COMMAND, CREW, AND CODE: REAFFIRMING SOVEREIGN IMMUNITY FOR AUTONOMOUS WARSHIPS UNDER THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA

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I. Introduction

The United States (U.S.) Navy is entering an era of rapid transformation in which autonomous and remotely-operated platforms are no longer peripheral experiments but essential fleet assets.[1] Programs such as the *Sea Hunter* prototype, the *Ghost Fleet Overlord* initiative, and the Department of the Navy's 2021 *Unmanned Campaign Framework* underscore a strategic commitment to integrating Maritime Autonomous Surface Ships (MASS) into distributed operations, mine countermeasures and, intelligence, surveillance, and reconnaissance (ISR) missions.[2] However, this shift confronts a doctrinal ambiguity: Article 29 of the United Nations Convention on the Law of the Sea (hereinafter "UNCLOS" or "the Convention") defines a "warship" as a vessel "under the command of an officer" and "manned by a crew."[3]

At first glance, this text raises doubts about whether a U.S. Navy vessel that operates without any personnel physically onboard—whether remotely-supervised or fully autonomous—qualifies as a "warship" entitled to sovereign immunity.[4] For adversaries eager to exploit textual ambiguities in international law, this definitional gap presents an opportunity to contest the status of U.S. Navy autonomous vessels, especially in such contested regions as the South China Sea. China and Russia have already demonstrated a willingness to weaponize legal interpretation as part of broader legal warfare (hereinafter referred to as "lawfare") strategies.[5] In this context, lawfare refers to the strategic use or manipulation of legal norms, institutions, and language to achieve military or political objectives, often by constraining an adversary's freedom of action under the guise of lawful behavior.[6]

Sovereign immunity must extend fully to U.S. Navy autonomous vessels—even when unmanned. The doctrinal foundations of immunity rest not on the physical presence of a crew but rather on the sovereign functions carried out under a state's flag.[7] From steam propulsion to early submarines to nuclear-powered carriers, technological innovation has never displaced sovereign immunity. Admittedly, each of those technological transitions retained a human crew and commanding officer, and, in that sense, autonomy represents a sharper departure. Nevertheless, the law's capacity to adapt has never turned on the physical presence of sailors, but on the vessel's

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[1] U.S. Dep't of the Navy, *Unmanned Campaign Framework*, U.S. DEPT. OF THE NAVY (Mar. 16, 2021), at 6, https://www.navy.mil/Portals/1/Strategic/20210315%20Unmanned%20Campaign_Final_LowRes.pdf.

[2] U.S. Dept. of the Navy, *supra* note 1 at 5–6.

[3] United Nations Convention on the Law of the Sea art. 29, Dec. 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS].

[4] *Id.*

[5] Jordan Foley, *Multi-Domain Legal Warfare: China's Coordinated Attack on Int'l Rule of Law*, LIEBER INST. WEST POINT (May 28, 2024), https://lieber.westpoint.edu/multi-domain-legal-warfare-chinas-coordinated-attack-international-rule-law/.

[6] *Id.*

[7] Schooner Exch. v. McFaddon, 11 U.S. 116, 137 (1812) (recognizing that the immunity of a warship derives from the sovereign authority it represents).

continuous subjection to sovereign command. The defining feature across all prior evolutions was not crewing but control—the unbroken line of accountability to the flag state.

Likewise, the rise of autonomy cannot be allowed to erode a principle so central to naval operations and international stability. The stakes are significant. Without recognition of immunity, U.S. Navy autonomous vessels could face foreign port inspections, seizures, or challenges to their operational legitimacy. Adversaries might deny their warship status, opening a new legal front in strategic competition. Therefore, the United States must insist on a functional interpretation of "command" and "crew," pursue legislative clarifications in domestic admiralty law, and engage in proactive diplomacy through NATO and the International Maritime Organization (IMO).[8]

This article argues that sovereign immunity attaches to the sovereign function of a vessel—not to the presence of a human crew. UNCLOS Articles 32, 95, and 96, together with customary international law and U.S. statutory practice under the Public Vessels Act (PVA) and Suits in Admiralty Act (SIAA), establish that warships and government vessels retain immunity by virtue of their sovereign character.[9] Autonomy does not displace accountability: Liability for collisions, salvage, or violations of the law of armed conflict remains attributable to the flag state. Historical precedents—from the adaptation of law to submarines and nuclear propulsion to the USS PUEBLO seizure—underscore that technological change has never extinguished immunity.[10]

At its core, this article advances a simple but enduring proposition: What matters for sovereign immunity is the vessel's sovereign function and the state authority behind it. When a ship is commissioned, flagged, and employed exclusively for governmental purposes, it remains immune as an extension of the sovereign, regardless of whether personnel are physically onboard. This distinction is crucial in the emerging era of autonomous naval systems, where technology challenges traditional conceptions of "command" and "crew."[11] A functionalist interpretation of the law of the sea ensures that sovereignty remains the decisive criterion, preserving the legal continuity of state authority even as naval operations evolve beyond human presence. In this sense, sovereign immunity is about sovereignty, not sailors—a principle that anchors both the doctrinal analysis and the policy recommendations in this article.

This Article proceeds in five Parts. Part II introduces the doctrinal foundations of sovereign immunity, showing how UNCLOS, customary international law, and U.S. statutory practice have long treated naval operations as quintessential sovereign acts immune from foreign jurisdiction.

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[8] *See Schooner Exch*., 11 U.S. at 145 (establishing the principle of warship immunity in U.S. law); United States v. United Cont'l Tuna, 425 U.S. 164, 181 (1976) (holding that claims involving Navy vessels are governed by the Public Vessels Act rather than the Suits in Admiralty Act); Foreign Sovereign Immunities Act, 28 U.S.C. §§ 1605, 1611 (adopting the restrictive theory of immunity but excluding military activity from its exceptions).

[9] *See generally* Public Vessels Act, 46 U.S.C. §§ 31101–13 (waiving sovereign immunity for admiralty claims involving public vessels); Suits in Admiralty Act, 46 U.S.C. §§ 30901–12 (providing exclusive remedy for in personam maritime claims against the United States).

[10] *See* Ximena Hinrichs Oyarce, Pueblo Incident (1968), in Max Planck Encyclopedia of Public International Law (Anne Peters & Rüdiger Wolfrum eds., Oxford Univ. Press 2023) [hereinafter The Pueblo Incident].

[11] James Kraska, *The Law of Unmanned Naval Systems in War and Peace*, J. OCEAN TECH. 44, 48 (2010) ("As unmanned systems enter into the inventory of the sea services, it is likely that similar legal and policy issues will arise.")

Part III defines the functionalist interpretation by examining the historical context of sovereign immunity and assessing its practical consequences. Part IV then confronts the definitional challenge posed by UNCLOS Article 29 and explains why the Convention's "command" and "crew" requirements should be interpreted functionally to preserve warship status for autonomous platforms. Part V applies that functional framework to UNCLOS's broader immunity regime and examines how consistent state practice can reinforce doctrinal continuity while limiting opportunities for adversarial lawfare. Part V then turns from classification to consequences by addressing accountability and liability in the autonomous era, including collisions, salvage, jurisdictional disputes, and compliance with the law of armed conflict. Part VI demonstrates that the functionalist interpretation represents continuity with existing liability schemes rather than a rupture. Part VII surveys the policy and strategic interests for the U.S. Navy. Finally, Parts VIII offer practical recommendations for the U.S. Navy, Congress, and allies to operationalize a functional approach through commissioning, doctrine, and coordinated diplomatic engagement.

II. Doctrinal Foundations of Sovereign Immunity

A. Sources and Evolution of Sovereign Immunity

Sovereign immunity is a foundational principle of international and maritime law that shields states and their instrumentalities from the jurisdiction of foreign courts.[12] The doctrine is grounded in the maxim *par in parem non habet imperium*—one sovereign cannot exercise authority over another.[13] Over time, this principle has developed across three interrelated legal sources: international conventions, including UNCLOS; customary international law; and such domestic statutes as the Foreign Sovereign Immunities Act (FSIA) and the PVA.[14] Each source reflects a common rationale: Immunity attaches to the sovereign nature of the act, not to the vessel's ownership structure or the technology by which it operates.[15]

In the maritime domain, sovereign immunity serves both a doctrinal and operational function. Doctrinally, it preserves the equality and independence of states by preventing one state from adjudicating or enforcing its laws against another state's armed forces.[16] Operationally, it safeguards naval mobility, ensures freedom of navigation, and protects the integrity of military

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[12] *See* Restatement (Fourth) of Foreign Relations Law § 441 (Am. Law Inst. 2018).

[13] The maxim may be traced back to the 14th-century jurist Bartolus, who wrote "Non enim una civitas potest facere legem super alteram, quia par in parem non habet imperium" (For it is not for one city to make the law upon another, for an equal has no power over an equal): Badr, State Immunity (1984) 89, citing Bartolus, Tractatus Repressalium (1394) Quaestio 1/3, §10.

[14] *See* United Nations Convention on the Law of the Sea arts. 29–32, Dec. 10, 1982, 1833 U.N.T.S. 397 (codifying sovereign immunity for warships and other government vessels operated for non-commercial service); Restatement (Fourth) of Foreign Relations Law §§ 451–52 (Am. L. Inst. 2018) (describing state immunity as a rule of customary international law grounded in the equality of sovereigns); Foreign Sovereign Immunities Act, 28 U.S.C. §§ 1602–11 (establishing the comprehensive federal statutory regime governing immunity of foreign states in U.S. courts); Public Vessels Act, 46 U.S.C. §§ 31101–13 (providing jurisdiction and limited waiver for admiralty suits involving U.S. public vessels).

[15] *See* Foreign Sovereign Immunities Act of 1976, 28 U.S.C. §§ 1602–11; Public Vessels Act, 46 U.S.C. §§ 31101–13.

[16] *See* United Nations Convention on the Law of the Sea art. 32; Foreign Sovereign Immunities Act of 1976, 28 U.S.C. §§ 1602-11; Public Vessels Act, 46 U.S.C. §§ 31101-13.

and governmental missions at sea.[17] The concept has evolved from early nineteenth-century cases, such as *The Schooner Exchange v. McFaddon*, through modern treaty codifications in UNCLOS and national enactments that incorporate or mirror these norms.[18] Despite differences in terminology—"foreign state immunity" in public international law and "sovereign immunity" in U.S. jurisprudence—the underlying rule remains constant: Vessels engaged in non-commercial, governmental service are extensions of the state and are immune from foreign jurisdiction.[19]

The sections that follow examine how this principle is expressed and applied across key legal regimes—UNCLOS, customary international law, and U.S. statutory and case law—before turning to the unique challenges posed by autonomous and remotely operated naval platforms.

B. UNCLOS and Treaty-Based Immunity

UNCLOS provides the primary treaty framework for sovereign immunity at sea.[20] Article 29 defines a warship as "a ship belonging to the armed forces of a State bearing the external marks distinguishing such ships of its nationality, under the command of an officer duly commissioned . . . and manned by a crew which is under regular armed forces discipline."[21]

UNCLOS codifies sovereign immunity for warships and other state vessels, but its definitional framework assumes a traditionally crewed ship. In particular, the definitional constraints of Article 29 present an immediate hurdle for autonomous platforms: A MASS operating without personnel onboard is neither "commanded" in the traditional sense nor "manned by a crew."[22] Indeed, the IMO's regulatory scoping exercise on MASS noted that "existing treaty definitions . . . assume the physical presence of master and crew," underscoring the challenge of reconciling legacy text with emerging technologies.[23]

A functionalist interpretation of Article 29 provides the essential bridge between treaty text, state practice, and operational reality. This type of interpretation reads the Convention through the lens of sovereign function rather than technological form, ensuring that the law of the sea does not plunge into obsolescence as naval technology evolves. Under this approach, the terms "command" and "crew" are not frozen relics of 1970s naval architecture; rather, they are enduring signifiers of sovereign control and accountability. Read this way, Article 29 remains consistent with UNCLOS's textual provisions, customary international law, and U.S. statutory practice under a single principle: Sovereignty attaches to function, not form.

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[17] *See* U.S. DEP'T OF NAVY, U.S. DEP'T OF HOMELAND SECURITY, THE COMMANDER'S HANDBOOK ON THE LAW OF NAVAL OPERATIONS, NWP 1-14m MCTP 11-10b COMDTPUB P5800.7a (2017) [hereinafter The Commander's Handbook]; DOD MANUAL, REGULATIONS ON VESSELS OWNED OR OPERATED BY THE DEPARTMENT OF DEFENSE, DISCHARGES INCIDENTAL TO NORMAL OPERATIONS 4715.06, Volume 4 (effective October 25, 2022).

[18] UNCLOS *supra* note 3, arts. 29, 32, 95-96; Schooner Exch. v. McFaddon, 11 U.S. 116, 137 (1812).

[19] *See* Public Vessels Act, 46 U.S.C. §§ 31101–13; Suits in Admiralty Act, *id.* §§ 30901-18; Schooner Exch. v. McFaddon, 11 U.S. 116, 137 (1812).

[20] *See* UNCLOS, *supra* note 3.

[21] *See* UNCLOS, *supra* note 3, at art. 29.

[22] *See* UNCLOS, *supra* note 3.

[23] Joel Coito, *Maritime Autonomous Surface Ships: New Possibilities—and Challenges—in Ocean Law and Policy*, 97 INT'L LAW STUDIES 260, 304 (2021).

At first glance, the requirement that a warship be "under the command of an officer" and "manned by a crew" appears to present challenges for uncrewed or remotely-supervised naval platforms.[24] Nonetheless, Articles 32, 95, and 96 establish broad immunity for warships and other government vessels.[25]

Article 32 affirms that warships enjoy complete immunity from the jurisdiction of any state other than the flag state, subject only to limited exceptions in innocent passage.[26] This principle safeguards sovereign equality and operational independence by preventing foreign courts or authorities from exercising control, inspection, or enforcement over another state's naval vessels. Article 95 extends full immunity to warships on the high seas, while Article 96 provides the same protections for "ships owned or operated by a State and used only on government non-commercial service."[27] Together, these provisions articulate a comprehensive treaty framework for immunity, reflecting the long-standing view that vessels performing governmental functions act as direct agents of the sovereign. Although Article 29 uses terminology grounded in a human-crewed paradigm, its relationship with Articles 32, 95, and 96 suggests that the drafters sought to preserve the continuity of immunity across evolving maritime technologies.[28]

Although the United States has not ratified UNCLOS, it has long treated nearly all of the Convention's provisions—particularly those governing navigation, warship immunity, and coastal-state jurisdiction—as reflecting customary international law.[29] Successive administrations have affirmed that position in official statements and operational practice. The 1983 Reagan Ocean Policy Statement explicitly recognized the navigational and overflight provisions of UNCLOS as consistent with existing U.S. rights and obligations under customary international law. Subsequent Department of Defense and Department of State publications, including the U.S. Navy's Commander's Handbook on the Law of Naval Operations, continue to apply the Convention's framework as authoritative guidance for naval conduct.[30]

This practical adherence mitigates the formal significance of non-ratification. In effect, the United States operates as a de facto party to the Convention's navigational regime, participating in the same body of state practice that shapes and reaffirms UNCLOS as customary law. Indeed, U.S. naval operations routinely invoke Articles 29, 32, 95, and 96 to define the status and immunity of warships, while diplomatic communications and freedom-of-navigation assertions rely on those same provisions to challenge excessive maritime claims.[31] From a functionalist perspective, what matters is not formal adherence to the treaty but consistent observance of its substantive norms—

[24] *See* UNCLOS, *supra* note 3, at art. 29.
[25] *See* UNCLOS, *supra* note 3, at arts. 32, 95–96.
[26] *See* UNCLOS, *supra* note 3, at art. 32.
[27] *See* UNCLOS, *supra* note 3, at arts. 95–96.
[28] *See generally* UNCLOS, *supra* note 3, at arts. 29, 32, 95–96.
[29] *See* United States Oceans Policy, Statement by President Ronald Reagan, 19 Weekly Comp. Pres. Doc. 383 (Mar. 10, 1983) at https://www.reaganlibrary.gov/archives/speech/statement-united-states-oceans-policy.
[30] *See* The Commander's Handbook, *supra* note 17.
[31] *See* United States Oceans Policy, Statement by President Ronald Reagan, 19 Weekly Comp. Pres. Doc. 383 (Mar. 10, 1983); U.S. Navy, The Commander's Handbook supra note 17.

a hallmark of customary international law formation.[32] In this sense, the functionalist reading advanced here—linking sovereign immunity to a vessel's purpose rather than its form—rests firmly on both customary law and state practice, not merely on treaty text.

