

From list-based control to conditional dual-use: firearms, the Wassenaar Arrangement, and the reform of strategic trade control

Narek Nersisyan *

Abstract

This article analyzes a central problem in international firearms export control: the limitations of nominal and list-based distinctions between military and civilian firearms. Although the Wassenaar Arrangement seeks to promote responsible transfers of conventional arms and dual-use goods and technologies and prevent destabilizing accumulations, no single nominal or universally applicable legal boundary reliably captures the material and security significance of modern firearms, particularly where technological convergence narrows the distinction between civilian and military configurations. Civilian, sporting, and hunting designations do not always reflect a firearm's material and technical characteristics, functional capabilities, or potential applications. The article argues that firearms export control should incorporate material, technical, functional, and risk-based criteria and proposes a two-stage regulatory model. At the first stage, firearms outside the exclusively combat-grade category would receive provisional conditional dual-use status at the threshold of export or international transfer. This status would not determine the firearm's final classification but would require an assessment of its firing mode, convertibility, compatibility with analogous military systems, ammunition ecosystem, and ballistic potential. At the second stage, export authorization would depend on a transaction-specific licensing assessment considering the supply chain, end use, end user, diversion risk, the recipient state's security environment, the effectiveness of end-use controls, transparent re-export restrictions, institutional

* Narek Nersisyan is a legal professional and researcher specializing in military law, strategic trade control, defense and security policy, as well as civil and labor law. With both legal and military education and professional experience in the defense sector, his work has included participation in the drafting and submission of draft normative legal acts in the fields of circulation of military-purpose products, civil protection, migration, and related security issues. Professional experience also includes cooperation with public institutions and international organizations. He has authored several dozen articles published in Armenian and international periodicals on legal, defense, security, and related policy issues.

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accountability, and legitimate defensive needs, including considerations relating to self-defense, civil preparedness, and Total Defense. The article concludes that routine updates to the Wassenaar lists may be insufficient and proposes combining provisional conditional dual-use status and material and functional classification with a separate transaction-specific licensing assessment.

Keywords

Wassenaar Arrangement; firearms export control; strategic trade control; conditional dual-use; transaction-specific licensing assessment; end-use control; diversion risk; Total Defense.

1. Introduction

Within the contemporary international security architecture, the Wassenaar Arrangement, established in 1996, plays a significant role as a multilateral export-control regime. One of its principal objectives is to promote transparency and greater responsibility in transfers of conventional arms and dual-use goods and technologies, thereby helping to prevent destabilizing accumulations.¹ Nevertheless, within the domain of firearms regulation, this global objective has begun to encounter a doctrinal obstacle: the legal differentiation between military and civilian firearms is frequently predicated not upon objective material and technical characteristics, but rather upon a regulatory logic that is nominal, descriptive, or rigidly list-based.

Technological advancement and component modularity are progressively diminishing the substantive reliability of purely formal classifications.² Specifically, in the context of exporting civilian modular platforms and their interchangeable components, technological convergence demonstrates that nominal labels such as *sporting* or *hunting* are no longer sufficient within the realm of firearms circulation to assess the material and technical structure, functional capabilities, and actual applicability of a given weapon from an export control perspective.

Existing scholarship on the international circulation of firearms has not fully examined the relationship between formal legal classification, technical characteristics, functional capabilities, potential uses, and export-control risks. This situation is of pivotal significance not only for the effectiveness of export controls but also for the preservation of lawful civilian and defensive capabilities. On the one hand, export controls must

¹ “Introduction to the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies,” About us, Wassenaar Arrangement, accessed April 26, 2026, <<https://www.wassenaar.org/about-us/>>; U.S. Defense Technical Information Center, *Export Controls: Conventional Arms and Dual-Use Technologies*, accessed April 26, 2026, <<https://apps.dtic.mil/sti/tr/pdf/ADA394376.pdf>>.

² United Nations Office for Disarmament Affairs, “Chair’s Summary: First Meeting of the Open-Ended Technical Expert Group on Developments in Small Arms and Light Weapons Manufacturing, Technology and Design,” Advanced unedited version (2026), paras. 8, 10, 22, 25, <[https://docs-library.unoda.org/Programme_of_Action_on_Small_Arms_and_Light_Weapons_-__\(2026\)/Final_OETEG_Chair_Summary_unedited_0.pdf](https://docs-library.unoda.org/Programme_of_Action_on_Small_Arms_and_Light_Weapons_-__(2026)/Final_OETEG_Chair_Summary_unedited_0.pdf)>; N.R. Jenzen-Jones and Matt Schroeder, eds., *An Introductory Guide to the Identification of Small Arms, Light Weapons, and Associated Ammunition* (Geneva: Small Arms Survey, 2018), p. 28, <<https://www.smallarmssurvey.org/sites/default/files/SAS-HB-06-Weapons-ID-Guide-Full.pdf>>; see Amnesty International, “New Weapons Fuelling the Sudan Conflict: Expanding Existing Arms Embargo Across Sudan to Protect Civilians,” (London: Amnesty International, 2024), pp. 4, 12–14, 17–22, 36, <https://www.amnesty.org/en/wp-content/uploads/2024/07/AFR5482522024_SudanArmsEmbargo_EN.pdf>.

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prevent export risks associated with firearms that hold a civilian classification but possess dual-use applicability based on their material attributes. On the other hand, they should not mechanically undermine the lawful civilian and defensive capacities tied to self-defense, public security culture, and the defense posture of the state. As L. Lustgarten observes, legal and international relations literature on the international arms trade remains severely limited.³

At the same time, an examination of the existing literature demonstrates that discussions concerning international firearms transfers predominantly focus on the general mechanisms of export licensing, end-user verification, and diversion control.⁴ Analysis of other technological sectors regulated under the Wassenaar Arrangement indicates that, in the context of emerging technologies, purely list-based and definitional approaches may generate legal uncertainty and substantial implementation challenges.⁵ This article employs doctrinal-comparative legal analysis and develops a normative regulatory proposal. The United States (US), the European Union (EU), and the United Kingdom (UK) were selected because they illustrate distinct regulatory responses that have developed within, alongside, or beyond the Wassenaar framework, including differentiated treatment of firearms and transaction-specific risk assessment. The comparison is not intended to assume that these jurisdictions validate the proposed model; rather, it is used to identify where the proposed relationships have functional analogues in existing systems, where they diverge, and which elements remain novel and require further study. The analysis draws on doctrinal and administrative practices, export lists, licensing guidelines, regulatory acts, and relevant scholarship. Proportionality functions as a principle of regulatory design, guiding the balance between security risks and legitimate civilian or defensive interests rather than as an empirical measure of regulatory effectiveness. This avoids treating export control as a zero-sum contest between humanitarian norms and state interests and seeks to reconcile international security obligations with legitimate requirements of national

³ Laurence Lustgarten, *Law and the Arms Trade: Weapons, Blood and Rules* (Oxford: Hart Publishing, 2020), p. 2.

