ST.GALLEN SYMPOSIUM

Global Essay Competition 2026

Title: The Grey Shield: Turning Europe's Ageing Crisis into Defence

Essay:

The Triple Collision

On the 22nd September 2025, two drones flew around Copenhagen Airport for almost 4 hours disrupting one of Europe's most busy airports: 109 flights canceled, 51 diverted and over 20,000 passengers stranded. Denmark's Prime Minister, Mette Frederiksen called this "the most serious attack on critical infrastructure" in the history of Denmark. However, Copenhagen Airport was just one of several nodes targeted by Russia in a series of hybrid attacks. The number of hybrid attacks has nearly tripled (from 12 in 2023) to 34 in 2024 and within weeks similar disruptions had occurred at Munich Airport, Brussels Airport, Oslo Airport and Berlin Brandenburg Airport [1, 2]. The Lithuanian government declared a state of emergency due to the closure of Vilnius Airport for over 60 hours caused by 623 contraband balloons flown into the area by Belarus [3, 4]. In addition, Germany reported over 1,000 suspicious drone sightings in 2025 with 45% occurring during evening hours — indicating possible coordination among groups for reconnaissance purposes [5].

The impact of these technological disruptions is also being compounded by a demographic crisis. Those countries which have borne the greatest burden in terms of their security efforts — the three Baltic States — are experiencing the fastest population declines in all of Europe. Latvia's rate of population decline in 2024 was the largest in the EU (-9.9 per 1,000); and the population of Estonia declined by 4,692 to less than 1.37 million [6, 7]. A warning by the European Commission's Joint Research Centre indicates that if participation rates do not improve, the workforce will be reduced by 42.8 million by 2070 or 20.2 percent [8]. As of 2023, the defense industry provided 581,000 EU jobs with job postings 41 percent higher than those of 2021, but 82 percent of German employers already report difficulty finding qualified applicants [9, 10]. The Commission has set a goal to train 600,000 new workers for defence by 2030 — but where can they come from given the shrinking labor pool?

In 2024, the EU spent $343 billion on defence — a 62.9 percent increase from 2020. The German government has allocated $100 million for counter-drone technology and $490 million for MBDA DefendAir missiles [11, 12]. Following ten incidents of drones near Belgian airfields in eight days, the government there announced $500 million in emergency funding for drone defence [13]. Sweden has moved forward its counter-drone program by eight years [14]. However, using $125,000 interceptor systems to defend against $500 drones is mathematically unsustainable — defenders spend 250 times more per engagement than attackers. Procurement methods based on traditional purchasing practices will not be able to resolve the basic economic problem that is being masked as a military issue.

The Ukrainian Proof of Concept

As European capitals continue to debate procurement processes, Ukraine has been conducting the world's largest experiment in decentralized defence manufacturing. The VARTA DroneHunter can be purchased for €500-800 and includes a thermal imaging system, increased range, and a fragmentation charge. These First-Person View (FPV) interceptors consistently destroy targets worth €10,000-300,000 — achieving a 40:1 cost ratio [15]. Wild Hornets Sting interceptors are produced daily in quantities of 100 using consumer-grade printers. Skyfall's factory produces one UAV every 23 seconds — up to 4,000 daily. The DrukArmy volunteer network, comprised of thousands of printers located in apartments and workshops across Ukraine, produced 277 tons of 3D-printed products (11 million units) in 2024 [16, 17]. Battlefield-to-production design improvements occur in days.

However, the transferability of this model to peacetime Europe involves an honest assessment. Ukraine operates under an existential threat resulting in the requisite social mobilization, regulatory flexibility, and risk tolerance that peacetime democracies cannot replicate. While quality control issues exist in decentralized manufacturing, the same issues exist in other forms of decentralized manufacturing. Supply chain dependence is still significant: over 60% of drone components are manufactured in China; specifically, mini brushless motors used in drone manufacturing are made exclusively by Chinese manufacturers [18]. Creating European alternatives would require an estimated €100-200 million in investment and 3-5 years of research and development.

Comparative Models: Israel and Singapore

Israel illustrates effective civil-military technology collaboration by way of "tight relationships" between users (such as the Israeli Defence Forces) and the defence industries they use [19, 20]. These close relationships enable continuous development and rapid iterations in technologies that are used to defend Israel. The Israel Innovation Authority works to connect commercial innovation in the civilian sector to the defence sector. University researchers also serve as consultants, collaborate with the IDF on defence-related research projects, and have contributed to the IDF in their Reserve duty roles. Combat-based feedback enables the acceleration of these developments and Israeli developed weapons systems often undergo many years of extensive combat based testing before they are available to be seen.

The Total Defence concept of Singapore provides an example of how to structure the role of civilians within a national defence strategy. This is a 6-pillar framework that includes: military, civilian, economic, social, digital, and psychological defence, which was first established in 1984 and has been growing since then [21, 22]. In this total defence framework, all citizens are treated as contributors to the security of the nation, rather than as recipients of security provided by the state. Singapore's National Service system serves as a large reservoir of operationally ready reservists; over 80% of the armed services of Singapore comprise some form of volunteer reservist.

Neither model can be directly applied to Europe. Israel's method of integrating technology is predicated on a draft and an environment where there is frequent exposure to high intensity conflict;

similarly, Singapore's model relies on centralized government authority to implement its Total Defence concept; therefore, neither model will be directly applicable to the 27 different countries in the European Union. Therefore, Europe needs a new model for rapidly scalable, voluntary engagement from a wide range of stakeholders who are willing to support the military if the threat level rises to the point that it requires such support; and this model needs to be consistent with the democratic values of the 27 different countries in the European Union.