C. Customary International Law

Beyond treaty law, sovereign immunity for warships has long been recognized as a rule of customary international law.[33] The modern doctrine of sovereign immunity builds on Chief Justice Marshall's seminal opinion in *The Schooner Exchange*, which held that foreign warships entering U.S. ports enjoy immunity from local jurisdiction as a matter of comity and sovereign equality.[34] Immunity flows from the sovereign equality of states and the principle that one sovereign cannot exercise jurisdiction over another's armed forces without consent.[35] In *The Santissima Trinidad*, the Supreme Court reaffirmed that vessels commissioned by a sovereign and employed exclusively for public service were immune from judicial process, regardless of ownership structure or prize disputes.[36]

Throughout the nineteenth and twentieth centuries, such technological innovations as steam propulsion, steel hulls, and nuclear power did not alter this rule. States continued to treat warships as instruments of sovereign authority, and courts continued to defer to executive determinations of immunity based on sovereign function rather than crew composition or design.[37] Critics may argue that the unprecedented degree of machine autonomy in naval operations demands a categorical reexamination of warship status, asserting that the absence of a crew severs the vessel from the state organ to which immunity traditionally attaches. However, this argument misunderstands both doctrine and history. Autonomy no more displaces sovereign control than earlier technologies that automated propulsion, fire control, sonar, or navigation. Each of those developments reduced the role of human operators in specific tasks, yet none triggered any reconsideration of sovereign immunity.[38]

D. U.S. Statutory and Case Law Practice

Domestic law likewise reflects the balance between sovereign immunity and limited liability. The PVA authorizes suits against the United States for damages caused by public vessels,

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[32] *See* Restatement (Third) of the Foreign Relations Law of the United States § 102(2) (1987). https://guides.libraries.emory.edu/law/international_law_basics/intro_international_customary.
[33] Schooner Exch. v. McFaddon, 11 U.S. 116, 137 (1812).
[34] *Id.* at 137 (recognizing immunity of foreign warships in U.S. courts as a matter of customary international law).
[35] JAMES KRASKA & RAUL "PETE" PEDROZO, INTERNATIONAL MARITIME SECURITY LAW 45–46 (2013).
[36] *The Santissima Trinidad*, 20 U.S. 283, 354–55 (1822).
[37] *See Schooner Exch.*, 11 U.S. at 116 (foundational statement of complete warship immunity); The Santissima Trinidad, 20 U.S. 283, (1822) (immunity turns on sovereign function, not ownership or acquisition); Berizzi Bros. Co. v. The Pesaro, 271 U.S. 562 (1926) (a vessel owned and operated by a foreign sovereign is absolutely immune from judicial process—even when engaged in activities with commercial features—because its "public character" controls.)
[38] *See* U.S. Naval War College, The Newport Manual on the Law of Naval Warfare 37–40 (2d ed. 2023).

but only within a narrow waiver of immunity.[39] In *United States v. United Continental Tuna Corp.*, the Supreme Court emphasized that claims involving U.S. Navy ships are governed by the PVA, not the more general SIAA, underscoring that Congress intended to preserve the special protections surrounding public vessels.[40] Both statutes carry strict limitations and conditions, ensuring that liability does not undermine immunity.[41] Importantly, the FSIA expressly excludes military activity from its commercial exceptions.[42] While the FSIA governs suits against foreign states, its structure illustrates the same principle: Acts *jure imperii*,[43] including naval operations, are categorically immune from judicial interference.[44]

Although the FSIA applies to foreign sovereigns, its structure mirrors the same principle underlying U.S. practice: Naval activity constitutes an inherently governmental function shielded from foreign adjudication.[45] Accordingly, the Department of the Navy continues to classify unmanned and autonomous platforms as "public vessels" or "warships" when they are commissioned and employed exclusively for governmental, non-commercial purposes.[46] .[47] [48]

E. Domestic Law and the Functional Logic of Immunity

UNCLOS preserves full immunity for both warships and for ships owned or operated by a State and used exclusively for non-commercial governmental service.[49] The second category is particularly important for autonomous systems, many of which will be government-operated yet contractor-supported. U.S. law provides a clear doctrinal anchor against attempts to recharacterize such activity as "commercial."[50]

Under the PVA, naval operations are treated as sovereign acts subject only to limited statutory waivers, ensuring that military activity remains firmly within *jure imperii.* Similarly, the FSIA maintains a sharp boundary between sovereign and commercial conduct. In *Verlinden* and

[39] Public Vessels Act, 46 U.S.C. §§ 31101–13.
[40] United States v. United Cont'l Tuna Corp., 425 U.S. 164, 168–70 (1976).
[41] *Id.* at 174–77.
[42] 28 U.S.C. §§ 1603(d), 1605(a)(2), 1605(a)(3).
[43] These are acts performed by a state in its sovereign or governmental capacity—things that only a state can do, such as waging war, regulating borders, operating a navy, conducting diplomacy, or enforcing criminal law.
[44] 28 U.S.C. §§ 1604, 1605(a)(2), 1605(a)(3).
[45] 28 U.S.C. § 1605(a)(2) (commercial activity exception under FSIA, which does not apply to military or sovereign acts).
[46] *See* The Commander's Handbook supra note 17; DOD MANUAL, REGULATIONS ON VESSELS OWNED OR OPERATED BY THE DEPARTMENT OF DEFENSE, DISCHARGES INCIDENTAL TO NORMAL OPERATIONS 4715.06, Volume 4 (effective October 25, 2022).
[47] 28 U.S.C. § 1605(a)(2) (commercial activity exception under FSIA, which does not apply to military or sovereign acts).
[48] The Commander's Handbook *supra* note 17.
[49] *See* UNCLOS, *supra* note 3, art. 95–96.
[50] *See* UNCLOS, *supra* note 3, art. 96; *see also* The Commander's Handbook, *supra* note 17.

Weltover, the Supreme Court reaffirmed that the "commercial" inquiry turns on the nature of the act, not its purpose—and that military operations are inherently sovereign, not commercial.[51]

Even scholars critical of the commercial/sovereign divide acknowledge that defense and naval functions lie at the heart of state sovereignty and are insulated from foreign adjudication.[52] This principle applies equally to autonomous platforms; contractor support or advanced technology does not alter a vessel's sovereign character. As long as a ship is owned or operated by the government and used solely for non-commercial service, Article 96's protection applies. Attempts to "bootstrap" commerciality from software licensing or maintenance contracts misunderstand both UNCLOS and the functional logic of sovereign immunity.[53]

With these doctrinal foundations in view, the analysis turns to UNCLOS Article 29 and the interpretive question that autonomy forces to the surface: whether the law of sovereign immunity is tied to physical crewing, or to sovereign command and governmental service.[54]

III. The Functional Character of Immunity under Article 29

A. Defining the Functionalist Interpretation

The crew has historically served as the mechanism through which sovereign intent was executed at sea. Autonomy replaces that mechanism with new technological means, but it does not sever the legal relationship between warship and state.[55] If UNCLOS and its predecessors are meant to preserve sovereign equality at sea, the controlling inquiry must remain functional: whether the vessel operates under the exclusive direction of the state and in non-commercial governmental service.[56] Read in that light, autonomous warships continue the same legal tradition that absorbed prior disruptions—from steam propulsion to submarines and nuclear vessels. Until UNCLOS is formally revised, consistent state practice will determine whether autonomous warships are treated as fully sovereign—and fully immune.

A "functionalist interpretation" refers to reading treaty provisions in light of their underlying purpose—emphasizing the sovereign function that a rule is designed to preserve rather than its literal or historical form. Under this interpretive approach, terms such as "command" and "crew" in Article 29 of UNCLOS are understood not as static technological descriptors but as expressions of state authority, accountability, and discipline.[57] Functionalism prioritizes substance over form and continuity of sovereign control over mechanical formality. The functional reading—where "command" may be exercised remotely and "crew" encompasses supervisory operators—

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[51] Verlinden B.V. v. Cent. Bank of Nigeria, 461 U.S. 480, 488–89 (1983); Republic of Arg. v. Weltover, Inc., 504 U.S. 607, 614 (1992).

[52] *See* Kate Yoon, Troubling the Public/Private Distinction in International Law, 133 YALE L.J. 2138, 2156–57 (2024) (observing that even under restrictive theories of state immunity, core sovereign functions—such as the conduct of armed forces and territorial defense—remain insulated from foreign adjudication).

[53] *See* UNCLOS, *supra* note 3, at art. 96.

[54] *See* UNCLOS, *supra* note 3, arts. 29, 32, 95-96; 28 U.S.C. §§ 1605(a)(2), 1605(a)(3); 46 U.S.C. §§ 781–90; Kraska & Pedrozo, *supra* note 35.

[55] *See* Schooner Exch. v. McFaddon, 11 U.S. 116, 146–47 (1812) (establishing that sovereign immunity turns on a vessel's public character and service to the state).

[56] UNCLOS, *supra* note 3, art. 29.

[57] *See* UNCLOS, *supra* note 3, at art. 29.

ensures that the treaty continues to serve its stabilizing purpose rather than freezing law at a technological moment in time.

The Vienna Convention on the Law of Treaties (VCLT) codifies this method, instructing that treaties must be interpreted "in good faith in accordance with the ordinary meaning of the terms … in their context and in light of [their] object and purpose."[58] Applied to UNCLOS, a functionalist interpretation ensures that evolving technologies—autonomous navigation, remote operation, or algorithmic control—do not frustrate the enduring goal of the Convention: preserving the sovereign equality of states and the immunity of their armed forces at sea. Accordingly, functionalism allows the law to remain faithful to its purpose and flexible enough to accommodate innovation.

B. The Doctrinal Basis: Function Over Form

Building from this interpretive foundation, UNCLOS, customary international law, and U.S. statutory practice each confirm that sovereign immunity derives from the vessel's function rather than its form. Immunity attaches because a ship acts as an organ of the state exercising sovereign power, not because it carries a crew or conforms to historical design conventions. From a structural perspective, each legal regime—treaty, custom, and domestic law—centers the inquiry on whether the vessel performs a public, governmental mission under the authority of a sovereign flag.[59] The continuity of this reasoning demonstrates that sovereign immunity is an attribute of state sovereignty itself, not a feature of ship design or operation.

U.S. law illustrates this principle vividly. Cases such as *The Schooner Exchange* and *The Siren* established that public vessels are immune from judicial process absent an explicit congressional waiver, emphasizing that immunity functions as a jurisdictional bar, not as a defense on the merits.[60] Later statutes—the PVA and SIAA—preserve this structure.[61] These statutes authorize limited suits against the United States for damages caused by its vessels but maintain immunity for sovereign acts. Notably, neither statute predicates immunity on crew presence or

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[58] *See* Vienna Convention on the Law of Treaties art. 31(1), May 23, 1969, 1155 U.N.T.S. 331 ("[A] treaty shall be interpreted in good faith in accordance with the ordinary meaning of the terms of the treaty in their context and in the light of its object and purpose.").

[59] Berizzi Bros. Co. v. S.S. Pesaro, 271 U.S. 562, 568–70 (1926) (extending immunity to state vessels engaged in public service and emphasizing that sovereign immunity turns on governmental function, not the vessel's form); United Nations Convention on the Law of the Sea arts. 29–32, Dec. 10, 1982, 1833 U.N.T.S. 397 (according complete immunity to warships and government vessels "on non-commercial service" by virtue of their public mission and sovereign authority).

[60] *See* Schooner Exch. v. McFaddon, 11 U.S. 116, 137–46 (1812) (holding that public ships of a sovereign are immune from U.S. jurisdiction absent consent, and treating the immunity as a jurisdictional bar); The Siren, 74 U.S. (7 Wall.) 152, 154–55 (1869) (affirming that public vessels of the United States cannot be subjected to suit without congressional authorization and that sovereign immunity precludes the court from exercising jurisdiction).

[61] *See* Public Vessels Act, 46 U.S.C. §§ 3110–13 (providing a limited waiver of sovereign immunity for admiralty claims involving U.S. public vessels and preserving immunity except as expressly granted); Suits in Admiralty Act, 46 U.S.C. §§ 30901–12 (codifying an exclusive statutory waiver for in personam admiralty claims against the United States and maintaining the jurisdictional bar absent congressional consent.

technological form. Similarly, under UNCLOS, immunity attaches because a vessel performs sovereign functions, not because it has sailors on deck.

C. Functionalism in Historical Perspective

History reinforces the doctrinal foundation of sovereign immunity. Technological innovation has never displaced the principle that immunity follows function.[62] International and domestic practice have consistently adapted the doctrine—from sail to steam, from steel to nuclear propulsion, and now from manned to autonomous operations—without eroding its core.[63] When the first submarines appeared, critics argued that unseen, submerged vessels violated the traditional conception of a "ship of war." However, by the onset of World War I, all major naval powers accepted submarines as lawful warships entitled to immunity.[64]

This historical continuity underscores the pragmatic adaptability of maritime law. Each technological leap demanded adjustments in application, not a departure from principle. Sovereign immunity persisted because it attached to the vessel's public function as an extension of state power, not to its propulsion system or crew composition. Autonomous and remotely operated vessels fall squarely within this lineage—new in method but consistent in legal character.

D. The Functional Application of Article 29

The enduring relevance of Article 29's definition of warship becomes clear when read through a functionalist lens. The "command" requirement is fulfilled so long as a duly commissioned officer retains ultimate authority and accountability for the vessel's operations, whether embarked, ashore, or exercising control through a remote supervisory chain.[65] Similarly, the "crew" requirement is satisfied when personnel who program, monitor, and maintain the vessel

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[62] *See* Natalie Klein, *Maritime Autonomous Vehicles Within the International Law Framework to Enhance Maritime Security*, 95 INT'L L. STUD. 244, 303, 306–07 (2019) (arguing that autonomous and other emerging maritime technologies do not require "disruptive law," because existing legal regimes—including sovereign immunity for government vessels—are functionally oriented and adaptable to technological change).

[63] *See Schooner Exch*., 11 U.S. at 137–46 (1812) (establishing immunity for public vessels of a sovereign during the age of sail); Berizzi Bros. Co. v. S.S. Pesaro, 271 U.S. 562, 568–70 (1926) (extending sovereign-vessel immunity to steel-hulled steamships, confirming continuity of doctrine across technological eras); United Nations Convention on the Law of the Sea arts. 29–32, Dec. 10, 1982, 1833 U.N.T.S. 397 (codifying immunity for warships and government vessels irrespective of propulsion or design); Klein, *supra* note 62, at 306–07.

[64] Hyman G. Rickover, *International Law and the Submarine*, 61 Proceedings 1341 (U.S. Naval Inst., Sept. 1935), https://www.usni.org/magazines/proceedings/1935/september/international-law-and-submarine (examining early international-law objections to submarines as warships and noting contemporary criticism that submerged, unseen vessels challenged traditional conceptions of lawful naval combatants).