⁴ Zeynep Kologlu, “The Arms Trade Treaty,” in *Arms Trafficking*, ed. Gian Ege, Christian Schwarzenegger and Monika Stempkowski, (Berlin and Bern: Carl Grossmann, 2022), p. 124, https://www.ius.uzh.ch/dam/jcr:6b191a36-83b9-4be1-97f1-fcd73ca1f99a/Kologlu_The%20Arms%20Trade%20Treaty.pdf; see also Jennifer L. Erickson, *Leading by Example: Strategic State Behavior and the Global Arms Trade* (Chicago: University of Chicago Press, 2015).

⁵ Scott A. Jones, “Trading Emerging Technologies: Export Controls Meet Reality,” *Security and Human Rights*, Vol. 31 (2021), p. 1; Jukka Ruohonen and Kai K. Kimppa, “Updating the Wassenaar Debate Once Again: Surveillance, Intrusion Software, and Ambiguity,” *Journal of Information Technology & Politics* (May 2019), pp. 2–4, 6–7.

defense posture. On that basis, doctrinal and comparative analysis informs the article's normative proposal. The article does not seek to demonstrate empirically that the proposed model is more effective than all existing alternatives.⁶ To achieve these objectives, the article will first elucidate the existing international concepts and regulatory levels governing the circulation of firearms (Section 2). It will then examine the objective of the Wassenaar Arrangement and the limitations of nominal, list-based classification (Section 3). Following this, it will formulate the material criteria for firearms differentiation and analyze comparative regulatory approaches in the US, the UK, and the EU (Section 4). Based on this analytical and comparative foundation, the article will propose a new reform model centered on conditional dual-use status and transaction-specific licensing assessment, incorporating the roles of Article 51 of the UN Charter and Total Defense (Section 5), before presenting its final conclusions (Section 6).

2. Existing international concepts and regulatory levels

To comprehend the contemporary challenges of firearms export control, it is first necessary to delineate the principal regulatory categories and concepts applied at the international, regional, and domestic levels.

- Customs classification (HS, CN, and TARIC codes): These nomenclatures are used primarily for customs-tariff, commercial, and statistical purposes. They identify products within the context of economic activity and do not inherently incorporate an assessment of security risks or military applicability.⁷
- Multilateral export control regimes (e.g., the Wassenaar Arrangement): These regimes establish agreed-upon control lists for military and dual-use goods. However, they generally lack direct legally binding force and require domestic implementation to become applicable.⁸

⁶ Mark Bromley, "The EU Dual-use Regulation, cyber-surveillance and human rights: the competing norms and organised hypocrisy of EU export controls," *Defence Studies*, Vol. 23, No. 4 (2023), pp. 644-646.

⁷ "About Customs Rules and Standards," World Customs Organization, accessed September 22, 2026, <<https://www.wcotradetools.org/en/about-customs-rules-and-standards>>; Council Regulation (EEC) No 2658/87 of 23 July 1987 on the tariff and statistical nomenclature and on the Common Customs Tariff, Official Journal of the European Communities L 256 (1987), art. 1.

⁸ See Kolja Brockmann, "The System of Multilateral Export Control Regimes," in *Challenges to Multilateral Export Controls* (Stockholm International Peace Research Institute, 2019); Jukka Ruohonen and Kai K. Kimppa, "Updating the Wassenaar Debate

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- National and regional export-control frameworks (e.g., the EU military-export framework and the US ITAR and EAR regimes): These are legally binding frameworks that regulate exports through licensing, prohibitions, general authorizations, license exceptions, and other control measures. Depending on the applicable rules, export decisions may take into account the item's classification, end use, end user, country of destination, and the risks of unauthorized re-export and diversion.⁹
- Domestic firearms regulation: National laws govern the acquisition, possession, carrying, and use of civilian firearms, as well as the conduct of corresponding activities within the sovereign territory of a state, predicated upon the interests of public security, lawful self-defense, and civil preparedness.

Before proceeding further, it is important to clarify that, although the Arms Trade Treaty (ATT) and the framework proposed in this article overlap in areas such as end use, end user, diversion, and transfer-related risk assessment, the proposed framework is not presented as a supplement to, duplication of, or substitute for the ATT. It advances a distinct regulatory approach based on material and functional classification and a contextually integrated conditional dual-use assessment, whereas the ATT establishes treaty-based prohibitions and transaction-specific export assessment obligations for States Parties. The two approaches may intersect at the level of end use and risk assessment, but they differ substantially in legal function, structure, and analytical logic. The ATT establishes a legally binding framework for controlling international arms transfers and requires States Parties to maintain national control systems and assess the risks of proposed exports. It does not, however, establish firearm-specific material and functional criteria, such as firing mode, convertibility, interoperability, ammunition ecosystem, or ballistic potential, for determining how firearms described as sporting or hunting should be classified before that transfer risk assessment takes place. This article addresses the earlier classification problem, which is not comprehensively or consistently addressed at the international level, and proposes new principles for regulation under international law. The ATT is therefore relevant to the broader legal context of international arms

Once Again: Surveillance, Intrusion Software, and Ambiguity,” *Journal of Information Technology & Politics* (May 2019), pp. 2–4, 6–7.

