence is not merely a collection of platforms and hardware, but a complex ecosystem of skills. We are in the middle of a "real asymmetric war" for STEM talent (Science, Technology, Engineering, Mathematics), where the Defence sector and high-tech manufacturing industry, both public and private, are not fighting foreign armies, but competing directly with Big Tech giants (Google, Microsoft, Amazon).

This is a dramatically unfair battle: tech multinationals monopolise software engineers, cybersecurity experts, and AI specialists by offering salary packages, benefits, operational flexibility, and working environments that the public sector and traditional industry simply cannot match.

The result of this gap is an unprecedented **Retention Emergency**: the Armed Forces, research centres, and Defence industries face critical resignation and rejection rates because they are unable to offer career paths that compete with Silicon Valley standards. If we do not quickly reverse this trend, even the most sophisticated weapons systems will remain unusable for lack of professionals capable of designing, updating, and operating them.

Management and Strategic Levers: A Holistic Roadmap

To transform defence from an "illusory" cost centre into a real operational asset, it is essential to adopt a holistic approach based on two key pillars:

Agile Productive Ecosystem

While this topic is widely discussed, we must move towards actual implementation by reducing dependence on prime contractors, directly funding base supply chains, and establishing binding multi-year contracts.

Human Capital Reform (The Real Strategic Counter-Offensive)

This is by far the most important pillar, yet surprisingly, very few people talk about it. We must stop treating technicians and specialists as mere figures on a balance sheet or operational costs to be contained, and start treating them as the nation's primary strategic resource.

To achieve this, deep action is needed on two fronts:

A. Overhaul of Education and Training Paths
It is necessary to update and rethink staff training methods from primary school through to university and military higher education. We can no longer focus on rote learning; instead, we must develop:

- **Critical and systemic analysis skills:** The ability to synthesise and evaluate complex, fragmented information.
- **Verification and cross-checking of sources:** The ability to navigate the era of disinformation and information overload.

- **Handling the unexpected and Lessons Learned:** An aptitude for dealing with new scenarios through guided analysis of past experiences and lessons learned from complementary operational contexts.

- **Governance of Artificial Intelligence:** AI represents an extraordinary force multiplier, but it requires human operators who are properly prepared to manage it, question it, and validate its results, avoiding over-reliance on automated processes.

B. Radical Attraction and Retention Strategies
We must extend the attraction tools typical of the most dynamic sectors to public administrations and traditional strategic industries:

- **STEM Tax Incentives:** Targeted and exclusive tax relief for highly specialized professionals who choose to serve in the Defence and national security sector.

- **Tech-Style Bonuses:** Introduction of advanced financial incentive mechanisms (such as state stock options, performance bonuses, and merit-based pay) modeled on high-tech industry standards.

- **Flexible Reserves:** Creation of on-demand service models allowing top private-sector talent to alternate between periods of working in Big Tech companies and periods of employment in military or strategic state structures.

- **Social and Value Planning:** Development of dedicated welfare packages, combined with clear career paths and social recognition of technical and scientific roles.

In the final analysis, any defence doctrine or deterrence strategy is bound to fail if it neglects its most fundamental element: **the human factor**. The most advanced technology, sophisticated platforms, and substantial budget allocations remain static assets without the expertise, intellect, and drive of the individuals tasked with designing, manufacturing, and operating them. True national security requires a primary commitment to people—prioritizing their professional development and establishing frameworks to cultivate and retain key talent. Deprived of a strong human capital foundation, strategic deterrence is reduced to an unreliable and costly illusion.

Strategic Imperative: Placing People at the Core of Security