[65] Klein, *supra* note 62, at 266 (2019) (observing that the warship/public-vessel immunity regime remains grounded in state function and sovereign commission, and hence is capable of accommodating autonomous systems without fundamental re-examination of the doctrine).

remain under the discipline of the armed forces.[66] In effect, autonomy does not sever the command relationship; it extends it. Automation alters the method of execution, but it does not affect the vessel's sovereign identity.

Viewed in this way, Article 29 continues to serve its stabilizing purpose within the law of the sea rather than freezing it at a moment of technological history. The VCLT reinforces this reading by instructing that treaties must be interpreted "in light of their object and purpose."[67] A literalist interpretation—requiring human physical presence as a precondition for warship status—would frustrate that purpose and render state vessels vulnerable to interference solely due to advances in technology.[68] A functionalist approach preserves the equilibrium of rights and obligations among states while allowing international law to evolve naturally with capability and need.

E. Strategic and Operational Implications

The consequences of failing to adopt this interpretation would extend far beyond academic debate. Indeed, a U.S. Navy Maritime Autonomous Surface Ship (MASS) conducting freedom of navigation operations could be challenged, boarded, or seized by coastal states exploiting textual ambiguities.[69] Similarly, an uncrewed platform entering a foreign port might be detained under the pretense that Article 29 requires "command" and "crew." Such lawfare would erode deterrence, embolden adversaries, and transform definitional uncertainty into a strategic weapon.[70]

Moreover, denying immunity would fracture coalition interoperability. Allies pursuing similar autonomous systems—such as the United Kingdom or Australia—could find their vessels exposed to inconsistent interpretations of immunity.[71] This would generate friction in joint operations and weaken collective maritime security.[72] A unified, functionalist standard for sovereign immunity is therefore not simply a matter of doctrinal coherence; it is a matter of

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[66] Klein, *supra* note 62, at 266–67 (observing that autonomous naval platforms remain capable of meeting Article 29's crewing and discipline requirements through alternative arrangements involving shore-based naval personnel).

[67] *See* Vienna Convention on the Law of Treaties art. 31(1), May 23, 1969, 1155 U.N.T.S. 331.

[68] *See id.* (requiring treaty terms to be interpreted in light of object and purpose, rather than through narrow literalism).

[69] *See generally* Foley, *supra* note 5.

[70] *Id.*

[71] *See* U.K. Ministry of Defence, UKDI: Three Naval Testbeds Transform Defence Innovation (2023), https://www.gov.uk/government/case-studies/ukdi-three-naval-testbeds-transform-defence-innovation (describing the Royal Navy's development of autonomous undersea testbeds, including the PROTEUS platform, as part of allied-interoperable future undersea capabilities); Austl. Dep't of Defence, Equipping the Royal Australian Navy with Next Generation Autonomous Undersea Vehicles (Ghost Shark) (Sept. 10, 2025), https://www.minister.defence.gov.au/media-releases/2025-09-10/equipping-royal-australian-navy-next-generation-autonomous-undersea-vehicles (announcing acquisition of the "Ghost Shark" XL-AUV as a sovereign autonomous undersea capability).

[72] R. Costanzi et al., Interoperability Among Unmanned Maritime Vehicles, 7 Frontiers in Robotics & AI 91 (2020), https://doi.org/10.3389/frobt.2020.00091 (analyzing technical and operational interoperability challenges for unmanned maritime vehicles across multiple navies and allied partners).

strategic necessity, ensuring that U.S. and allied forces operate under a consistent legal framework and that sovereignty cannot be contested through semantics.

F. The Enduring Core of Sovereign Immunity

At its core, the immunity of naval vessels—whether manned, remotely operated, or fully autonomous—rests on the unshakable premise that naval activity is inherently sovereign. Immunity flows not from the crew but from the independence and equality of the state itself.[73] Autonomy cannot transform a sovereign act into a commercial one; to the contrary, the continuity of doctrine in the autonomous era reaffirms the rule of law at sea.

By grounding immunity in function rather than form, a functionalist interpretation ensures that international law evolves in harmony with technological progress. It aligns with centuries of state practice, reinforces deterrence, and preserves maritime stability in an increasingly automated world. Sovereignty—not sailors—anchors immunity, and preserving that principle remains indispensable to operational freedom, alliance cohesion, and the credibility of naval power in the twenty-first century.

IV. The Sovereign Immunity Regime under UNCLOS

A. Definitional Constraints of Article 29

While sovereign immunity as a doctrine has proven resilient across centuries of legal and technological change, the sharpest stress point today lies in the definitional language of UNCLOS itself.[74] Doctrinal clarity at the level of principle does not prevent adversaries from exploiting textual ambiguities at the level of treaty provisions. In particular, Article 29's requirement that a warship be "under the command of an officer" and "manned by a crew" presents a focal challenge.[75] These terms, drafted in an era when autonomy was unimaginable, have become the wedge through which opponents may attempt to deny sovereign immunity to autonomous naval platforms.

B. Treaty Text and Interpretive Framework

Article 29 should not be read as a technological checklist but as a doctrinal expression of sovereign control. A literalist approach—tying warship status to the physical presence of a commanding officer and crew—would plunge sovereign immunity into obsolescence the moment technology outpaces human crewing.[76] Instead, a functionalist reading maintains continuity between treaty text and operational realities, ensuring that the law of the sea adapts without undermining its stabilizing function. [77]

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[73] *See* Ian Brownlie, Principles of Public International Law (8th ed. 2012).

[74] *Newport Manual on the Law of Naval Warfare* § 3.2.1, at 38 and 44 (U.S. Naval War Coll. 2023). These two passages provide exactly the evidentiary grounding needed: they show that the *definitional language* of UNCLOS Article 29 (requiring command by a commissioned officer and manned by a crew) has become the central interpretive stress point when applied to autonomous or unmanned vessels.

[75] *See* UNCLOS, *supra* note 3.

[76] James Kraska, *The Law of Unmanned Naval Systems in War and Peace*, J. OCEAN TECH. 44 (2010).

[77] *See* Klein, *supra* note 62, at 251.

Under this interpretation, "command" refers to the lawful exercise of authority by a duly commissioned officer—whether physically embarked or exercising that authority remotely—and "crew" encompasses all personnel under the discipline of the armed forces who supervise, program, or monitor the vessel's operations. Notably, U.S. Navy doctrine already reflects this principle: Every autonomous platform is assigned a commanding officer or supervisory command element, preserving accountability under the Uniform Code of Military Justice and the law of armed conflict.[78] In this sense, command is a relationship of legal authority, not of physical presence; crew is a category of responsibility, not proximity.

Furthermore, the functionalist approach aligns with the VCLT, which directs that treaties be interpreted in good faith in the light of their object and purpose.[79] Applied here, that bedrock principle of treaty interpretation supports reading Article 29 as ensuring sovereign accountability rather than prescribing technological requirements. The functionalist interpretation operationalizes this VCLT principle by focusing on the sovereign *character* of the act, not the mechanics of its execution.[80] The object and purpose of Article 29—to ensure that warships remain instruments of disciplined state authority—are satisfied whether command is exercised on deck or through secure communication links across continents.[81]

C. Customary Law and U.S. State Practice

Functionalism also harmonizes treaty interpretation with customary international law and U.S. statutory precedent. American jurisprudence has long treated naval activity as the quintessential sovereign act, immune from foreign jurisdiction regardless of crew composition.[82] In *The Schooner Exchange* and *The Siren*, the Supreme Court affirmed that public vessels are immune from local process unless Congress expressly waives that protection.[83] The PVA and SIAA codified that limited waiver, only allowing suits to proceed under narrow conditions while preserving the jurisdictional bar of sovereign immunity.[84] The Acts are technologically neutral; heir coverage extends to public vessels of the United States without reference to how they are operated.[85] A functionalist interpretation reads this statutory neutrality as a domestic corollary to

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[78] The Commander's Handbook *supra* note 17, at 31.
[79] *See* Vienna Convention on the Law of Treaties art. 31(1), May 23, 1969, 1155 U.N.T.S. 331.
[80] *See*, *e.g., id.* (requiring interpretation "in good faith" and "in the light of [a treaty's] object and purpose," rather than through a narrow or technical reading); Klein, *supra* note 62, at 251.
[81] *See* The Newport Manual on the Law of Naval Warfare § 2.6 (2023)
[82] *See The Santissima Trinidad*, 20 U.S. (7 Wheat.) 283 (1822) (reaffirming that a public vessel must be considered as exempt from the jurisdiction of the country).
[83] *See* Schooner Exch. v. McFaddon, 11 U.S. 116 (1812 (holding that public armed ships of a foreign sovereign are exempt from the jurisdiction of U.S. courts absent that sovereign's consent); The Siren, 74 U.S. (7 Wall.) 152 (1868) (reaffirming the immunity of public vessels and explaining that suits against them may proceed only when Congress has authorized it).
[84] *See* Public Vessels Act, 46 U.S.C. §§ 31101–13; Suits in Admiralty Act, 46 U.S.C. §§ 30901–18; *see also* United States v. United Continental Tuna Corp., 425 U.S. 164 (1976) (explaining that the PVA and SIAA constitute limited waivers of sovereign immunity and that the United States remains immune except as Congress expressly provides).
[85] *See* Public Vessels Act, 46 U.S.C. §§ 31101–13; Suits in Admiralty Act, 46 U.S.C. §§ 30901–18.

the international rule—immunity attaches because the vessel serves a sovereign function, not because it carries a human crew.

Similarly, under the FSIA, military and governmental activities are excluded from the commercial activity exception.[86] Courts have consistently drawn a bright line between *jure imperii* (sovereign acts) and *jure gestionis* (commercial acts).[87] U.S. courts have reiterated that public and naval vessels operate squarely within the realm of *jure imperii*.[88] This jurisprudence reinforces the functionalist logic: Sovereign immunity follows the nature of the function, not the form of the platform. Autonomous warships, as commissioned naval instruments, fit seamlessly within this category.

D. Historical Continuity and Technological Adaptation

History confirms the functionalist interpretation as an engine of doctrinal continuity. Each major naval innovation—from steam propulsion to submarines, nuclear power, and aircraft carriers—initially provoked doubts about compatibility with existing definitions, yet the law adapted each time to reaffirm that immunity follows the sovereign function.[89] Submarines were once denounced as "unlawful" under prize-law traditions premised on surface combat; nuclear-powered vessels raised environmental concerns; and aircraft carriers were initially dismissed as auxiliaries. Yet, in every instance, state practice and diplomatic consensus restored the doctrinal equilibrium.[90] This recurring pattern suggests that functionalism is not a modern invention. Rather, it is the implicit interpretive method by which sovereign immunity has endured.

Autonomous naval vessels represent the next step in this continuum. A functionalist interpretation ensures the "continuity of immunity," adapting maritime law to autonomy as it once adapted to steel hulls and nuclear reactors.[91] To deny sovereign immunity based on Article 29's legacy language would upend this historical pattern, undermining stability and enabling adversaries to weaponize textual formalism as a tool of lawfare.[92] It would not enhance accountability. It would invite coastal states to justify boarding, inspection, or seizure under the pretext of definitional ambiguity—precisely the outcomes UNCLOS was designed to prevent.[93]

E. Functionalism as the Integrating Principle

Functionalism provides the legal architecture that unites doctrinal principle, operational practice, and sovereign accountability. The continuity of command authority and flag-state control—manifested through commissioning, documentation, and oversight—ensures that

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[86] *See* Foreign Sovereign Immunities Act, 28 U.S.C. § 1603(d)–(e) (defining "commercial activity" and distinguishing it from sovereign or governmental acts).
[87] *See* Republic of Argentina v. Weltover, Inc., 504 U.S. 607 (1992).
[88] *See* The Santissima Trinidad, 20 U.S. (7 Wheat.) 283, 353 (1822); *Schooner Exch*., 11 U.S. at 146; The Siren, 74 U.S. (7 Wall.) 152, 154–55 (1868).
[89] *See* Hyman G. Rickover, International Law and the Submarine, 61 Proceedings 1341 (U.S. Naval Inst., Sept. 1935).
[90] *See id.* 1341–44 (describing early denunciations of submarines as unlawful under traditional surface-warfare and prize-law norms before state practice accepted them as lawful warships).
[91] James Kraska, *The Law of Unmanned Naval Systems in War and Peace*, J. OCEAN TECH. 44 (2010).
[92] Foley, *supra* note 5.
[93] *See* Klein, *supra* note 62, at 251–52.

autonomy extends command rather than replaces it.[94] As this Article argues, under a functionalist interpretation, the locus of sovereignty lies not in the bridge of the ship but in the chain of lawful command that links the vessel to the state.[95] The essence of the sovereign act resides in three legal acts: commissioning, the subjection of the vessel to military discipline and command authority, and exclusive governmental use.[96] Whether a vessel is manned, remotely operated, or fully autonomous, it remains an organ of the flag state performing a public function.[97] Therefore, its status as a sovereign organ remains intact, entitling it to full sovereign immunity.[98]

UNCLOS Article 29, drafted in an era when full autonomy was beyond imagination, must be read dynamically rather than mechanically. The functionalist interpretation recognizes that the treaty's purpose is to preserve sovereign equality and accountability—not to freeze naval law in antiquated technological assumptions. As the IMO's MASS scoping exercise observed, many maritime instruments assume the physical presence of master and crew and must evolve to reflect new operational models.[99] Applying a functionalist interpretation to UNCLOS allows it to remain a living instrument—stabilizing rather than constraining maritime order.

F. Strategic and Doctrinal Implications

The functionalist approach also carries strategic consequences. By reaffirming that command and accountability flow through established legal structures, the United States and its allies can preempt adversarial narratives that seek to delegitimize autonomous operations.[100] Functionalism transforms technological innovation from a perceived legal vulnerability into an expression of enduring sovereign competence. It underscores that sovereignty is a matter of lawful authority and disciplined command, not the physical proximity of personnel.

Conversely, abandoning the functionalist view would invite doctrinal fragmentation.[101] Rigid literalism would render future innovations—from AI-driven fleet coordination to unmanned submersible networks—legally uncertain and operationally exposed.[102] A functionalist

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[94] *See* The Newport Manual on the Law of Naval Warfare § 3.3 (2023).

[95] UNCLOS, *supra* note 3, at art. 29; Vienna Convention on the Law of Treaties art. 31(1), May 23, 1969, 1155 U.N.T.S. 331. (UNCLOS Art. 29 anchors the "command" concept; VCLT Art. 31 supports reading treaty terms in context/purpose).

[96] *See* The Newport Manual on the Law of Naval Warfare § 3.3 (2023) (emphasizing that unmanned naval systems remain under the command and discipline of armed-forces personnel and operate exclusively for governmental purposes).

[97] *See* UNCLOS, *supra* note 3, at arts. 29, 32 (defining warships by their sovereign commission, command, discipline, and exclusive governmental use, and providing that such vessels enjoy complete immunity from the jurisdiction of any state other than the flag state).

[98] *See* UNCLOS, *supra* note 3, at art. 32.

[99] IMO, Outcome of the Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships, MSC.1/Circ.1638 (2021).

[100] *See* Foley, *supra* note 5 (describing how adversarial states weaponize legal interpretations and narratives to delegitimize U.S. and allied operations and emphasizing the importance of reinforcing lawful command and accountability structures to counter such lawfare).

[101] *See* Klein, *supra* note 62 (warning that rigid or literal interpretations of maritime treaties—particularly those premised on outdated assumptions about masters and crew—risk generating divergent state practice and undermining coherence across the law of the sea).

[102] *See* Klein, *supra* note 62, at 251–52.

interpretation thus safeguards not only legal coherence, but also the strategic imperatives of maritime deterrence and alliance cohesion.