⁹ Council Common Position 2008/944/CFSP of 8 December 2008 defining common rules governing control of exports of military technology and equipment, *Official Journal of the European Union*, L 335 (2008), pp. 99-103; U.S. Code of Federal Regulations, Title 22, Chapter I, Subchapter M (ITAR) and Title 15, Chapter VII, Subchapter C (EAR).

transfers, but a separate analysis of its transfer authorization framework falls outside the specific scope of this article.

Having delineated these regulatory levels, it is equally crucial to distinguish the specific control categories applied to the items themselves within international and regional agreements. The objective of this differentiation is also to elucidate how the mechanical conflation of these concepts and regulatory regimes in practice diminishes the efficacy of oversight and engenders legal uncertainty, thereby complicating the measurable delineation of control regimes. Thus, predicated on current international practice, it is necessary to classify the following categories of control:

- Military items (Munitions List, ML): This category encompasses weapons, armaments, components, and related equipment included in military control lists by virtue of their design, technical characteristics, or nexus to military application.¹⁰
- Dual-use goods: Products designed for civilian purposes that, nevertheless, can be utilized or converted for military application. In this instance, the focal point of control is not solely the formal designation of the item, but also its potential end use, the end user, the country of destination, and the risk of its application for military or security purposes.¹¹
- Civilian, sporting, and hunting firearms: Under existing regulations, these categories are frequently differentiated from controlled military items or are subject to separate legal regulation, predicated upon the interests of lawful civilian use, hunting, sports shooting, and self-defense.¹²

3. The objective of the Wassenaar Arrangement and the problem of list-based classification

As noted in the introduction, one of the primary objectives of the Wassenaar Arrangement is to promote international and regional security through transparency and responsible transfers, as well as to prevent the

¹⁰ The Wassenaar Arrangement, *List of Dual-Use Goods and Technologies and Munitions List*, 2025, p. 181, <<https://www.wassenaar.org/app/uploads/2026/01/List-of-Dual-Use-Goods-and-Technologies-and-ML-2025-Corr.pdf>>.

¹¹ The Wassenaar Arrangement, *List of Dual-Use Goods and Technologies and Munitions List*, pp. 4–157 (Categories 1–9).

¹² Protocol against the Illicit Manufacturing of and Trafficking in Firearms, Their Parts and Components and Ammunition, supplementing the United Nations Convention against Transnational Organized Crime, arts. 4 and 10; Directive (EU) 2021/555 of the European Parliament and of the Council of 24 March 2021 on control of the acquisition and possession of weapons (codification), Official Journal of the European Union L 115 (April 6, 2021), pp. 1–25.

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destabilizing accumulation of conventional arms and dual-use goods and technologies.¹³ The Wassenaar system is anchored on two primary control lists: the Munitions List (ML) and the Dual-Use List.¹⁴

The Wassenaar framework, however, is not limited to those lists. Its Best Practice Guidelines for Exports of Small Arms and Light Weapons already call on Participating States to consider the circumstances of the recipient country and its region, legitimate security and defense needs, the right of individual or collective self-defense under Article 51 of the UN Charter, human rights, diversion and re-export risks, exports to nongovernmental recipients, and stockpile management and security. The innovation proposed in this article therefore does not lie in introducing transaction-specific SALW risk criteria for the first time. It lies in adding a prior material and functional classification layer: firearms outside the exclusively combat-grade category would first receive provisional conditional dual-use status and undergo material and functional assessment to determine their final classification and the applicable licensing regime.

Nevertheless, in the context of firearms, this list-based classification is not always sufficient to assess the material, technical and functional applicability of a given item. This issue is particularly manifest in instances where a firearm classified under a hunting or sporting designation—by virtue of its structural characteristics, component interchangeability, and ammunition compatibility—may approximate an application that necessitates supplementary material assessment during the export control phase.¹⁵

Current list-based classification is typically predicated upon an item's nomenclature, technical description, design purpose, or predefined attributes. Such an approach is practically viable from an administrative perspective, as it facilitates the harmonization of the scope of controlled items. However, in the context of firearms, it does not always reveal the comprehensive regulatory significance of a given item. A firearm, its component, receiver, modular platform, or ammunition ecosystem falling

¹³ The Wassenaar Arrangement, *Initial Elements* (1996, as amended), Section I: Purposes.

¹⁴ The Wassenaar Arrangement, *List of Dual-Use Goods and Technologies and Munitions List*; Wassenaar Arrangement, *Best Practice Guidelines for Exports of Small Arms and Light Weapons (SALW)*, agreed at the 2002 Plenary and amended at the 2007 and 2019 Plenaries.

¹⁵ See Wassenaar Arrangement, *List of Dual-Use Goods and Technologies and Munitions List 2025* (corrected version), Munitions List, ML1–ML2, 181–183, <<https://www.wassenaar.org/app/uploads/2026/01/List-of-Dual-Use-Goods-and-Technologies-and-ML-2025-Corr.pdf>>; for a comparative U.S. approach, see U.S. Department of Commerce, Bureau of Industry and Security, "Control of Firearms, Guns, Ammunition and Related Articles the President Determines No Longer Warrant Control Under the United States Munitions List (USML)," *Federal Register* 85, no. 13 (January 23, 2020), pp. 4136–4188; see also EAR ECCNs 0A501, 0A502, 0A505.

under the same nomenclature or civilian (hunting or sporting) status can, in reality, acquire varying significance depending on its structure, convertibility, compatibility, the end user, and the security environment.¹⁶

Thus, an AR-style modular platform may be presented in the market or in documentation as a civilian (hunting or sporting) firearm; however, its material assessment must also be conducted in comparison to firearms included in the ML, with which it may be comparable in terms of structure, component interchangeability, ammunition environment, and material and technical attributes. The broader nature of this problem is also reflected in a recent investigation by Amnesty International into the Sudan conflict, which does not focus specifically on AR-style platforms but documents comparable classification issues across several firearm types. The organization documented BRG M4-pattern rifles exported as “sporting rifles,” R56 rifles categorized as “other sports, hunting or target rifles” despite their automatic-fire capability, and civilian variants of Tigr and Saiga-MK rifles exported as hunting firearms and documented in use by parties to the conflict.¹⁷ These examples demonstrate that an item’s nomenclature or civilian (hunting or sporting) labeling is insufficient; what becomes decisive is the material and technical comparability of the platform with systems already treated as controlled military items.