The Proposal: European Citizen Defence Network

I am proposing a European Citizen Defence Network that will combine elements of Ukraine's distributed manufacturing model, Israel's civil-military integration and Singaporean citizen participation, adapted for the democratic environment of Europe. The key to this is to view demographic weaknesses as strategic strengths once they have been transformed. Europe has approximately 130 million people in the age range of 55-80 years old, many of whom possess the technical expertise from their previous careers in manufacturing and engineering. The forum on population Europe's noted that increased defence expenditure competes directly with health care and pension funding within ageing populations [23]. Distributed manufacturing allows for resources to be used beyond the typical budgetary constraints by utilizing the existing resources available to society.

The technological architecture of the proposed network utilizes the existing infrastructure. Recycled PETG filament retains 95% of the mechanical properties of virgin material; many European companies such as Prusament, Reflow and Kimya/ ARMOR manufacture aerospace qualified recycled filaments. For example, a 3D printed drone structure can cost between €1-€5 whereas a traditional carbon fiber drone structure can cost between €20-€100. Break even analyses indicate that additive manufacturing can be cost effective for volumes less than 5,000-10,000 units. UltiMaker's Secure Line printers, which provide air-gapped operation, are being utilized by the Royal Netherlands Navy. The European counter-drone market is forecast to increase from €737 million in 2024 to €3.3 billion by 2030 [24-26].

DARPA's OFFSET program demonstrated how a single operator was able to control 130-174 drones simultaneously using gesture based interfaces with an average accuracy of 99.75% [27]. These gesture based interfaces allow older operators to control defensive swarms with minimal physical demand traditionally associated with military service. Therefore, a 65 year old retired engineer who is observing drone feeds can contribute to a defence system with as much effectiveness as a 25 year old soldier — possibly more so due to the accumulation of experience and judgment.

Mechanisms for financing this concept align with the idea. The European Defence Fund provided €1.065 billion in 2025 with counter-drone systems as a priority. The European Drone Defence Initiative will launch in Q1 2026. The SAFE instrument provides €150 billion in loans where there is a 65% requirement of European content — essentially mandating European produced networks [28, 29].

Implementation Roadmap

Phase 1 (2026-2027) will establish 50 certified production nodes across 5 municipalities in the Baltic and Poland and train 2,500 operators. Goal: 5,000 interceptor frames with 90% quality compliance. Investment: €30 million from EDF pilot programs.

Phase 2 (2027-2028) will develop standardized specifications through the PESCO Counter-UAS framework. The network will expand to 250 nodes across 15 member states. The integration with national civil defence organizations — Germany's THW, providing an organizational template with 80,000 volunteers — will also take place. Operator training will expand to 15,000 operators, including 5,000 retirees. Goal: 25,000 units annually, 50% European components. Investment: €50 million.

Phase 3 (2028-2030): Achieve full capability: 1,000 nodes across participating countries, integration with European Drone Defence Initiative command structures, regional assembly hubs, 50,000 certified operators. Goal: 100,000 units annually at 65% European components, cost below €500 per unit. Investment: €70 million. Total five year investment: €150 million — less than 1,200 conventional interceptors.

Critical success metrics: Unit cost (Target: €300-€500); Quality compliance (>95%); Ratio of European components (>65% by Phase 3); Design-to-production time (<7 days); Operator retention (>80%).

Addressing Objections

Security concerns: Distributed networks create additional areas of potential attack vectors; however the nature of the model is inherently resilient. It would be impossible to damage a single factory that exists in 1000 different nodes by using precision attacks on each node. The experience of Ukraine shows us that when you have distributed production systems that continue to produce goods while being attacked with conventional military tactics (such as artillery), it is still possible to produce goods during those attacks. Blockchain based authentication can ensure product quality verification through a process that does not require centralized authority.

Concerns about autonomous weapon use: The EU has banned funding for 'autonomous lethal weapons that do not include meaningful human involvement' [29]. Because counter-drone uses platforms as targets rather than people, there is a great deal of latitude afforded to these types of applications in terms of regulation. A compliant architecture will allow for human input in determining what actions should be taken regarding an engagement decision while allowing autonomous functions to detect threats.

Finally, some feel that defence production systems create unacceptable levels of militarization within society. Hybrid warfare has been used to systematically attack civil society, and many of the measures used by European countries to defend themselves against such threats, including drone-based defence systems, demonstrate this fact. Interior Minister of Germany's description of the threat they face at the opening of the Joint Drone Defence Center illustrates the reality facing Europe: "We are not at war, but there is no peace" [30]. This gray area represents Europe's near term future.

Conclusion: Democratic Resilience

The real value lies in more than just counter-drone technology alone. At issue is whether democracies can collectively defend themselves without duplicating authoritarian adversary centralized hierarchies of command and control. Ukraine shows how they may be able to do so — perhaps they have no choice but to do so. Democratic advantages include distributed manufacturing; citizen involvement; and rapid development/implementation cycles — advantages that authoritarian regimes are less likely to be able to duplicate.

From a psychological perspective, when an aging population has been constantly told that it is a burden on society — and now the community comes together for the benefit of the community — communities with declining industries now find renewed purpose. A key demographic is also being reached through the sustainability messaging — recycled materials; local production; reduced carbon footprint — which appeals to constituents who are skeptical about military spending.

Democracies' enemies believe that democracies are too slow; too fractured; and too comfortable to make the adjustments needed in order to keep pace. That was clearly disproven by Ukraine's success in the most difficult of circumstances. Now, Europe must choose whether to follow Ukraine's lead in this regard or to continue to defend "€500 threats" using "€125,000 solutions" until the math does not add up. There exists a realistic pathway to progress given the combination of critical capability gaps; unprecedented levels of funding; and battle-tested technologies. The window will not remain open indefinitely.

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Word Count (essay text only): (2086/2100)