Ultimately, the functionalist interpretation of sovereign immunity does more than reconcile treaty text with technology. It secures the continuity of sovereignty itself and ensures that law evolves in step with operational practice, preserving both accountability and independence at sea. By grounding warship status in *function* rather than form, the law of the sea continues to perform its fundamental role: protecting sovereign command, preserving maritime stability, and deterring lawfare as a means of coercion.

V. Accountability and Liability in the Autonomous Era

A. U.S. Courts' Treatment of Sovereign Immunity

Historically, courts and commentators grappled with whether immunity was absolute or subject to exceptions, reflecting tension between sovereignty and accountability.[103] The United Nations International Law Commission (ILC) acknowledged this in its 1991 Draft Articles on Jurisdictional Immunities of States, which rejected absolute immunity and endorsed exceptions for commercial activity, torts, and arbitral agreements, while noting that the rationale for such exceptions was largely pragmatic rather than theoretical.

Before Congress enacted the FSIA, courts in the United States treated sovereign immunity determinations as questions of foreign relations entrusted to the political branches.[104] In *Ex parte Republic of Peru*, the Supreme Court held that the executive branch's suggestion of immunity was controlling on the judiciary, requiring dismissal of proceedings against a Peruvian public vessel once the State Department recognized its sovereign status.[105] Similarly, in *Republic of Mexico v. Hoffman*, the Court underscored that the recognition or denial of immunity for a foreign warship rested not with the courts but with the executive, which alone possessed the authority to balance comity, reciprocity, and diplomatic consequences.[106]

These cases exemplify the pre-FSIA regime of judicial deference, under which naval vessels enjoyed immunity by virtue of executive recognition rather than statutory mandate. The United States codified this restrictive theory through the FSIA of 1976, which confined immunity to public acts and excluded commercial activities, torts, and certain property disputes.[107] Courts have long recognized the commercial activity exception as the most significant limitation on immunity.[108] As articulated in *Verlinden B.V. v. Central Bank of Nigeria*, immunity shields only public acts (*jure imperii*), while private and commercial acts (*jure gestionis*) fall outside of its

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[103] Francis J. Nicholson, *Sucharitkul: State Immunities and Trading Activities*, 2 B.C. L. REV. 459 (1961), http://lawdigitalcommons.bc.edu/bclr/vol2/iss2/42.
[104] *See* Alfred Dunhill of London, Inc. v. Republic of Cuba, 425 U.S. 682, 695–706 (1976); Nicholson *supra* note 38.
[105] *See* Ex parte Republic of Peru, 318 U.S. 578, 589 (1943); Republic of Mexico v. Hoffman, 324 U.S. 30, 39 (1945).
[106] Republic of Mexico v. Hoffman, 324 U.S. 30, 34–36 (1945).
[107] Foreign Sovereign Immunities Act, 28 U.S.C. §§ 1330, 1391(f), 1441(d), 1602–11.
[108] Verlinden B.V. v. Cent. Bank of Nigeria, 461 U.S. 480, 487 (1983).

protection.[109] Congress's statement of purpose in the FSIA confirmed that "states are not immune from the jurisdiction of foreign courts insofar as their commercial activities are concerned."[110]

By contrast, military operations—including those conducted by warships—remain firmly in the category of sovereign acts.[111] The FSIA expressly excludes military activity from its exceptions; naval operations do not constitute "commercial" activity within the meaning of § 1605(a)(2).[112] Indeed, as commentators have noted, attempts to draw distinctions between governmental and commercial functions have proven conceptually unstable. Several scholars rejected the nature/purpose dichotomy altogether, advocating instead for specific rules tied to categories of conduct.[113] The doctrinal point is clear: The restrictive theory of immunity has always carved out space for exceptions in commerce and torts but has consistently insulated acts of state relating to military functions.

The Supreme Court's jurisprudence before and after the FSIA consistently reinforced the boundary between commercial conduct and public, sovereign functions.[114] In *Berizzi Bros. Co. v. S.S. Pesaro*, the Court held that a merchant vessel owned by Italy but devoted exclusively to public service was immune from suit, drawing a bright line between sovereign and commercial uses.[115] This principle was sharpened in *Compania Espanola de Navegacion Maritima, S.A. v. The Navemar*, in which the Court denied immunity to a Spanish vessel operated in commerce despite its sovereign ownership, making clear that immunity attaches only when the vessel is engaged in governmental service.[116]

The Court's reasoning reflected the restrictive theory's emerging focus: Immunity is preserved for *jure imperii*, not for *jure gestionis*.[117] This distinction was reaffirmed at the cusp of the FSIA in *Alfred Dunhill of London, Inc. v. Republic of Cuba*, where a plurality of the Court embraced the restrictive theory and stressed that purely commercial conduct—even when undertaken by a sovereign—was not protected by immunity.[118] Nevertheless, *Dunhill* underscored the vitality of immunity for public, governmental acts such as defense and naval operations.[119] After the FSIA codified the restrictive approach, the Court in *Argentine Republic v. Amerada Hess Shipping Corp.* confirmed that the statute provides the exclusive framework for jurisdiction over foreign sovereigns in U.S. courts.[120] *Amerada Hess* also reaffirmed that acts *jure imperii*, including

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[109] 28 U.S.C. § 1692; H.R. REP. NO. 94-1487, at 1 (1976).
[110] Foreign Sovereign Immunities Act, 28 U.S.C. §§ 1330, 1391(f), 1441(d), 1602–11.
[111] Guevara v. Republic of Peru, 468 F.3d 1289, 1296 (11th Cir. 2006).
[112] *Id.*; 28 U.S.C. § 1605(a)(2) (2012).
[113] James Crawford, *International Law and Foreign Sovereigns: Distinguishing Immune Transactions*, 54 BRIT. Y.B. INT'L L. 75, 96 (1983).
[114] *See e.g,* Compania Espanola de Navegacion Maritima, S.A. v. The Navemar, 303 U.S. 68, 74–75 (1938); Argentine Republic v. Amerada Hess Shipping Corp., 488 U.S. 428, 434–35 (1989).
[115] *See* Berizzi Bros. Co. v. S.S. Pesaro, 271 U.S. 562, 574–76 (1926).
[116] *See The Navemar*, 303 U.S. 68, 74–75.
[117] *See id.*
[118] *See* Alfred Dunhill of London, Inc. v. Republic of Cuba, 425 U.S. 682, 695–706 (1976).
[119] *See id.*
[120] Argentine Republic v. Amerada Hess Shipping Corp., 488 U.S. 428, 434–35 (1989).

military operations at sea, remain categorically immune unless Congress expressly provides otherwise.[121]

B. Flag-State Attribution and Immunity

The attribution of state conduct in the maritime domain is governed by the Articles on State Responsibility, which provide that the actions of any organ of the state—including its armed forces at sea—are imputable to the flag state.[122]

With respect to U.S. law, the Supreme Court's decision in *The Siren* (1869) affirmed that admiralty jurisdiction cannot be exercised over public vessels of the United States absent an express waiver by Congress.[123] The Court emphasized that sovereign immunity functions as a jurisdictional limitation, preventing the assertion of foreign or domestic judicial authority over public vessels rather than providing a substantive defense to liability.[124] Subsequent jurisprudence has maintained this distinction, treating immunity as a procedural bar while recognizing that responsibility for wrongful acts may still attach at the state level under international law.[125]

The modern law of naval warfare reinforces this continuity between sovereign function and vessel status. The San Remo Manual confirms that "warships and other government vessels owned or operated by a State and used only on government non-commercial service" retain full immunity from capture and interference, thereby extending this protection to auxiliary and support vessels employed in sovereign functions.[126] This reflects the broader principle—codified in UNCLOS Article 94(1)—that every flag state must effectively exercise its jurisdiction and control in administrative, technical, and social matters over ships flying its flag.[127] Nothing in this formulation requires the physical presence of a crew. Flag-state responsibility is technologically neutral: It attaches to the act of sovereign control, not the mechanics by which a vessel is operated. Thus, unmanned surface vessels (USVs), though not physically manned, remain subject to the laws, regulations, and command structures of the state whose flag they fly.

Direct jurisprudence on autonomous or unmanned vessels remains limited, but analogous cases support the same functionalist logic. In the *I'm Alone* arbitration, the Permanent Commission of Arbitration emphasized that a vessel's legal status turns on its function and use, not on the presence of a crew.[128] Likewise, the International Tribunal for the Law of the Sea in *M/V Saiga*

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[121] *See id.*
[122] *See* Int'l Law Comm'n, Draft Articles on Responsibility of States for Internationally Wrongful Acts, arts. 4–7, U.N. Doc. A/56/10.
[123] *See id.* (providing that the conduct of any state organ—including armed forces—is attributable to the state, regardless of location or operational modality).
[124] *See* The Siren, 74 U.S. (7 Wall.) 152, 154–55 (1868) (explaining that suits against public vessels are barred absent explicit congressional consent, treating sovereign immunity as a jurisdictional limitation rather than a merits defense).
[125] *See* Jurisdictional Immunities of the State (Ger. v. It.), Judgment, 2012 I.C.J. Rep. 99, ¶¶ 93–94 (Feb. 3) (holding that state immunity is a jurisdictional/procedural bar distinct from the underlying question of state responsibility).
[126] Int'l Inst. Humanitarian L., San Remo Manual on International Law Applicable to Armed Conflicts at Sea § 2, at 31 (Louise Doswald-Beck ed., 2010) [hereinafter San Remo Manual].
[127] UNCLOS, *supra* note 3, art. 94(1).
[128] S.S. I'm Alone (Can. v. U.S.), 3 R.I.A.A. 1609, 1614 (1935).

(No. 2) reaffirmed that the decisive factor is the flag state's rights and responsibilities over vessels under its registry—demonstrating that control, rather than physical occupation, defines the legal relationship between a vessel and its sovereign.[129] Together, these authorities reinforce that the status of a state-operated vessel, including an autonomous one, derives from sovereign function, command, and registration—not from human presence aboard.

Accordingly, when a naval vessel—whether operated by human personnel, remote control, or autonomous systems—engages in conduct such as navigation, collision, or armed engagement, that conduct is attributable to the United States as the flag state.[130] The introduction of autonomy does not alter this structure of attribution.[131] Under established principles, sovereign immunity remains applicable to commissioned warships and other public vessels, insulating them from foreign jurisdiction while preserving the flag state's ultimate responsibility for compliance with international obligations.[132]

1. Maritime Collisions

Maritime collisions provide an established legal framework for understanding how state accountability operates in admiralty law. The Public Vessels Act (PVA), 46 U.S.C. §§ 31101–31113, authorizes suits against the United States for damages caused by public vessels, but only under narrowly defined conditions. The statute reflects Congress's intent to permit limited recovery without compromising the broader principle of sovereign immunity. In *United States v. United Continental Tuna Corp.*, 425 U.S. 164 (1976), the Supreme Court reaffirmed that naval vessels fall squarely within the scope of the PVA and emphasized that Congress deliberately preserved its restrictions to prevent uncontrolled liability against the United States.

The PVA functions as a partial waiver of sovereign immunity, allowing certain maritime claims while maintaining jurisdictional boundaries. Its provisions operate in tandem with the SIAA, which governs similar claims involving government-owned merchant or auxiliary vessels.[133] Together, these statutes form the cornerstone of the United States' approach to maritime liability for public vessels.

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[129] *See id.* at 1617; *see also* M/V Saiga (No. 2) (St. Vincent v. Guinea), Case No. 2, Judgment of July 1, 1999, 2 ITLOS 10, 33–38, 53–54, 72–74.

[130] U.S. Naval War College, The Newport Manual on the Law of Naval Warfare 38 (2023) (affirming that both manned and unmanned naval platforms operate as organs of the flag state for purposes of state responsibility).

[131] *See* Vienna Convention on the Law of Treaties arts. 26–27, May 23, 1969, 1155 U.N.T.S. 331 (affirming that states remain bound by their international obligations and may not invoke internal technical or operational arrangements to avoid responsibility); *see also* U.S. Naval War College, The Newport Manual on the Law of Naval Warfare 38 (2023) (clarifying that unmanned and autonomous naval platforms continue to function as organs of the flag state for purposes of state responsibility).

[132] UNCLOS, *supra* note 3, at arts. 32, 95–96 (providing that warships and other government vessels used for non-commercial service enjoy immunity from foreign jurisdiction).

[133] *See* Public Vessels Act, 46 U.S.C. §§ 31101–13; Suits in Admiralty Act, 46 U.S.C. §§ 30901-18.

Importantly, the PVA does not condition the United States' liability—or the vessel's immunity—on the presence of a human crew.[134] Instead, the statute defines coverage in terms of vessel ownership and employment "as a public vessel of the United States," focusing on sovereign function rather than the means of operation.[135] Under this framework, responsibility for damage caused by a naval vessel flows through the flag state, and jurisdiction remains limited to the specific waivers provided by Congress.[136] This statutory scheme establishes that accountability for public vessels is a matter of domestic law and controlled waiver, not general submission to foreign or private claims.

2. The Law of Armed Conflict

The law of armed conflict (LOAC) likewise continues to apply in full to autonomous naval vessels.[137] The deployment of autonomy does not relieve the United States of the obligations of distinction, proportionality, and precaution. The attribution of wrongful conduct at sea flows through the command structure of the flag state, ensuring that commanders remain accountable for the actions of their vessels.[138] U.S. Navy doctrine, as reflected in the *Unmanned Campaign Framework*, explicitly frames autonomy as an instrument to extend the reach of command rather than a mechanism to displace it.[139]

Under this framework, commanders will retain full authority over the employment of unmanned systems as autonomy extends reach and effectiveness, but it does not replace command.[140] This framework guarantees that command responsibility continues to apply, even when a vessel executes functions without real-time human input.[141] In this respect, errors by an autonomous system are treated no differently under LOAC than errors by a human crew.[142] Misidentification, navigational miscalculation, or failure to comply with the "ordinary practice of seamen" under the Convention on the International Regulations for Preventing Collisions at Sea

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[134] *See* Public Vessels Act, 46 U.S.C. §§ 31101–13 (creating a cause of action for damages caused by a "public vessel of the United States" without reference to manning requirements).
[135] *Id.*
[136] *See* Canadian Aviator, Ltd. v. United States, 324 U.S. 215, 222–24 (1945) (explaining that liability for a public vessel's actions derives from the sovereign's statutory waiver, not from the operational characteristics of the vessel).
[137] Dep't of the Navy, *supra* note 1. "The DOD has adopted and continues to evaluate a set of Ethical Principles for the use of Artificial Intelligence. The DON will ensure implementation of the DOD AI Ethical Principles in alignment as they apply to the use of Unmanned Autonomous Systems capable of applying force on the battlefield."
[138] Draft Articles on Responsibility of States for Internationally Wrongful Acts, with commentaries, art. 4, in [2001] 2 Y.B. INT'L L. COMM'N 31, U.N. Doc. A/CN.4/SER.A/2001/Add.
[139] Dep't of the Navy, *supra* note 1, at 5.
[140] Dep't of the Navy, Unmanned Campaign Framework 5 (2021). (Unmanned systems will be integrated into Fleet operations. These systems do not replace manned platforms, but they enhance and complement them.)
[141] Dep't of the Navy, *supra* note 1, at 5.
[142] Dep't of the Navy, *supra* note 1, at 5.

(COLREGS) remains attributable to the flag state. Immunity shields the vessel from foreign jurisdiction, but responsibility for lawful conduct remains with the United States.[143]

3. COLREGs

Autonomous naval vessels also raise unique challenges under the COLREGS. Rule 5 requires "a proper lookout by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision."[144] For human crews, this rule has traditionally demanded continuous vigilance by qualified watchstanders.[145] Whether an artificial intelligence system equipped with radar, sonar, and electro-optical sensors can constitute a "lookout" within the meaning of Rule 5 presents a novel interpretive question.