The Sudan examples are used illustratively rather than as proof that nominal firearm classifications systematically cause diversion or that the Wassenaar architecture is structurally inadequate in all jurisdictions. The broader argument rests on the cumulative picture developed in this article: technological convergence and modularity, differentiated national and regional regulatory responses, the ATT’s distinct transaction-specific framework, and “Wassenaar minus one” approaches operating outside or alongside the consensus framework. Taken together, these factors indicate that nominal and list-based classification alone is no longer sufficient for the contemporary security, technological, and legal environment. The conditional dual-use model is therefore advanced as a normative response whose comparative effectiveness remains open to further empirical evaluation.

¹⁶ See Wassenaar Arrangement, *List of Dual-Use Goods and Technologies and Munitions List 2025* (corrected version), Munitions List, ML1–ML2, 181–183; for a comparative U.S. approach, see U.S. Department of Commerce, Bureau of Industry and Security, “Control of Firearms, Guns, Ammunition and Related Articles the President Determines No Longer Warrant Control Under the United States Munitions List (USML),” Federal Register 85, no. 13; see also EAR ECCNs 0A501, 0A502, 0A505.

¹⁷ Amnesty International, *New Weapons Fuelling the Sudan Conflict: Expanding Existing Arms Embargo across Sudan to Protect Civilians*, AFR 54/8252/2024 (London: Amnesty International, July 2024), p. 16, <https://www.amnesty.org/en/wp-content/uploads/2024/07/AFR5482522024_SudanArmsEmbargo_EN.pdf>.

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The efficacy of the control system encounters further complications due to the consensus-based decision-making mechanism of the WA, as the updating of lists is contingent upon the unanimous agreement of all participating states. In the context of the rapid development of emerging technologies, this circumstance can delay or impede the timely modernization of control lists. European practice in recent years demonstrates that, in certain instances, like-minded states or regional entities attempt to bridge this gap by adopting national or regional control instruments that operate outside or in parallel to the consensus framework of the WA.¹⁸

In academic and policy discourse, such an approach is characterized as a "Wassenaar minus one" logic, wherein new control standards are initially implemented within national or regional legislation before potentially evolving into more broadly agreed-upon practices.¹⁹ Recent actions by the US and the EU demonstrate that, in the context of new and frontier technologies, the evolution of export controls is no longer confined merely to routine list updates, but is rather shifting toward risk-based, material, and end-user-centric assessments.²⁰

4. Material criteria for firearms differentiation: from formal classification to risk-based export control

The analysis in the preceding sections has demonstrated that list-based and nominal classifications applied to firearms, while necessary from the perspective of the administrative organization of export controls, are not inherently sufficient for evaluating the actual material and functional significance of a given item. In the context of modern firearms, factors

¹⁸ Amnesty International, *New Weapons Fuelling the Sudan Conflict*, pp. 12–22, https://www.amnesty.org/en/wp-content/uploads/2024/07/AFR5482522024_SudanArmsEmbargo_EN.pdf. See Wassenaar Arrangement, Guidelines & Procedures, including the Initial Elements, Basic Documents, WA-DOC (17) PUB 001 (2017), Part II, para. 2; Regulation (EU) 2021/821 of the European Parliament and of the Council of 20 May 2021 setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items (recast), arts. 4–5; "EU Consolidates Export Control Powers to Bypass Russia," *Financial Times*, September 16, 2025.

¹⁹ Altynay Junusova and William Alan Reinsch, "Rethinking the Wassenaar Minus One Strategy," Center for Strategic and International Studies, November 25, 2024, <<https://www.csis.org/analysis/rethinking-wassenaar-minus-one-strategy>>.

²⁰ Jukka Ruohonen and Kai K. Kimppa, "Updating the Wassenaar Debate Once Again: Surveillance, Intrusion Software, and Ambiguity," pp. 3–4, 6–7. The cited pages discuss the origins of the Wassenaar Arrangement, the dual-use logic, national discretion, the absence of multilateral review or veto points before transfers, and the difficulties that heterogeneous membership may create for bargaining and consensus-building.

such as their structure, component interchangeability, modularity, ammunition compatibility and ballistic capabilities become particularly critical. These item-related factors should be distinguished from transaction-specific factors, such as the intended end use, the end user, the destination's security environment, and the risks of diversion or re-export, which are assessed during the licensing stage. Consequently, effective export control necessitates supplementing formal classification with material and functional criteria, followed by a transaction-specific risk assessment.

On this basis, in constructing the reform model, the article will be guided by the following comprehensive set of proposed material and risk-based assessment criteria.

a) *Firing mode and convertibility*: The absence of a fully automatic firing mode is not, in itself, sufficient to designate a firearm as a low-risk civilian item. The assessment framework must determine the extent to which the given firearm or its essential components are susceptible to modification in their firing mode, functional capabilities, or nature of application. A high degree of convertibility can amplify the combat applicability of a system holding a civilian classification. The practical significance of this criterion becomes especially clear when readily installable devices can materially alter the firing capability of an otherwise semi-automatic firearm. Machinegun conversion devices, including drop-in auto sears, switches, lightning links, and swift links, can convert certain semi-automatic firearms to automatic fire. Certain forced-reset triggers can also enable rapid repeated fire by mechanically resetting the trigger after each shot. Binary triggers operate differently, discharging one round when the trigger is pulled and another when it is released. They do not convert the firearm to fully automatic fire, but they can substantially increase its practical rate of fire and, on some platforms, produce a firing cadence approaching automatic fire. These mechanisms should therefore be included in the assessment of convertibility, even where the firearm retains its formal semi-automatic classification.²¹