Similarly, Rule 6 requires a vessel to proceed at a "safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances."[146] An unmanned vessel may be capable of algorithmically calculating safe speeds with far greater precision than human crews, but the rule's text presumes a human mariner exercising judgment.[147] Rule 7, concerning the determination of risk of collision, also assumes a human decision-maker: "Every vessel shall use all available means . . . to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist."[148]

Consider a hypothetical scenario in which an autonomous U.S. Navy surveillance vessel detects a commercial tanker on a crossing course. An AI system may calculate that, with precise course and speed adjustments, the risk of a collision is negligible. A human watch officer, however, might apply the "if in doubt, presume risk" standard more conservatively. If a collision occurs, the question arises: Did the AI meet the COLREGS duty of seamanship? Under current law, liability would still flow to the flag state under the PVA, but adversaries might argue that autonomy inherently fails to satisfy the "ordinary practice of seamen."[149]

Ultimately, the seamanship standards embedded in the COLREGS can be operationalized through programming and supervisory command, ensuring that autonomous vessels meet the same navigational obligations as manned warships.[150] To deny immunity on the basis that compliance is achieved through algorithms rather than sailors would invert the doctrine's purpose: Sovereign immunity attaches to the vessel as an instrument of state authority, not to the physical presence of human watchstanders.[151]

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[143] Joel Coito, *Maritime Autonomous Surface Ships: New Possibilities–and Challenges–in Ocean Law and Policy*, 97 INT'I L. STUD. 259, 288–91, (2021).
[144] *See* Convention on the Int'l Regulations for Preventing Collisions at Sea, Rule 2, Oct. 20, 1972, 1050 U.N.T.S. 16 [hereinafter COLREGS].
[145] *See* COLREGS, *supra* note 144, at Rule 5.
[146] *See* COLREGS, *supra* note 144, at Rule 6.
[147] *See* COLREGS, *supra* note 144, at Rule 6.
[148] *See* COLREGS, *supra* note 144, at Rule 7.
[149] *See* COLREGS, *supra* note 144, at Rule 2.
[150] Eleni Achnioti, *To What Extent Can Unmanned Ships Comply with COLREGs 1972 and How Will the Liability of Such Vessels Be Assessed?*, 11 SOUTHAMPTON STUDENT L. REV. 77, 102–05 (2021).
[151] Achnioti, *supra* note 150.

4. Salvage Law

Beyond collision avoidance, salvage law presents additional complexities for unmanned naval vessels. The traditional law of salvage grants compensation to those who voluntarily save maritime property from peril.[152] Sovereign immunity has long excluded warships from being treated as ordinary property at sea.[153] A derelict or disabled U.S. Navy vessel cannot be legally appropriated or sold; its sovereign character persists even in abandonment.[154] This principle extends to autonomous platforms.[155] If an unmanned U.S. Navy vessel suffers a casualty and is disabled or adrift, a salvor may be entitled to compensation under the PVA for expenses incurred but cannot assert possession or proprietary rights.[156]

Hypotheticals highlight the stakes. Suppose a crewless U.S. Navy mine-countermeasure vessel grounds in shallow waters during a storm and is later refloated by a commercial tug. The salvor could claim compensation under the PVA's limited waiver but could not assert a maritime lien or claim ownership. In a more adversarial scenario, imagine a foreign navy towing a disabled U.S. autonomous vessel into its own port and claiming salvage rights. Under UNCLOS Articles 95–96, such actions would violate sovereign immunity, as the vessel remains immune from enforcement measures regardless of its crew status.[157]

The analogy to the USS PUEBLO incident is instructive: Even when seized, a warship's sovereign character is not extinguished. These scenarios demonstrate that autonomy does not create a new salvage regime. Sovereign immunity and the PVA's framework already account for salvage claims, balancing limited compensation with the principle that naval vessels remain inviolable instruments of state. The challenge lies not in the absence of rules but in ensuring that adversaries do not manipulate autonomy to argue that crewless vessels lack the indicia of sovereignty that shield them from capture or appropriation.

C. Technological Change, Doctrinal Stability

Having outlined the legal background governing state responsibility, admiralty law, and the law of armed conflict, this section applies a functionalist interpretation to evaluate how those regimes accommodate autonomy without eroding sovereign immunity. The key inquiry is whether the substitution of human crews with autonomous systems alters accountability or liability under international or domestic law. A functionalist approach—focused on purpose, control, and attribution rather than on the physical presence of a human crew—demonstrates that the existing legal architecture is fully capable of absorbing autonomy. Sovereign immunity continues to bar foreign jurisdiction, while responsibility for wrongful acts continues to flow to the flag state. Autonomy, in short, modifies the means of execution but not the legal identity of the act.

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[152] *See generally* Treasure Salvors, Inc. v. Unidentified Wrecked & Abandoned Sailing Vessel, 640 F.2d 560 (5th Cir. 1981).
[153] UNCLOS, *supra* note 3, arts. 95–96.
[154] The Santissima Trinidad, 20 U.S. 283, 353–54 (1822) (holding that a public vessel of war retains its sovereign immunity regardless of capture or sale attempts); *see also* Schooner Exch. v. McFaddon, 11 U.S. 116, 145–46 (1812) (recognizing that warships remain immune from foreign jurisdiction as enduring instruments of state sovereignty).
[155] *See also* 32 C.F.R. § 767.15 (2025).
[156] Public Vessels Act, 46 U.S.C. §§ 31101-13; *see also* 32 C.F.R. § 767.15.
[157] UNCLOS, *supra* note 3, arts. 95–96.

1. Maritime Collisions and the Continuity of Accountability

As stated earlier, the PVA authorizes suits against the United States for damage caused by public vessels under narrow, statutorily defined conditions.[158] The Supreme Court's decision in *United States v. United Continental Tuna Corp.* reaffirmed that naval vessels fall squarely within that framework, ensuring limited liability without surrendering sovereign immunity.[159]

From a functionalist perspective, the PVA demonstrates how U.S. law already incorporates technology-neutral accountability. The statute's operative category—"public vessel"—is predicated on sovereign purpose rather than the mechanics of operation.[160] Whether a vessel is crewed by sailors or directed by algorithms, it acts as an organ of the state.[161] A functionalist interpretation of the PVA thus precludes the creation of novel liability categories for "algorithmic errors," as such distinctions would fracture the doctrine of unified state responsibility.[162]

Consider a collision between an autonomous U.S. Navy surveillance vessel and a commercial tanker. Even if an algorithmic miscalculation contributed to the incident, liability would attach to the United States under the PVA, just as it would for a human navigator's error.[163] The flag state's accountability remains the same; the method of control is legally irrelevant. Efforts to carve out "autonomy-specific" liability regimes would undermine this continuity and invite fragmentation in maritime law.[164] By contrast, under a functionalist reading, sovereign immunity continues to protect the vessel from foreign process, while domestic statutes preserve limited, controlled channels of redress—thereby maintaining the equilibrium between immunity and accountability.[165]

Thus, incidents involving autonomous vessels—whether collisions, groundings, or salvage claims—are already addressed within the existing statutory framework. Efforts to expand liability specifically for "AI errors" should therefore be resisted. Creating new liability regimes for autonomous systems would undermine the settled principle that sovereign immunity attaches to

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[158] *See* Public Vessels Act, 46 U.S.C. §§ 31101–13.

[159] *See* United States v. United Continental Tuna Corp., 425 U.S. 164, 168–71 (1976) (holding that Congress intended the PVA and SIAA to provide the exclusive remedies for suits involving public vessels, preserving the United States' sovereign immunity except as expressly waived).

[160] *See* 46 U.S.C. § 31101(1) (defining "public vessel" based on ownership by the United States and employment in a public service, without reference to crewed status or mode of control); *See also* Canadian Aviator, Ltd. v. United States, 324 U.S. 215, 222–24 (1945) (emphasizing that liability flows from the vessel's function as an instrumentality of the United States, not from the technical means by which it is operated).

[161] UNCLOS, *supra* note 3 arts. 29, 32, 95–96.

[162] *See* 46 U.S.C. §§ 31101–13 (establishing liability for damage caused by public vessels without distinguishing among types of operation or sources of error); *see also* U.S. Naval War College, The Newport Manual on the Law of Naval Warfare 38 (2023) (affirming that unmanned, remote, and autonomous naval platforms remain organs of the flag state for all purposes of attribution and responsibility).

[163] *See* Public Vessels Act, 46 U.S.C. §§ 31101–13.

[164] *See* U.S. Naval War College, The Newport Manual on the Law of Naval Warfare 38 (2023).

[165] *See* UNCLOSE, *supra* note 3, at arts. 32, 95–96 (codifying the sovereign immunity of warships and other government vessels operated for non-commercial service); *See* also Suits in Admiralty Act, 46 U.S.C. §§ 30901–18, and Public Vessels Act, 46 U.S.C. §§ 31101–13.

the vessel as an instrument of state authority, irrespective of how it is controlled.[166] Compliance questions may arise, but ultimate liability still rests with the flag state and falls within established doctrines.[167] The PVA provides the exclusive remedy; foreign states and private parties cannot bypass its limitations by recasting errors as uniquely attributable to AI-enabled control systems rather than seamanship.

2. The Law of Armed Conflict and Command Responsibility

The law of armed conflict (LOAC) further illustrates how autonomy integrates seamlessly within a functionalist framework.[168] The deployment of autonomous systems does not diminish the obligations of distinction, proportionality, or precaution. Instead, those duties flow through the existing chain of command. U.S. Navy doctrine—particularly the Unmanned Campaign Framework—explicitly conceptualizes autonomy as a means of extending command, not replacing it.[169]

Under a functionalist approach, the question is not whether a commander physically directs each action, but whether lawful authority and accountability remain intact. As long as a duly commissioned officer exercises command responsibility—approving missions, setting parameters, and supervising performance—autonomous conduct is attributable to the flag state under the Articles on State Responsibility.[170] This mirrors the logic applied to traditional human crews: Accountability follows the exercise of command, not corporeal proximity.

Errors committed by autonomous systems—such as target misidentification or navigational misjudgment—are treated no differently under LOAC than human errors.[171] The duty of the state is to investigate, remedy, and prevent recurrence, not to relinquish immunity.[172] Functionalism thus ensures that autonomy strengthens operational precision without eroding the principle of command responsibility. Sovereign immunity remains jurisdictional, while accountability remains internal to the flag state's command and disciplinary structure.

3. COLREGS and the Functional Standard of Seamanship

As previously discussed, the COLREGS were drafted with human mariners in mind, but their object and purpose—collision avoidance and safe navigation—are performance-based, not anthropocentric. A functionalist interpretation reads "proper lookout," "safe speed," and "risk of collision" as standards of outcome—not as literal requirements of human sight and hearing.

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[166] James Kraska, *Unmanned Naval Systems and International Law*, 52–53 (Naval War Coll. 2016).
[167] Achnioti, *supra* note 150, at 102–05.
[168] Dep't of the Navy, *supra* note 1. "The DOD has adopted and continues to evaluate a set of Ethical Principles for the use of Artificial Intelligence. The DON will ensure implementation of the DOD AI Ethical Principles in alignment as they apply to the use of Unmanned Autonomous Systems capable of applying force on the battlefield."
[169] *Department of the Navy Unmanned Campaign Network*, DEP'T OF THE NAVY (March 2021), https://www.navy.mil/Portals/1/Strategic/20210315%20Unmanned%20Campaign_Final_LowRes.pdf.
[170] Achnioti, *supra* note 150 at 84–85.
[171] Dep't of the Navy, *supra* note 1, at 5.
[172] Achnioti, *supra* note 150 at 84–85.

Under this approach, autonomous vessels meet their COLREGS obligations through technological means—sensor fusion, algorithmic risk assessment, and supervisory oversight—so long as these systems achieve the rule's intended safety outcomes. In practice, this means that an AI-equipped vessel maintaining continuous situational awareness through radar, sonar, and electro-optical systems satisfies Rule 5's requirement of a "proper lookout." Similarly, algorithmic speed control and probabilistic modeling satisfy Rule 6's mandate of "safe speed."

Functionalism bridges the gap between static text and evolving technology by focusing on equivalent performance. The "ordinary practice of seamen" evolves as seafaring technology evolves; what matters is not that a human stands watch but that the vessel navigates safely and responsibly under sovereign control.[173] To deny immunity on the basis that compliance is achieved through programming rather than human perception would invert the purpose of both the COLREGS and sovereign immunity—transforming progress into a pretext for interference.

4. Salvage Law and the Functional Continuity of Sovereign Ownership

This interpretive logic also extends to salvage. The law of salvage rewards voluntary rescue but has never treated warships as ordinary property subject to possession or lien. Sovereign character persists even in distress or abandonment.[174] Under a functionalist reading, autonomy does not alter this rule because the decisive factor is ownership and governmental use, not crew status.

If a disabled autonomous vessel is refloated by a commercial salvor, compensation may be available under the PVA's limited waiver, but the salvor acquires no proprietary rights.[175] The vessel remains an instrument of the United States, immune from arrest or sale.[176] Even if a foreign navy were to tow an unmanned U.S. platform into port and claim salvage rights, UNCLOS Articles 95 and 96 would bar such action—just as they protected the USS PUEBLO decades ago. The vessel's sovereign identity endures regardless of its technological form. Functionalism captures this continuity: Sovereign immunity attaches to function—state ownership and control—not to physical crew.

5. Functionalism and the Future of Accountability

Across these domains—collisions, armed conflict, navigation, and salvage—the functionalist interpretation reveals a coherent pattern. While autonomy introduces new modalities of control, it does not present a disruption that existing frameworks cannot absorb. The PVA and SIAA provide limited remedies without surrendering immunity; LOAC preserves command responsibility through chain-of-command attribution; the COLREGS adapt through performance equivalence; and salvage law continues to recognize the inviolability of sovereign property.[177]

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[173] *See* COLREGS, *supra* note 144 at Rule 2(a)–(b).
[174] *See* UNESCO Convention on the Protection of the Underwater Cultural Heritage, art. 13(2), Nov. 2, 2001, 2562 U.N.T.S. 3 (affirming the continuing sovereign immunity of sunken warships).
[175] *See* Public Vessels Act, 46 U.S.C. §§ 31101–13; Salvage Convention, art. 4, Apr. 28, 1989, 1953 U.N.T.S. 165 (excluding "warships or other non-commercial vessels owned or operated by a State" from the Convention unless the State decides otherwise).
[176] UNESCO Convention on the Protection of the Underwater Cultural Heritage, art. 13(2), Nov. 2, 2001, 2562 U.N.T.S. 3 (reinforcing the continued sovereign immunity of sunken warships).
[177] 46 U.S.C. § 80107 (prohibiting maritime liens against U.S. vessels).

What unites these doctrines is the principle that accountability flows through function, not form. Responsibility remains with the flag state, and immunity continues to operate as a jurisdictional shield. Autonomy neither fractures this relationship nor requires a new liability regime; instead, it invites a reaffirmation of the doctrines that have long balanced immunity with responsibility.[178]

In this sense, the functionalist approach does more than preserve doctrinal coherence; it provides a definitive roadmap for integrating autonomy into the maritime legal order without destabilizing it. Sovereign immunity endures precisely because it is grounded in purpose rather than presence.[179] The same legal principles that governed collisions, command, and salvage in the eras of sail and steam remain operative in the age of autonomy.

This continuity sets the stage for the next dimension of analysis: the jurisdictional challenges that arise when adversaries seek to exploit legal ambiguity in practice—testing whether the functionalist framework can withstand not only theoretical scrutiny but strategic contestation in maritime operations.

VI. Functional Approach to Autonomous Vessels

The most immediate operational risks for autonomous naval vessels involve collisions, salvage operations, and compliance with the COLREGS.[180] These are traditional domains of admiralty law where limited waivers of immunity already exist, and autonomy raises questions of application rather than of principle.[181] The PVA and SIAA together provide the statutory framework for maritime claims against the United States. *United Continental Tuna* confirmed that the PVA governs incidents involving U.S. Navy ships, ensuring that suits proceed only under narrow, clearly circumscribed conditions.[182] Because the definition of "public vessel" is technology-neutral, these statutes apply equally to autonomous naval platforms.[183]

Claims arising from collisions or salvage will be adjudicated within the same statutory scheme, preserving the balance between accountability and sovereign immunity. A more difficult issue arises under the COLREGS. Rule 2 requires vessels to adhere to the "ordinary practice of seamen" to avoid collisions.[184] An AI-driven vessel may not exercise human judgment in the same sense, raising concerns about whether autonomous systems can satisfy seamanship standards. However, liability for unmanned vessels will continue to be assessed by reference to the flag state,

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[178] UNCLOS, *supra* note 3, at arts. 32, 95–96.
[179] *See* UNCLOS, *supra* note 3, at arts. 32, 95–96.
[180] *See* COLREGS, *supra* note 144.
[181] Coito, *supra* note 143, at 303–06.
[182] United States v. United Continental Tuna Corp., 425 U.S. 164, 168–70 (1976).
[183] 46 C.F.R. § 4.03–40 (2025).
[184] COLREGS, *supra* note 144, at Rule 2 (Rule 2 – Responsibility . . . (a) Nothing in these Rules shall exonerate any vessel, or the owner, master or crew thereof, from the consequences of any neglect to comply with these Rules or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case . . . (b) In construing and complying with these Rules due regard shall be had to all dangers of navigation and collision and to any special circumstances, including the limitations of the vessels involved, which may make a departure from these Rules necessary to avoid immediate danger.)

and COLREGS obligations can be implemented through programming, supervisory control, and doctrinal oversight.[185]

While compliance may require adaptation of training and algorithms, it does not alter the allocation of liability.[186] The critical point is that autonomy does not create a new liability regime.[187] Admiralty law already provides remedies for collisions and salvage through the PVA and SIAA, and compliance with the COLREGS remains a matter of ensuring that autonomous systems are designed to meet international safety obligations. Sovereign immunity continues to protect U.S. Navy vessels from foreign jurisdiction, while limited statutory waivers ensure accountability where appropriate.

A. Why Functionalism: From Doctrinal Drift to Operational Clarity

The doctrinal uncertainties surrounding autonomous vessels mirror the broader incoherence of a restrictive theory of state immunity.[188] Courts applying the commercial-activity exception have reached inconsistent and unpredictable results because they lack a coherent doctrinal framework for distinguishing sovereign from commercial acts.[189] Some decisions have emphasized the juridical nature of the act, while others have focused on its subject matter, but neither approach has yielded stability.[190] This indeterminacy underscores a more fundamental truth: Sovereign immunity has always been grounded in functional necessity rather than metaphysical abstractions.[191]

A functional approach offers a path forward that aligns with the realities of modern state practice and the challenges posed by autonomy at sea. The immunity doctrine, like diplomatic immunity, should be understood as preventing undue interference with the functions of the foreign state.[192] On this view, the deployment of MASS by the U.S. Navy is not commercial in character; it is an extension of the state's military and strategic functions.[193] Immunity attaches not as a consequence of how the vessel is crewed or propelled, but because foreign courts must not interfere with how the United States organizes and deploys its armed forces.[194]

B. The Functional Test: Sorting Sovereign from Commercial

Functionalism also addresses emerging liability questions in admiralty and international law. The risk is not that autonomy collapses doctrinal categories, but that adversaries will attempt

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[185] Achnioti, *supra* note 150, at 102–05.
[186] Achnioti, *supra* note 150, at 96–100.
[187] Achnioti, *supra* note 150, at 102–05.
[188] Ali Movaghar, *Evaluating the Application of International Laws on Navigation and Collision to Operating Autonomous Ships* (2023) (Ph.D. thesis, City, University of London).
[189] Joan E. Donoghue, *Taking the "Sovereign" Out of the Foreign Sovereign Immunities Act: A Functional Approach to the Commercial Activity Exception*, 17 YALE J. INT'L L. 489, 490–91 (1992).
[190] *Id.* at 492–95.
[191] *See id.* at 498.
[192] *Id.* at 497–98.
[193] *See* Schooner Exch. v. McFaddon, 11 U.S. 116 (1812) (recognizing warship immunity as an incident of sovereign equality).
[194] *See generally* Donoghue, *supra* note 189, at 498 (correlating immunity doctrine with principles of sovereign independence and equality and dignity of States).

to exploit existing instability by recharacterizing naval operations as "commercial" simply because they involve advanced technology or contracted components.[195] A functional test—focused on whether the conduct implicates core sovereign functions such as defense, navigation, or command—avoids this trap by insulating sovereign warships from misclassification while maintaining a principled distinction between commerce and sovereignty.[196]

By incorporating a functional standard, U.S. practice can reinforce the continuity of immunity across technological eras. Submarines, aircraft carriers, and nuclear-powered warships were all once questioned under legacy legal frameworks; yet, in each case, international law ultimately adapted to preserve immunity by focusing on sovereign function rather than technical form.[197] Autonomy should be treated no differently. Functionalism thus supports extending full sovereign immunity to autonomous naval vessels—not by stretching Article 29's language, but by reaffirming the doctrine's underlying rationale: Immunity shields the sovereign's functions from external interference.[198]

C. Capture and Continuity of Immunity: The (Autonomous) PUEBLO Problem

The 1968 seizure of the USS PUEBLO by North Korea remains the canonical reminder that warship immunity persists despite unlawful capture.[199] Throughout the crisis, the United States maintained that PUEBLO—a commissioned U.S. Navy vessel on government service—retained its sovereign status and that detention did not extinguish immunity.[200] The incident illustrates two enduring principles of sovereign immunity. First, immunity operates as a jurisdictional bar, preventing foreign enforcement or adjudication even where fault is alleged. Second, responsibility for a vessel's conduct attaches to the flag state, with accountability managed through state-to-state mechanisms rather than foreign courts or local port authorities.[201]

A hypothetical "autonomous PUEBLO*"* would sharpen, not undercut, these principles. Imagine a U.S. Navy MASS conducting signals intelligence (SIGINT) near contested waters when a rival state disables and tows it to port. There would be no crew to arrest and interrogate—eliminating the human-hostage dimension that magnified the 1968 crisis. But the technology-security stakes would be high: Onboard software architectures, trained models, crypto, sensor fusion stacks, and mission data are prime intelligence targets. The law yields the same result: UNCLOS Articles 95–96 confer full immunity on warships and government ships used only for non-commercial service, regardless of crewing. Unlawful seizure does not transmute the vessel

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[195] *See also* Foley, *supra* note 5; *see also* Jill Goldenziel, *Law as a Battlefield: The U.S., China, and the Global Escalation of Lawfare*, 62 CORNELL INT'L L.J. 285, 288–92 (2023)

[196] *See* United Nations Convention on the Law of the Sea arts. 29, 95–96, Dec. 10, 1982, 1833 U.N.T.S. 3.

[197] *See generally* Mark C. Weidemaier & Mitu Gulati, *Differing Perceptions? Market Practice and the Evolution of Foreign Sovereign Immunity*, DUKE J. L. & SOCIAL INQUIRY (2017).

[198] *See generally* Donoghue, *supra* note 189, at 519.

[199] Ximena Hinrichs Oyarce, *Pueblo Incident (1968)*, in Max Planck Encyclopedia of Public International Law, at 4–5 (Anne Peters & Rüdiger Wolfrum eds., Oxford Univ. Press 2023) [hereinafter The Pueblo Incident].

[200] *See* The Pueblo Incident, *supra* note 199.

[201] *See* The Pueblo Incident, *supra* note 199.

into ordinary property.[202] As with PUEBLO, the flag state's recourse is diplomatic and strategic, not submission to foreign courts or port-state "investigations."[203]

D. Jurisdictional Challenges in Peace and Conflict

Questions of accountability and liability demonstrate that existing legal frameworks—state responsibility, admiralty statutes, and the law of armed conflict—can absorb autonomy without displacing sovereign immunity.[204] Still, practical challenges extend beyond the courtroom to the contested spaces where autonomous naval vessels will operate. Jurisdictional disputes are acute in both peace and conflict. Port state authorities may claim the right to regulate or inspect autonomous vessels that lack a traditional crew. Adversaries may attempt to deny immunity in cases of capture, as illustrated by historical precedents such as the PUEBLO incident.[205] In strategic competition, rivals like China or Russia may weaponize the textual ambiguities of UNCLOS to argue that uncrewed warships fall outside of its protections. These jurisdictional challenges move the discussion from doctrinal foundations into the operational and strategic realm. How states interpret and apply immunity in practice will determine whether autonomy strengthens or weakens the credibility of U.S. naval power.

Sovereign immunity prohibits inspection, boarding, or arrest of warships by foreign port authorities, even when those vessels are autonomous.[206] UNCLOS Article 32 provides that warships "enjoy complete immunity from the jurisdiction of any State other than the flag State" while in innocent passage.[207] This immunity applies equally in port, where local authorities cannot compel inspection or impose regulatory conditions inconsistent with sovereign status.[208] Autonomous naval platforms may invite scrutiny in politically sensitive ports. States such as Djibouti—a frequent waypoint for international naval operations—may face pressure from rival powers to demand inspection of crewless vessels or to deny entry on the basis that they do not satisfy Article 29's "manned by a crew" requirement.[209] Rival states have repeatedly leveraged port access and regulation as tools of lawfare, using international law as a weapon to constrain U.S. naval operations in contested regions.[210] The danger is that ambiguity over the status of autonomous vessels could provide a pretext for port-state interference, undermining operational predictability.

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[202] *See* UNCLOS, *supra* note 3, arts. 95–96.
[203] *See* UNCLOS, *supra* note 3, arts. 95–96.
[204] *See generally* Draft Articles on Responsibility of States for Internationally Wrongful Acts, with Commentaries, U.N. GAOR, 53d Sess., Supp. No. 10, U.N. Doc. A/56/10 REPORT OF THE INTERNATIONAL LAW COMMISSION 31, 31–143 (2001) (codifying attribution of conduct to the state, including acts of armed forces); *see also* The Commander's Handbook, *supra* note 17 (reaffirming applicability of the law of armed conflict to all naval operations, including new technologies).
[205] *See* The Pueblo Incident, *supra* note 199, at 4–5.
[206] *See* The Pueblo Incident, *supra* note 199, at 4–5.
[207] UNCLOS, *supra* note 3, art. 32.
[208] *See* Schooner Exch., 11 U.S. 116 (1812) (Reinforcing that U.S. courts long recognized immunity from port-state interference as a customary rule.)
[209] *See* UNCLOS, *supra* note 3, art. 29.
[210] Rob McLaughlin, *The Law of the Sea and PRC Gray-Zone Operations in the South China Sea*, 116 A. J. INT'L L. 821–835 (2022).

The immunity of warships persists even when vessels are seized or captured in violation of international law.[211] The 1968 seizure of the USS PUEBLO illustrates the point: unlawful detention did not alter the vessel's commissioned status or the United States' position that its sovereign immunity endured.[212] The same principle applies to autonomous platforms. Should an uncrewed naval vessel be disabled or seized, adversaries may claim that its lack of crew negates immunity.[213] Such arguments lack a doctrinal foundation: UNCLOS Articles 95 and 96 immunize warships and government vessels by virtue of their sovereign character, not their crewing.[214] Denying immunity based on autonomy would amount to rewriting the law of the sea through practice, with destabilizing consequences for all naval powers.

Similarly, the introduction of autonomous warships creates opportunities for adversaries to open new legal fronts in strategic competition. For example, China and Russia may invoke Article 29's language to argue that U.S. autonomous warships are not entitled to immunity, thereby justifying interference or harassment during freedom of navigation operations.[215] These tactics are especially concerning in contested waters like the South China Sea, where rival states already challenge U.S. operations on dubious legal grounds.[216]

If autonomy becomes a new fault line, adversaries could attempt to deny sovereign status to U.S. Navy vessels, escalating the risk of confrontation. Consequently, jurisdictional disputes represent a practical vulnerability rather than a doctrinal gap.[217] UNCLOS establishes immunity for warships and government vessels; customary law and precedent, such as the PUEBLO incident, confirm its continuity. The challenge lies in preventing rivals from exploiting ambiguity to contest that immunity in practice. Autonomous platforms thus sit at the intersection of law and strategy as they remain sovereign warships under international law, but their novel form invites adversarial legal maneuvering.[218]

E. Salvage and Evidence Exploitation: Testing the Edges of Immunity

Two practical wrinkles illustrate continuity rather than rupture. First, in the realm of salvage, a captor may try to re-characterize the "towing" and "securing" of a disabled autonomous vessel as a salvage operation in order to generate liens or claims.[219] However, salvage rights cannot

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[211] *See id.*
[212] *See* The Pueblo Incident, *supra* note 199.
[213] U.S. Naval War College, The Newport Manual on the Law of Naval Warfare 38 (2023); UNCLOS, *supra* note 3, arts. 95–96.
[214] UNCLOS, *supra* note 3, arts. 95–96.
[215] *See also* UNCLOS, *supra* note 3, art. 29.
[216] *See* Goldenziel*, supra* note 195, at 1088 (defining lawfare as the use of law to achieve strategic ends and analyzing Chinese and Russian reliance on international law arguments to undermine U.S. legitimacy at sea).
[217] *See* Goldenziel*, supra* note 195, at 1112–13; *see* UNCLOS, *supra* note 3; *see also* The Pueblo Incident, *supra* note 200.
[218] Ali Movaghar, Evaluating the Application of International Laws on Navigation and Collision to Operating Autonomous Ships (2023) (Ph.D. thesis, City, University of London).
[219] *See* Treasure Salvors, Inc. v. Unidentified Wrecked & Abandoned Sailing Vessel, 640 F.2d 560, 567–68 (5th Cir. 1981) (explaining that salvage law permits claims for compensation but does not authorize a salvor to obtain possession or exercise dominion over property in which a sovereign asserts an interest).

be pressed against an immune warship. At most, a salvor might pursue compensation under the PVA in U.S. courts—subject to strict statutory limits—but they may never seek possession or adjudication in a foreign forum.[220] Second, immunity bars evidence exploitation—the attempted inspection, imaging, or reverse-engineering of systems—to the same degree as hull arrests or prize-style condemnation.[221] Capture does not extinguish the sovereign character of the platform; it merely magnifies the counterintelligence urgency for the flag state—which is precisely why preserving immunity for MASS is a matter of strategic necessity in the first place.[222] Rivals are likely to test the edges of immunity by leveraging legal ambiguity as a tool of maritime lawfare. Adversaries have repeatedly used international law not as a neutral constraint but as a weapon to constrain U.S. naval operations, particularly in contested theaters.[223]

Autonomous platforms create fresh pretexts. Opponents may argue that UNCLOS Article 29's "under the command of an officer duly commissioned by the government of the State and…manned by a crew" language excludes MASS from warship status—purporting to justify port-state inspections, detentions, or interference during transits.[224] They may also try to recast military employment as "commercial" because the platform incorporates contractor-provided subsystems, seeking to migrate the analysis into FSIA-style exceptions.[225] Both moves should fail under the doctrinal and functional analysis developed above.