²¹ See Wassenaar Arrangement, List of Dual-Use Goods and Technologies and Munitions List 2025, corrected version, Munitions List, ML1–ML2, pp. 181–183, for the legal classification background. For the comparative United States approach, see U.S. Department of Commerce, Bureau of Industry and Security, “Control of Firearms, Guns, Ammunition and Related Articles the President Determines No Longer Warrant Control Under the United States Munitions List (USML),” Federal Register 85, no. 13; see also EAR ECCNs 0A501, 0A502 and 0A505. For the operation and legal treatment of machinegun conversion devices, see Bureau of Alcohol, Tobacco, Firearms and Explosives, “Machinegun Conversion Devices: Fact Sheet,” U.S. Department of Justice, accessed August 2, 2026, <<https://www.justice.gov/usao->

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b) *Degree of military integration and interoperability*: The assessment framework must determine the extent to which the given firearm, its receiver, or modular components are compatible with analogous military systems, spare parts, magazines, optical or other ancillary equipment, and the operational environment. Such interoperability can manifest at the level of civilian and military configurations of the same platform, for example, in the case of systems described by the "AR15/M4/M16 platform" designation.²²

c) *Ammunition ecosystem and ballistic potential*: The assessment framework must consider the combination of the given firearm and the ammunition utilized with it. The regulatory significance of the same firearm can change depending on the type of ammunition, kinetic energy, effective range, accuracy, and penetrative or terminal effect. Consequently, the ballistic characteristics of the weapon-ammunition combination must be evaluated as part of the material and functional classification. Ballistic potential should not determine classification independently but should be assessed together with convertibility, interoperability, and ammunition type. Intended end use and the security environment of the proposed transfer are then examined separately at the transaction-specific licensing stage. Even when only one component of this assessment, firearm caliber, is considered, empirical research indicates a significant association between caliber and the likelihood of death.²³

wdok/media/1366621/dl?inline>. For an illustrative example involving a semi-automatic firearm equipped with a binary trigger, see U.S. Attorney's Office, District of Minnesota, "Burnsville Woman Pleads Guilty to Straw Purchasing Firearms Used in Fatal Shooting of First Responders," U.S. Department of Justice, January 15, 2025, <<https://www.justice.gov/usao-mn/pr/burnsville-woman-pleads-guilty-straw-purchasing-firearms-used-fatal-shooting-first>>.

²² Daniel Defense, *Owner's Manual, GL/SSC Manual*, version 2, p. 11, <https://danieldefense.com/media/asset/d/d/GL-SSC_Manual_v2.pdf>, where the loading instructions refer to "any AR15/M4/M16 platform" in the context of magazine seating and bolt position. See also James Ville, "AR-15 vs. M16: What's the Difference?," GunSkins, February 8, 2024, noting the common lineage, partial parts interchangeability, modularity, and the main functional distinction between the AR-15 and M16.

²³ United Nations, *Global Framework for Through-life Conventional Ammunition Management* (2023), objectives and measures on preventing diversion, illicit trafficking and misuse of ammunition, and on ensuring the safety and security of conventional ammunition throughout its life cycle; Small Arms Survey, *Global Framework for Through-life Conventional Ammunition Management Thematic Hub* (June 2025); Anthony A. Braga and Philip J. Cook, "The Association of Firearm Caliber With

d) *Supply chain and procurement logic*: The assessment framework must take into account the primary supply and procurement chains through which the given firearm, its components, or related goods are circulated. Even if the product in question is acquired by military, law enforcement, special operations, or high-risk security actors, this circumstance alone cannot inherently dictate the degree of supply risk; however, it can serve as an indicator for risk assessment and mitigation during the export and licensing phase.

e) *End use, end user, and security environment*: The assessment framework must take into account the nature of the end use and end user, the recipient state's capacity for end-use control, re-export restrictions, weapons accounting and traceability mechanisms, democratic accountability, alliance obligations, as well as the lawful basis for self-defense within the framework of Article 51 of the UN Charter.²⁴

The combination of these criteria can serve as an additional control mechanism, structured around a logic analogous to "catch-all" controls, to subject the material attributes of a firearm or its components, its end use, and the risk of diversion to regulatory assessment during the export phase. The comparative models of risk-based export control also serve as a basis for such a conclusion.

A multi-layered regulatory approach based on risk assessment and mitigation is already being applied in a number of leading legal systems, where list-based control is combined with dual-use logic, as well as the assessment of the end user, destination, and diversion risks.

The US model: transition from ITAR to EAR

Under the US Export Control Reform (ECR), major categories of semi-automatic firearms widely prevalent in the civilian and sporting markets, alongside their receivers and essential components, were removed from the State Department's ITAR (International Traffic in Arms Regulations) US Munitions List (USML) and transferred to the regulatory jurisdiction of the Commerce Department's EAR (Export Administration Regulations).²⁵

Likelihood of Death From Gunshot Injury in Criminal Assaults," JAMA Network Open 1, no. 3 (2018), <<https://doi.org/10.1001/jamanetworkopen.2018.0833>>.

²⁴ Zeynep Kologlu, "The Arms Trade Treaty," pp. 120, 138–143, 145–148, 150–151.

²⁵ Joop Voetelink, "The Extraterritorial Reach of US Export Control Law. The Foreign Direct Product Rules," *Journal of Strategic Trade Control*, Vol. 1, Issue 1 (April 2023), p. 6.

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The legal foundation for this shift was based on material and functional differentiation: the most sensitive military-grade firearm systems, including fully automatic weapons and certain components designed for their conversion, were retained on the USML. Conversely, semi-automatic platforms, along with certain receivers, components, ancillary equipment, and ammunition, were reclassified under the EAR's Commerce Control List (CCL) with corresponding ECCN (Export Control Classification Number) designations.

This modification eliminated certain burdensome procedural requirements characteristic of ITAR, including the necessity of prior Congressional notification in specific cases; however, it did not abolish export controls themselves. The licensing of these items continued to be contingent upon criteria applied within the EAR framework, such as the destination, end user, regional stability, anti-terrorism, and other security considerations.

The effects of this jurisdictional transfer remain contested. Critics have argued that the reform reduced transparency and Congressional oversight, while supporters have viewed the EAR framework as preserving licensing controls in a more differentiated form.²⁶ This article does not rely on the reform as evidence of regulatory success. The US example is used only to demonstrate that firearms may remain subject to export controls outside an exclusively military-list framework.