F. Article 29's Object and Purpose: Interpreting Sovereign Control Functionally

Article 29's object and purpose is to ensure that vessels are under accountable sovereign control, not to freeze 1970s crewing assumptions.[226] As the IMO's MASS scoping exercise observed, many maritime instruments assume physical master/crew and require interpretation or targeted adaptation as technology evolves.[227] Reframing these missions as "commercial activity" misunderstands immunity's core: The U.S. Navy's use of MASS for ISR, mine countermeasures, or distributed operations is quintessentially *jure imperii*. Immunity protects the sovereign character of the mission, not the vessel's physical attributes or the procurement pedigree of its components.[228]

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[220] United States v. United Continental Tuna Corp., 425 U.S. 164, 168–70 (1976) (construing the PVA and SIAA together and preserving narrow waivers); *see also* COLREGS, *supra* note 109, Rules 2, 5–7 (explaining ordinary practice of seamen; lookout; safe speed; risk of collision).

[221] *See* The Schooner Exchange v. McFaddon, 11 U.S. 116, 146–47 (1812) (holding that foreign public vessels are completely exempt from local jurisdiction and cannot be subjected to judicial or enforcement measures by another state).

[222] *See* The Pueblo Incident, *supra* note 199 (detailing seizure and U.S. position on continuing immunity).

[223] *See* Goldenziel, *supra* note 195, at 1090 (noting that states use legal strategies to weaken the enemy's legitimacy).

[224] *See also* UNCLOS, *supra* note 3, art. 29.

[225] *See also* UNCLOS, *supra* note 3, art. 29.

[226] *See also* UNCLOS, *supra* note 3, arts. 29,32.

[227] IMO, Outcome of the Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships, MSC.1/Circ.1638, 15 (2021).

[228] *See* Berizzi Bros. Co. v. S.S. Pesaro, 271 U.S. 562, 574–75 (1926) (holding that immunity attaches to vessels owned and operated by a foreign sovereign for public service, irrespective of form).

Against this backdrop, an "autonomous PUEBLO" would tempt adversaries to combine physical interference with legal narratives—claiming that the ship is not a "warship," inviting domestic proceedings, or asserting salvage or safety jurisdiction.[229] However, the controlling law is stable: Warship and public-vessel immunity bars foreign courts and officials from exercising jurisdiction; capture does not extinguish sovereign status; and responsibility flows to the flag state, not to forum courts.[230] The operational response is policy, diplomacy, and presence—not acquiescence to re-characterization that would hollow out immunity for the very platforms that the U.S. Navy needs most in contested waterways.

VII. Potential Policy and Strategic Interests for the U.S. Navy

The transition to autonomous naval operations demands not a reinvention of sovereign immunity, but rather its reaffirmation through a *functionalist interpretation* of the law. Sovereign immunity has always protected the exercise of state authority at sea, attaching to a vessel because of its *function* as an organ of the flag state—not its physical configuration, propulsion, or the presence of a crew.[231] As statutory frameworks such as the PVA and the FSIA demonstrate, U.S. law already embeds a technology-neutral approach that insulates military operations from commercial reclassification while preserving limited avenues for accountability. This functional logic mirrors international law under UNCLOS, which safeguards warships and government vessels employed for non-commercial purposes.[232]

Maintaining doctrinal continuity is both a legal and strategic necessity.[233] Adversaries are actively testing definitional ambiguities to erode allied cohesion and constrain naval freedom of action.[234] A unified, functional approach to sovereign immunity—shared across U.S. and allied practice—ensures that technological evolution does not fragment coalition operations or undermine the stability of maritime norms.[235] In the era of autonomy, preserving this principle is indispensable to both deterrence and the rule of law at sea.

A. Strategic Imperatives of Sovereign Immunity

Autonomous naval platforms are not experimental curiosities but essential components of U.S. maritime strategy. The U.S. Navy's *Unmanned Campaign Framework* identifies unmanned surface and subsurface systems as critical for intelligence, surveillance, and reconnaissance, mine countermeasures, and distributed lethality in contested environments.[236] These missions are high-

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[229] *See* The Pueblo Incident, *supra* note 199; *see* UNCLOS, *supra* note 3, art. 29.
[230] UNCLOS, *supra* note 3, arts. 32, 95–96; The Pueblo Incident, *supra* note 199, 1–3.
[231] *See* UNCLOS, *supra* note 3, arts. 29, 32, 95–96.
[232] *See* UNCLOS, *supra* note 3, arts. 29, 95–96.
[233] U.S. Dep't of Def., 2023 Freedom of Navigation Report (noting increasing foreign assertions that seek to restrict lawful naval operations).
[234] U.S. Dep't of Def., Annual Freedom of Navigation Report (2023) (documenting excessive maritime claims and restrictive interpretations by certain states aimed at limiting lawful military activities at sea)
[235] NATO, Alliance Maritime Strategy (Oct. 29, 2025) at 19, available at https://www.nato.int/en/about-us/official-texts-and-resources/official-texts/2025/10/29/alliance-maritime-strategy.
[236] *See generally*, U.S. Dept. of the Navy, *supra* note 1.

risk and resource-intensive when performed by manned platforms.[237] Autonomous systems provide persistence and resilience, enabling operations in denied areas without exposing sailors to danger.[238] The strategic consequences of denying sovereign immunity to these vessels are severe. If autonomous warships were excluded from Article 29, rivals could claim lawful authority to interfere with U.S. operations. This would constrain freedom of navigation operations in the South China Sea, undermine deterrence in the Indo-Pacific, and embolden states that already challenge maritime norms.[239] Immunity is central to the credibility and reach of naval operations, and its erosion would directly impact strategic mobility.[240] Protecting sovereign immunity for autonomous platforms is not an abstract legal debate; it is a prerequisite for effective naval operations.

B. Coalition Implications and Allied Practice

The implications extend beyond the U.S. Navy. Allies such as the United Kingdom, Japan, and Australia are also investing heavily in autonomous maritime systems.[241] If the United States were to accept a narrow interpretation of Article 29, these partners might hesitate to deploy their own autonomous warships for fearthat immunity claims would be contested in foreign ports or denied during operations. The result would be fractured coalition practice and weakened interoperability. Leadership is required to set the precedent. International law often develops through "operational assertions" and consistent state practice by leading maritime powers.[242] By commissioning autonomous warships, assigning them to operational fleets, and insisting on their sovereign immunity, the United States can shape customary law in favor of autonomy. Conversely, retreating from this position would leave a vacuum for rivals like China and Russia to exploit by advancing interpretations designed to constrain allied operations.

C. Cyber and Technological Vulnerabilities

Autonomous platforms also create unique vulnerabilities in cyberspace. Unlike manned warships, they rely heavily on software, sensors, and datalinks, all of which may be targeted for capture, exploitation, or reverse engineering.[243] Sovereign immunity serves as a shield against such intrusions. By prohibiting foreign inspection or seizure, immunity protects both the hull of the vessel and the sensitive technologies embedded within it.[244] The risk is not hypothetical. As the PUEBLO incident illustrated, adversaries will exploit any opportunity to extract intelligence from captured vessels.[245] In the context of autonomy, the potential compromise extends beyond classified documents or equipment to include entire software architecture and AI models.

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[237] U.S. Dept. of the Navy, *supra* note 1, at 11.
[238] U.S. Dept. of the Navy, *supra* note 1, at 10.
[239] U.S. Dept. of the Navy, *supra* note 1, at 10.
[240] *See* Goldenziel*, supra* note 195, at 1102–06, 1113–18, 1157.
[241] *See* Goldenziel*, supra* note 195, at 1105–09 (explaining how adversaries weaponize legal norms to undermine U.S. naval credibility in the Indo-Pacific).
[242] *See* Kraska and Pedrozo, *supra* note 35, at 43.
[243] *See* Kraska and Pedrozo, *supra* note 35, at 77–78, 280–281.
[244] cf. U.S. Navy, USS Pueblo Incident (1968) (documenting extensive exploitation of sensitive equipment and intelligence systems following unauthorized foreign seizure).
[245] *See* The Pueblo Incident, *supra* note 200.

Immunity, therefore, guards both physical seizure and digital exploitation, ensuring that naval innovation does not become a liability in contested waters.

These vulnerabilities blur the line between physical and digital sovereignty.[246] Modern maritime operations depend on networked autonomy—continuous communication between unmanned vessels, command centers, and satellite relays.[247] This digital dependency exposes autonomous platforms to cyber intrusion, spoofing, and data exfiltration in ways that traditional warships rarely faced in the past.[248] A compromised datalink can reveal operational patterns or mission algorithms, while a captured vessel can yield machine learning weights, model architectures, and embedded encryption keys that represent billions in research and development (R&D) investment.[249] In this sense, cyber penetration becomes the new form of "boarding," and reverse engineering replaces traditional prize seizure. Therefore, sovereign immunity's protection against inspection and interference must be understood as extending into the digital domain.

From a legal perspective, sovereign immunity functions as both a jurisdictional barrier and a technological safeguard. Article 32 of UNCLOS and its customary counterparts bar coastal and port states from exercising enforcement jurisdiction over foreign warships.[250] Applied to autonomous platforms, this prohibition should encompass not only physical boarding or impoundment but also digital intrusion, forced data access, and remote forensic analysis.[251] An unauthorized attempt to access the software or telemetry of a U.S. Navy autonomous vessel—whether under the guise of "safety inspection" or cyber "incident response"—should constitute a violation of immunity no less than a physical boarding.[252] The logic of immunity should thus evolve to protect data sovereignty and command integrity in the networked battlespace.

Operationally, these risks demand layered safeguards. The U.S. Navy's Unmanned Campaign Framework recognizes cyber resilience as central to fleet survivability, calling for autonomous systems capable of "fighting through" degraded networks and contested

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[246] See NATO, Alliance Maritime Strategy (Oct. 29, 2025) (emphasizing that modern maritime security requires integrating cyber, space, and information-domain resilience with traditional naval operations); U.S. Dep't of Def., 2023 Cyber Strategy

[247] U.S. Dep't of Def., Unmanned Systems Integrated Roadmap.

[248] *See* NATO, Alliance Maritime Strategy (Oct. 29, 2025) (warning that adversaries increasingly target maritime C2 networks, autonomous systems, and space-based enablers to degrade naval operations); *see* also U.S. Dep't of Def., 2023 Cyber Strategy (identifying unmanned and network-dependent platforms as priority targets for cyber intrusion, jamming, and data exploitation).

[249] Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations (2017) (recognizing that cyber operations targeting data integrity, cryptographic materials, and autonomous system functionality can produce strategically significant harms).

[250] *See* UNCLOS, *supra* note 3, at art. 32 (providing that warships and other government vessels operated for non-commercial purposes retain sovereign immunity in foreign territorial seas); *see also id.* arts. 95–96 (affirming the complete immunity of warships and government vessels from the jurisdiction of any state other than the flag state).

[251] *See* Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations (2017).

[252] *See* Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations (2017)

electromagnetic environments.[253] Yet legal protections must complement technical defenses. Sovereign immunity provides the legal perimeter that deters adversaries and host states from exploiting vulnerabilities under the color of law. Without a clear assertion of immunity, rival powers could mask cyber espionage as regulatory oversight—demanding access to system logs, AI training data, or cryptographic protocols under the pretext of maritime safety.[254]

The USS PUEBLO incident illustrates the stakes.[255] When North Korea seized the vessel in 1968, it captured not only physical intelligence materials but also signals intelligence equipment that exposed U.S. collection methods.[256] A modern analog involving an autonomous naval vessel would be exponentially more dangerous. The loss of a single platform could compromise entire algorithmic ecosystems—sensor fusion networks, target-recognition models, or decision-support software replicated across a fleet. The legal barrier of sovereign immunity thus assumes new urgency. It prevents seizure and, equally, precludes forced data disclosure or reverse engineering by foreign authorities.

The functionalist approach underscores that immunity must be interpreted dynamically to address these challenges. Just as twentieth-century law evolved to treat the electromagnetic spectrum as part of the battlespace, twenty-first-century maritime law must recognize that autonomy and cybersecurity are integral to sovereign control.[257] A functional interpretation of Article 32 protects the vessel's command-and-control integrity, whether exercised through human officers or machine-learning architectures. Sovereign immunity in the autonomous era therefore extends beyond the visible steel of the ship to the invisible architecture of its algorithms, communications, and decision systems—ensuring that naval innovation remains a strength rather than a vulnerability in contested waters.

D. Navigating the "Gray Zone" Between Sovereign and Commercial Activity

A further challenge lies in the "gray zone" between sovereign and commercial operations. The gray zone refers to the ambiguous operational and legal space between peace and conflict, where states employ coercive tactics—often through legal, economic, or informational means—below the threshold of armed force.[258] In the maritime context, gray-zone competition involves actions designed to test or erode established norms without triggering open hostilities.[259] This

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[253] *See* U.S. Navy, Unmanned Campaign Framework (2021) (emphasizing resilience, distributed C2, and the ability of unmanned platforms to operate under cyber, electronic warfare, and communications-degraded conditions).

[254] Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations (2017) (noting that cyber operations seeking unauthorized access to another state's military systems can violate sovereignty); *See* further U.S. Navy, Unmanned Campaign Framework 7–9 (2021) (warning that adversaries may degrade unmanned systems).

[255] *See* Ximena Hinrichs Oyarce, Pueblo Incident (1968), Max Planck Encyclopedia of Public International Law (2007).

[256] *See id.* (noting that the USS PUEBLO was furnished with high-quality intelligence equipment and was conducting electronic intelligence when seized)

[257] *See* Tallinn Manual 2.0 on the International Law Applicable to Cyber Operations (2017) (acknowledging that cyber activities affecting military platforms can implicate sovereignty and trigger state responsibility).

[258] *See* Goldenziel, supra note 195.

[259] *See* Goldenziel, supra note 195.

ambiguity extends to questions of status and control, particularly as autonomy blurs traditional indicators of state authority at sea.

Some autonomous platforms may be chartered or operated in part by contractors, raising questions about whether they retain sovereign immunity. UNCLOS distinguishes between warships and "government ships operated for non-commercial purposes," both of which enjoy immunity.[260] However, immunity does not extend to vessels employed in commercial service. This line can blur when U.S. Navy-chartered vessels conduct surveillance or logistical support under contract. If autonomy further reduces visible markers of sovereign control, rivals may argue that such platforms are effectively commercial and thus subject to port-state regulation or seizure.[261] Adversaries could exploit these ambiguities to strip vessels of protection, particularly in gray-zone operations where lawfare is used to undercut U.S. legitimacy without open conflict.[262] To counter this risk, autonomous platforms must be unmistakably integrated into sovereign command structures—commissioned, flagged, and operated exclusively for governmental purposes.[263] Only then can immunity be asserted with credibility.