The UK model: from the military list to the additional control of non-military firearms

The UK's model is significant because its firearms export control is not restricted solely to the military list. Within the UK Strategic Export Control List, entries ML1–ML3 of the Military List regulate military firearms, related weapons, and ammunition; however, the same system maintains separate oversight of firearms, their parts, essential components, and ammunition that are not encompassed by ML1 or ML2. To this end,

²⁶ U.S. Department of Commerce, Bureau of Industry and Security, “Control of Firearms, Guns, Ammunition and Related Articles the President Determines No Longer Warrant Control Under the United States Munitions List (USML),” *Federal Register* 85, no. 13 (January 23, 2020), pp. 4136–4188, including EAR ECCNs 0A501, 0A502 and 0A505. See also Andrea Stricker with David Albright, “U.S. Export Control Reform: Impacts and Implications,” *Institute for Science and International Security*, May 17, 2017, <<https://isis-online.org/isis-reports/u.s.-export-control-reform-impacts-and-implications>>.

entries PL9010 and PL9011 establish an additional control category for non-military firearms, including firearms, parts, essential components, ammunition, as well as certain software and technology. Consequently, the UK model demonstrates that firearms excluded from the military list can be retained in a distinct regulatory category and subjected to an export licensing regime predicated on parts, essential components, ammunition, destination, and diversion risks.²⁷

The EU model

The EU's export control architecture governs firearms through distinct civilian and military frameworks. On the one hand, the civilian firearms regime, originally established under Regulation (EU) No 258/2012 and recently recast by Regulation (EU) 2025/41, governs the import, export, and transit of firearms, essential components, and ammunition through authorization, traceability, end user, transit, and diversion-prevention requirements. The recast entered into force on February 11, 2025, with specified provisions already applicable, while its general application begins on February 12, 2029; until then, Regulation (EU) No 258/2012 retains transitional relevance. On the other hand, the military export regime under Council Common Position 2008/944/CFSP establishes common rules governing the export of military technology and equipment included in the EU Common Military List. This regime demonstrates that export control is not confined solely to the classification of goods under control lists, as it subjects transfers to eight substantive risk criteria addressing matters including regional security, human rights, and diversion. Yet because the boundary between these two regimes still depends on initial placement on a control list rather than a prior material and functional evaluation at the threshold of transfer, firearms designated for hunting or sporting purposes can remain outside the stricter military assessment despite possessing comparable technical capabilities.²⁸

²⁷ UK Government, UK Strategic Export Control List: The Consolidated List of Strategic Military and Dual-Use Items that Require Export Authorisation from the United Kingdom (December 2025), UK Military List, ML1–ML3, pp. 6–9; UK Dual-Use List, PL9010–PL9011, pp. 8–9; Non-military Firearms List, pp. 1–3, <https://assets.publishing.service.gov.uk/media/69415ba1f065108822537524/uk_export_control_list_2025.pdf>.

²⁸ Regulation (EU) No 258/2012 of the European Parliament and of the Council of 14 March 2012 implementing Article 10 of the United Nations Protocol against the illicit manufacturing of and trafficking in firearms, their parts and components and ammunition, and establishing export authorisation, import, and transit measures for firearms, their parts and components and ammunition, OJ L 94/1, March 30, 2012; Regulation (EU) 2025/41 of the European Parliament and of the Council of 19 December 2024 on import, export and transit measures for firearms, essential components and ammunition, implementing Article 10 of the United Nations Firearms Protocol (recast), OJ L, 2025/41, 22 January

5. The proposed reform model

The material and risk-based criteria and comparative analysis set out in the preceding section enable the regulation of firearms circulation to shift from nominal classification to the assessment of actual applicability. Under the proposed model, a firearm's regulatory classification is determined by its material and functional characteristics, including lethality and technical capabilities, while the environment in which it may be transferred or deployed is assessed separately at the transaction-specific licensing stage.

This article does not propose the immediate abandonment of classification. Rather, it envisages a gradual transition from static nominal classifications toward a more dynamic framework combining material thresholds with transaction-specific risk assessment as regulatory tools and institutional capacities develop. Civilian, sporting, or hunting labels may therefore be insufficient for item classification, while a lawful civilian or defensive purpose may remain relevant at the separate licensing stage. At the first stage of the proposed regulatory framework, firing mode operates as the primary substantive differentiator. Fully automatic firearms, as well as other systems whose design and technical characteristics place them unequivocally within existing military list controls, would be assigned directly to the exclusively combat-grade category without entering the provisional conditional dual-use stage.

In all other instances, hunting and sporting designations would not operate as automatic exemptions from export control assessment. At the threshold of export or any other form of international transfer, every firearm outside the exclusively combat-grade category would instead receive provisional conditional dual-use status and enter an interim assessment phase. This provisional presumption does not constitute a final military classification. Its purpose is to ensure that regulatory classification rests on material and functional characteristics rather than nominal labels. The subsequent assessment performs two related but distinct functions: first, it evaluates the firearm's material and functional characteristics to determine its final regulatory category; second, it examines the end use, end user, diversion risk, security environment, and relevant institutional and defensive considerations to determine the licensing treatment applicable to the proposed transaction. Within the material and functional classification stage, no single material indicator

2025, arts. 45–46 (general application from 12 February 2029, with specified provisions applicable from 11 February 2025); Council Common Position 2008/944/CFSP of 8 December 2008, consolidated version of 15 April 2025, arts. 1–2, 5–6, especially Criteria 3, 4, 6, and 7.

is independently determinative; the relevant technical criteria are assessed in combination. Transaction-specific factors are assessed separately for licensing.

In operationalizing the transition from intermediate classification to transaction-specific licensing, the regulatory inquiry must address where the item is destined, to whom it is being transferred, for what end use it is intended, in what quantity it is being exported, what the security environment of the destination is, and what diversion risks arise.

These considerations belong to the licensing stage and do not determine the firearm's regulatory classification. They are examined after the material and functional assessment has established the applicable category and serve to determine the licensing treatment of the proposed transfer. Within this stage, legitimate self-defense needs, security culture, and civil preparedness requirements may be assessed alongside those transaction-specific risk factors.

Based on the foregoing, this article proposes the application of the following tiered assessment system at the threshold of export and international transfer:

1. *Exclusively combat-grade firearms*: Fully automatic firearms, as well as other systems whose design and technical characteristics place them unequivocally within existing military list controls. These fall under the purview of strict military control and cannot benefit from civilian, sporting, or hunting exemptions.
2. *Conditional dual-use firearms*: At the threshold of export or international transfer, this provisional category encompasses every firearm that does not fall within the exclusively combat-grade category. Its purpose is to ensure that civilian, sporting, or hunting designations do not pre-empt the material and functional assessment. Firing mode, convertibility, interoperability with analogous military-grade systems, the ammunition ecosystem, and ballistic potential determine whether the firearm becomes subject to enhanced conditional dual-use control or qualifies for the standard-control category. The supply chain, end use, end user, diversion risk, security environment, and relevant institutional and defensive considerations are assessed separately at the transaction-specific licensing stage.
3. *Standard-control firearms or other projectile-launching devices*: Classification within this category is determined through the same material-functional assessment process applied to conditional dual-use firearms. An item may be classified in this category only where the combined assessment of its operating mechanism, firing mode, propellant or non-propellant nature, caliber, muzzle energy, lethality, effective range, and ammunition compatibility indicates that

enhanced conditional dual-use control is not warranted. These characteristics must be assessed both individually and in combination against the applicable legal and technical criteria. Where the assessment demonstrates that any one of the foregoing characteristics, or a combination of them, materially affects the item's functional capabilities, interoperability, convertibility, or ballistic effect to a degree warranting enhanced oversight, the item becomes subject to enhanced conditional dual-use control. Accordingly, placement in the standard-control category would have a limited regulatory effect: it would remove the item from the enhanced conditional dual-use controls proposed in this article, while not exempting it from generally applicable export, customs, sanctions, destination, or domestic firearms requirements.

Article 51 of the UN Charter and Total Defense as contextual assessment factors

Article 51 of the UN Charter enshrines the inherent right of individual or collective self-defense of every Member State. In the contemporary security environment, the practical realization of this right is not restricted solely to the operational capabilities of the armed forces. Rather, it may also necessitate the mobilization of societal resilience, civil preparedness, reserve forces, critical infrastructure, and mechanisms of local self-organization. As articulated by NATO, civil preparedness constitutes a central pillar of allied resilience and serves as a fundamental prerequisite for collective defense.²⁹

The experience of Northern European and Baltic states, particularly Estonia, demonstrates that within the framework of comprehensive defense, civil protection, societal resilience, and the preparedness of local authorities, critical service providers, communities, and individuals can be regarded as components of a "deterrence by denial" strategy.³⁰

For the purposes of this article, Total Defense refers to a whole-of-society defense model that integrates military defense with civil preparedness, continuity of essential public functions, societal resilience, and civilian

²⁹ Charter of the United Nations, art. 51; "Resilience, Civil Preparedness and Article 3," NATO, updated November 13, 2024, <<https://www.nato.int/en/what-we-do/deterrence-and-defence/resilience-civil-preparedness-and-article-3>>.

³⁰ Government of Estonia, "The Government Approved the New National Security Concept of Estonia," May 8, 2026, <<https://valitsus.ee/en/news/government-approved-new-national-security-concept-estonia>>; Estonian Stockpiling Agency, "The National Security Concept of Estonia Emphasizes the Importance of Coping Reserves," April 16, 2026, <<https://varudekeskus.ee/en/news/national-security-concept-estonia-emphasizes-importance-coping-reserves>>; "Resilience, Civil Preparedness and Article 3," NATO.

support for national defense during crises or armed conflict. Such a model may be particularly relevant to relatively small and strategically exposed democratic states, where limited demographic, territorial, or military depth can increase vulnerability and make the mobilization of broader societal capacities especially important for national resilience and defense. Total Defense is used here as a national defense and preparedness framework rather than as a generally recognized principle of international law, and it does not necessarily imply civilian possession of firearms, which remains governed by the domestic law and institutional arrangements of the state concerned. Its relevance to export licensing lies in providing contextual evidence of the recipient state's defensive requirements, institutional preparedness, and capacity to manage and control transferred firearms.

Within the proposed model, these Total Defense considerations form part of the broader assessment of legitimate defensive requirements. They must be distinguished from individual self-defense in the criminal law sense and understood instead as elements of the state's comprehensive defense system. In this sense, neither Article 51 nor Total Defense creates an entitlement to receive arms transfers or preferential export treatment. The declared defensive purpose of the transfer, the recipient state's security environment, and the requirements of civil preparedness and Total Defense nevertheless operate as additional balancing considerations within the broader assessment. These considerations must be assessed together with objectively verifiable safeguards, including institutional accountability, effective end use monitoring, transparent re-transfer restrictions, reliable record-keeping and tracing, secure stockpile management, compliance history, and review mechanisms. Democratic governance is not treated as an automatic privilege or a sufficient condition, but as a relevant institutional factor insofar as it is reflected in accountable and reviewable control structures.

The weight of these criteria is intentionally flexible and should vary with the extent to which the international legal order is capable, in practice, of constraining coercive power. Where the logic of power prevails over the effective force of law, particularly for smaller states facing materially stronger actors, legitimate defensive necessity, civil preparedness, and Total Defense may warrant greater weight within the overall assessment. Conversely, where rule-of-law safeguards and collective-security mechanisms provide more effective protection, the relative weight of this factor may correspondingly diminish.

These considerations cannot displace applicable sanctions, arms embargoes, treaty prohibitions, or other mandatory denial criteria. They may be taken into account only after those binding requirements have

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been applied and only within the scope permitted by the governing legal framework.

The table below summarizes the conceptual and operational differences between the existing control architecture and the proposed material, risk-based approach.

Table 1. Comparison of existing control logic and the proposed conditional dual-use model

Dimension	Existing control logic	Proposed conditional dual-use model
Classification basis	List-based classification supplemented by Wassenaar best-practice criteria and national or regional licensing rules.	Material and functional classification following provisional conditional dual-use status at the threshold of export or international transfer.
Firearms outside strict military control	May remain controlled under civilian, non-military or alternative export-control categories.	Receive provisional conditional dual-use status at the threshold of export or international transfer pending material and functional classification.
Classification factors	Item classification criteria under applicable control lists and national or regional rules.	Firing mode, convertibility, interoperability with analogous military systems, ammunition ecosystem, and ballistic potential.
Transaction-specific licensing factors	Destination, end user, re-export and diversion controls, where applicable.	End use, end user, diversion risk, security environment, and relevant institutional and defensive considerations.
Licensing logic	Authorization depends on the applicable national or regional regime.	Differentiated licensing based on transaction-specific assessment and objectively verifiable recipient-state safeguards.
Self-defense and resilience considerations	Considered within national-security or recipient-context assessments where provided by the applicable regime.	Article 51-related defensive needs and Total Defense considerations should be assessed alongside the other criteria as part of the overall security-environment and end use assessment, without constituting independent mandatory conditions.

Preferential procedures	Depend on the rules and licensing policies of the relevant jurisdiction.	May be available where objectively verifiable safeguards are demonstrated; democratic governance may operate as an additional contextual factor rather than an independent basis for preferential treatment.
Safeguards	Denial, restriction or revocation where required by applicable legal criteria.	Preferential treatment remains conditional and revocable in cases of diversion risk, misuse or deterioration in the relevant institutional safeguards.

Note: The existing-control column refers to the Wassenaar list-based architecture together with national and regional implementation measures. It does not suggest that the Wassenaar Arrangement itself governs domestic civilian circulation.

6. Conclusion

In concluding this article, it is imperative to establish that the existing framework for the international export control of firearms cannot rely predominantly on nominal or list-based classification. The fundamental objective of the Wassenaar Arrangement of preventing destabilizing accumulations and promoting responsible transfers necessitates an approach that evaluates not only the formal status of the item but also its material nature, its potential environment of application, and the conditions of its end use. In the context of firearms, this issue is particularly acute because, although certain material distinctions remain objectively meaningful, no single nominal or universally applicable legal boundary reliably captures the material and security significance of all modern firearms, particularly where technological convergence narrows the practical distinction between civilian and military configurations.

As demonstrated by the comparative analysis of the US, the UK, and the EU, leading legal systems are already striving to overcome the limitations of traditional international lists through the implementation of more flexible and multi-layered oversight mechanisms. The US experience illustrates that certain categories of firearms can be removed from a stringent military-purpose regime without escaping export controls entirely, transitioning instead into the domain of licensing and destination-based oversight operating under the EAR. The UK's model demonstrates that so-called civilian (hunting or sporting) firearms excluded from the military list can be maintained within a distinct control category through the PL9010/PL9011 designations and non-military firearm lists. The EU model, in turn, combines a recast civilian-firearms regime under Regulation (EU) 2025/41 with eight substantive risk criteria for military exports under Common Position 2008/944/CFSP, while illustrating how

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reliance on initial list placement can still leave comparable hunting or sporting firearms outside the stricter military assessment.

The problem identified by the article is therefore not the absence of all material distinctions, but the absence of a sufficiently comprehensive and legally reliable boundary for intermediate firearm categories in which nominal civilian or military designations may not adequately capture material and functional significance. To address this gap, it proposes a provisional conditional dual-use status at the point of export or international transfer. This provisional status is not a final military classification. A firearm remains within it until material and functional assessment determines whether it becomes subject to enhanced conditional dual-use control or qualifies for the standard-control category. Transaction-specific factors, including end use, end user, diversion risk, the security environment, and legitimate defensive considerations, then determine the licensing treatment of the proposed transfer.

The logic of regulation is thereby transformed: for classification, the pivotal inquiry becomes the firearm's material and functional characteristics rather than its nominal civilian or military designation; the transaction-specific context is assessed separately at the licensing stage. As the principal practical and normative consequence of this conceptual framework, differentiated licensing based on transaction-specific assessment and objectively verifiable safeguards is proposed. Simplified export procedures, preferential licensing pathways, or license exceptions may be considered only where reliable end-use oversight, transparent re-export restrictions, institutional accountability, and other objectively verifiable safeguards are demonstrated. Democratic governance, legitimate defensive need, and Total Defense considerations may operate as additional contextual factors within that assessment, but none of them independently creates an entitlement to preferential treatment. This approach may also serve as a foundation for the domestic regulations of participating states by clearly delineating the control of external transfers from the interests of legitimate domestic circulation and civil defense capabilities. Conversely, such a privilege must not operate as an automatic exemption from the aforementioned normative criteria. Rather, it must remain strictly conditional, evidence-based, and subject to revocation should diversion risks, deterioration in the relevant institutional safeguards, or abuses associated with the imported firearms and related technologies manifest.

Because this article develops a doctrinal-comparative and normative model, it does not seek to quantify the prevalence of classification-related diversion or to demonstrate empirically that conditional dual-use classification would outperform all existing alternatives; those questions remain for further empirical assessment. Ultimately, this article advances

a conceptual framework for a new model to revise the rules governing the international circulation of firearms. As previously articulated, this model envisions a transition from nominal and list-based classification toward provisional conditional dual-use status, material and functional classification, and transaction-specific licensing assessment. Such an approach could facilitate the preservation of international security through dynamic and evidence-based oversight. The analysis therefore suggests that the existing Wassenaar approach, while continuing to provide an important foundation, may not be sufficient on its own to address the realities of contemporary firearms transfers. Reform should accordingly go beyond the revision of individual lists or provisions and recast the underlying regulatory philosophy toward a multidimensional and more flexible framework, in which regulatory mechanisms combine material and functional classification with the assessment of individual transactions and remain capable of adapting in step with technological innovation, evolving patterns of use, and shifting security dynamics. This proposed system is intended to deter destabilizing transfers and enhance the oversight of end use and diversion, while allowing states that maintain verifiable safeguards to meet legitimate self-defense, civil preparedness, and national-defense requirements.