E. Allied Practice and the Emergence of Customary Consensus

Allied maritime doctrine and practice point in the same direction. While UNCLOS sets the legal baseline, maritime security practice among leading naval powers reinforces the continuity of warship and public-vessel immunity as technology evolves.[264] Institutionally, allied deliberations track the IMO's MASS regulatory scoping finding that many maritime instruments presume physical master/crew and thus require interpretive accommodation or targeted updating as autonomy matures.[265] Operationally, allied experimentation with naval autonomy proceeds within the traditional framework of command responsibility and flag-state control. Autonomy extends command; it does not replace it.[266] That alignment—functional control plus sovereign use—supports a common allied position: MASS employed by the armed forces (or as government ships on non-commercial service) retain full immunity under Articles 32 and 95–96, regardless of on-hull crewing.[267]

Consistent assertions of sovereign immunity—achieved by commissioning and flagging autonomous vessels, documenting remote command, and invoking Articles 32, 95, and 96—can reinforce customary law and foreclose arguments that "crewless" equates to "non-sovereign."[268] While autonomy is central to future naval warfare, its operational utility depends on the

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[260] *See* UNCLOS, *supra* note 3, art. 95–96.
[261] *See generally* Kraska, *supra* note 22, at 58.
[262] *See* Kraska, *supra* note 22, at 56 (arguing that UNCLOS Articles 95–96 extend sovereign immunity to unmanned vessels engaged exclusively in government non-commercial service and cautioning against adversarial attempts to recharacterize such activity as "commercial").
[263] *See* Newport Manual on the Law of Naval Warfare §§ 2.2.2, 2.2.3 (2023) (affirming that unmanned and manned naval vessels alike retain sovereign immunity when designated and registered by the flag state and operated solely for governmental purposes).
[264] *See* UNCLOS, *supra* note 3, art. 96.
[265] IMO, Outcome of the Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships, MSC.1/Circ.1638, 15 (2021).
[266] U.S. Dept. of the Navy, *supra* note 1.
[267] *See* UNCLOS, *supra* note 3, arts. 32, 95–96.
[268] *See* UNCLOS, *supra* note 3, arts. 29, 32, 95–96.

preservation of sovereign immunity. Any erosion of this status would compromise operational freedom, fragment alliances, and invite legal manipulation by rivals.[269]

VIII. Recommendations

A. Translating Functionalism into Policy and Doctrine

Moving from doctrine to practice, several steps are necessary to safeguard sovereign immunity in the autonomous era. First, a doctrinal approach must emphasize a functional interpretation of UNCLOS Article 29.[270] The terms "command" and "crew" should be read as assurances of accountability to the flag state, not as literal requirements for embarked personnel. Sovereignty attaches to state function, not to the physical presence of sailors, and immunity flows from a vessel's incorporation into the armed forces and exclusive governmental use.[271]

Legislative clarification would strengthen the U.S. posture. While the PVA and SIAA apply in principle to U.S. Navy ships regardless of crew status, Congress should amend these statutes to expressly include autonomous government vessels. This proactive measure would close jurisprudential loopholes and prevent adversaries from arguing that unmanned platforms fall outside of existing statutory waivers. Such clarification would reinforce that automation does not alter or diminish sovereign status.

The United States must also lead diplomatically. Working through NATO and the IMO, Washington should spearhead the recognition of sovereign immunity for MASS and secure bilateral agreements with such allies as the United Kingdom, Japan, and Australia to affirm the immunity of autonomous warships. International law often develops through state practice and operational assertion; if the United States asserts immunity consistently, allies will follow, and rivals will have less space to exploit ambiguity.

Operational practices should reinforce sovereign status. Documenting remote command authority and commissioning autonomous vessels in the same manner as manned ships would underscore their legal identity as warships. These measures would help dispel claims that the absence of a crew strips vessels of immunity. Comparative perspectives reveal the stakes. Allies are integrating autonomy into their fleets, implicitly treating these vessels as sovereign.[272] In contrast, adversaries like China and Russia are likely to challenge immunity, leveraging textual ambiguities in UNCLOS to constrain U.S. and allied operations. The contest is thus one of practice and precedent: Either autonomy becomes normalized as a legitimate extension of state sovereignty, or it is weaponized as a legal vulnerability in gray-zone competition. Looking forward, UNCLOS itself may evolve, as earlier treaties did with steam, submarines, and nuclear vessels. Until then, however, state practice will determine whether autonomous warships are recognized as fully immune.

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[269] UNCLOS, *supra* note 3, at arts. 29, 32, 95–96.

[270] *See* Kraska et al., *supra* note 217, at § 3.3.

[271] *See generally* Kraska, *supra* note 22.

[272] See Newport Manual on the Law of Naval Warfare §§ 2.2.2–2.2.3 (2023) (recognizing that warships "may be manned or unmanned" and that neither the commanding officer nor crew must be physically aboard so long as the vessel is designated and registered by the flag state, thereby affirming full sovereign immunity for autonomous naval platforms)

B. Operationalizing Sovereignty: Training, Messaging, and Symbolism

For U.S. Navy practitioners, this analysis raises several practical questions. Should the U.S. Navy insist that crewless, autonomous warships qualify for full sovereign immunity? The answer must be yes because immunity is about sovereignty, not sailors. While the statutes already cover such vessels, express clarification would bolster the U.S. legal position. The doctrinal analysis above demonstrates that sovereign immunity attaches to the sovereign function of naval vessels, not to the physical presence of a crew.[273] Translating this principle into operational practice requires deliberate choices in training, messaging, and naval regulation. For the U.S. U.S. Navy, the challenge is less about creating new law than it is about ensuring that lawyers and commanders know how to assert existing law persuasively in the emerging context of autonomy.

U.S. Navy Judge Advocates General (JAGs) and operational commanders must be trained to recognize that questions of sovereign immunity will arise not only in courtrooms, but also in ports, during exercises, and in contested waters where rivals may attempt to test the boundaries of UNCLOS. Training programs should emphasize the distinction between sovereign and commercial activity, drawing on *United States v. United Continental Tuna Corp.,* to show that naval operations fall squarely within the definition of public vessels and remain subject only to the narrow waivers Congress has expressly provided.[274] Similarly, the FSIA illustrates that military operations are never classified as "commercial activity" within the meaning of § 1605(a)(2).[275] JAGs must be prepared to advise on incidents involving collisions, salvage, or port-state interference, ensuring that accountability flows to the flag state and that U.S. vessels never acquiesce to foreign jurisdiction. Commanders, in turn, need confidence that operating MASS does not expose them—or their vessels—to unique liabilities simply because of autonomy.

The credibility of U.S. assertions during freedom of navigation operations (FONOPs) depends on consistency and clarity. When deploying autonomous platforms, the United States should explicitly convey that the autonomous vessels involved are commissioned warships entitled to full immunity under Articles 32, 95, and 96 of UNCLOS.[276] Doing so does not require new legal arguments. Rather, it is a consistent invocation of long-standing doctrine: Autonomy does not alter sovereign character. Clear messaging—both public and diplomatic—will help inoculate against adversarial narratives that uncrewed ships are "non-warships" or "commercial." By making the doctrinal claim routine, the U.S. Navy converts state practice into customary reinforcement.[277]

Questions of formality also carry normative weight. Article 29's requirements of "under the command of an officer" and "manned by a crew" can be satisfied functionally, but symbolism matters in diplomacy and lawfare.[278] The U.S. Navy should codify procedures for commissioning MASS—assigning them commanding officers, maintaining operational logs, and even conducting commissioning ceremonies similar to those of manned ships. Symbolic "crew" assignments, whether in the form of supervisory teams or remote operators listed on a vessel's watch bill, would reinforce the message that these ships are fully embedded in the U.S. Navy's command

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[273] *See* The Commander's Handbook, *supra* note 17, at §§ 2.3–2.4.
[274] United States v. United Continental Tuna Corp., 425 U.S. 164, 168–70 (1976).
[275] Foreign Sovereign Immunities Act, 28 U.S.C. §§ 1330, 1391, 1441(d), 1602–11.
[276] *See* UNCLOS, *supra* note 3.
[277] Vienna Convention on the Law of Treaties art. 31(1), May 23, 1969, 1155 U.N.T.S. 331 (interpretation in light of object and purpose).
[278] *See* Goldenziel, *supra* note 195.

structure.[279] Codifying such practices in U.S. Navy regulations would both satisfy treaty language and foreclose adversarial claims that autonomous platforms lack the indicia of sovereign authority.[280]

Each of these measures addresses a different dimension of the same core problem: ensuring that sovereignty is visibly attached to autonomous vessels. Training equips JAGs and commanders with the doctrinal tools; messaging ensures that allies and rivals alike hear consistent claims; and regulatory symbolism preserves continuity with the traditions of command and crew that UNCLOS presumes. Taken together, these practices operationalize the principle that sovereign immunity is about sovereignty, not sailors. By embedding that principle in education, diplomacy, and ritual, the U.S. Navy can ensure that autonomous platforms are not treated as exceptions but as the latest embodiment of a centuries-old doctrine.

C. Doctrinal Adaptation and Codification

Updates to U.S. and allied doctrinal texts demonstrate that the law of naval warfare is adapting to autonomy in real time. The U.S. Navy's Commander's Handbook on the Law of Naval Operations affirms that both manned and unmanned vessels owned or operated by a state and employed exclusively in non-commercial governmental service enjoy sovereign immunity—a clear doctrinal statement that the presence of a crew is not a condition for immunity.[281] The Commander's Handbook further provides detailed classifications for naval auxiliaries, Military Sealift Command ships, and unmanned surface and underwater vehicles, embedding them within the same framework of sovereign immunity that has long applied to warships.[282] By doing so, the U.S. Navy has confirmed through doctrine that autonomy is an extension of state function, not a departure from it.

The second edition of the Newport Manual on the Law of Naval Warfare, released in 2023, advances this reasoning by expressly recognizing that warships may be manned or unmanned and that neither the commanding officer nor the crew need be physically on board so long as the vessel remains designated and registered by the flag state.[283] The Manual devotes an entirely new section to unmanned and autonomous maritime systems, distinguishing them from expendable weapons and underscoring that, when commissioned as warships, they lawfully exercise belligerent rights under UNCLOS and customary international law.[284] The Manual also incorporates developments in state practice and IMO regulatory work on MASS, noting that interpretive updates rather than categorical exclusions will be necessary to align treaty obligations with technological realities.

These texts close the gap between black-letter doctrine and operational practice. They confirm that the definitional rigidity of UNCLOS Article 29 should not be read as disqualifying

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[279] IMO, Outcome of the Regulatory Scoping Exercise for the Use of Maritime Autonomous Surface Ships (MASS), MSC.1/Circ.1638, 15 (2021).
[280] *See* Ian Brownlie, Principles of Public International Law 333–35 (4th ed. 1990) (immunity attaches to state sovereignty, not the physical makeup of the vessel).
[281] *See* U.S. Navy, The Commander's Handbook on the Law of Naval Operations (NWP 1-14M) (2022).
[282] *See* U.S. Navy, The Commander's Handbook on the Law of Naval Operations (NWP 1-14M) (2022).
[283] *See* U.S. Naval War College, The Newport Manual on the Law of Naval Warfare (2d ed. 2023).
[284] *See* U.S. Naval War College, The Newport Manual on the Law of Naval Warfare (2d ed. 2023).

crewless vessels, and they provide operational commanders with concrete steps—commissioning, registry, and flag-state responsibility—that ensure immunity is preserved.[285] The texts also signal to allies and adversaries alike that autonomy is becoming normalized within the same legal categories that govern traditional warships. In this sense, the Commander's Handbook and the Newport Manual do not create new law; rather, they codify the principle that sovereign immunity attaches to the sovereign function of the vessel, not to the sailors who may or may not be on board.[286] Through a functional interpretation of UNCLOS, clarification in domestic law, and diplomatic leadership within NATO and the IMO, the United States can ensure autonomy strengthens—rather than destabilizes—maritime security.[287]

The next step is to formalize this emerging consensus through deliberate state practice and targeted policy action. The United States should lead by example—explicitly reaffirming, in both doctrine and diplomacy, that sovereign immunity follows sovereign function and lawful state command. Doing so would translate the functionalist interpretation from a legal theory into an operational standard, ensuring that autonomy remains embedded within the same sovereign framework that has governed naval power for centuries.[288] Clarifying this principle in domestic statutes, reinforcing it through commissioning and registry practices, and advancing it through allied coordination in NATO and the IMO would collectively strengthen the normative foundation of maritime stability.[289] The recommendation is simple but urgent: The law's continuity must be preserved by reaffirming that sovereign immunity is about sovereignty, and the evolution of technology must continue to serve, rather than redefine, the sovereign equality of states at sea.

IX. Conclusion

The evolution of naval warfare toward autonomy does not alter the foundation of international law; it reaffirms it. Whether a warship is manned, remotely supervised, or fully autonomous, its immunity flows from its sovereign function, not its physical configuration.[290] The enduring logic of the law of the sea is that sovereign immunity is about sovereignty, not sailors—a doctrine that safeguards equality among states, protects lawful naval activity from interference, and ensures accountability through the flag state alone.[291] As autonomy reshapes the character of maritime operations, the law must continue to focus on purpose over presence and function over form. A functionalist interpretation of UNCLOS and U.S. maritime statutes preserves this

[285] *See* UNCLOS, *supra* note 3, at art. 29.
[286] *See* also U.S. Naval War College, The Newport Manual on the Law of Naval Warfare (2d ed. 2023) (affirming that warships may be manned or unmanned and that sovereign immunity flows from designation, registry, and state control, not from crew presence).
[287] *See* NATO, Alliance Maritime Strategy (Oct. 29, 2025) (calling for allied alignment on legal frameworks governing autonomous and networked maritime systems).
[288] *See* U.S. Naval War College, The Newport Manual on the Law of Naval Warfare (2d ed. 2023) (confirming that unmanned warships remain full sovereign organs under international law).
[289] *See* U.S. Navy, The Commander's Handbook on the Law of Naval Operations (NWP 1-14M) (2022).
[290] *See* U.S. Naval War College, The Newport Manual on the Law of Naval Warfare (2d ed. 2023); U.S. Navy, The Commander's Handbook on the Law of Naval Operations (NWP 1-14M) (2022).
[291] U.S. Navy, The Commander's Handbook on the Law of Naval Operations (NWP 1-14M) (2022).

continuity, ensuring that sovereign immunity remains a stabilizing principle in both law and strategy, protecting not only ships and systems but the very balance of order at sea.

While the United States is not a formal party to UNCLOS, it has long recognized and observed the vast majority of its provisions—including Articles 29 and 32—as binding customary international law.[292] Indeed, U.S. naval operations, legal doctrine, and diplomatic statements routinely apply the UNCLOS regime as the governing framework for maritime conduct. Thus, the functionalist interpretation advanced here does not depend on treaty ratification. To the contrary, it depends on consistent state practice and opinion juris that align U.S. practice with that of its allies and established norms of maritime law.[293]

To deny sovereign immunity to autonomous warships based on outdated textual formulations would be to misread the purpose of the law of the sea and destabilize the equilibrium that it was designed to preserve. Sovereign immunity exists to maintain the equality of states, protect lawful naval operations from foreign jurisdiction, and ensure that accountability flows exclusively through the flag state. A literalist reading that ties immunity to the physical presence of a crew or on-board command would collapse this centuries-old doctrine at the moment technology outpaces human crewing.[294] By contrast, a functionalist interpretation preserves continuity, treating "command" and "crew" as expressions of lawful authority and disciplined accountability rather than relics of 1970s naval architecture.

Failure to adapt the doctrine through this functionalist lens would have serious strategic consequences. It would weaken deterrence by inviting adversaries to exploit definitional ambiguity, fracture allied cohesion by introducing inconsistent practices, and provide rivals with a new instrument of lawfare in the gray zone.—[295] International law has never been static; it has evolved seamlessly from sail to steam, from surface ships to submarines, and from conventional to nuclear propulsion. Each technological transformation reaffirmed, but did not redefine, the principle that sovereign immunity follows state function. The same interpretive continuity must now guide the law's engagement with autonomy.[296]

Autonomy represents the next logical stage in naval innovation, but it does not alter the foundation of sovereignty itself. The functionalist approach ensures that the law remains technologically neutral and strategically relevant. A vessel acting under the authority of a flag state that is commissioned for non-commercial governmental purposes continues to enjoy complete immunity from foreign jurisdiction, regardless of how it is operated or by whom it is supervised.[297] Preserving this understanding guarantees that the law retains its stabilizing function—shielding

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[292] *See* U.S. Dep't of State, Limits in the Seas No. 112: United States Responses to Excessive National Maritime Claims (1992) (describing U.S. practice of treating UNCLOS navigation and immunity provisions—including those reflected in arts. 29, 32, 95–96—as binding customary international law and consistently protesting excessive coastal-state claims)

[293] *See* U.S. Dep't of State, Limits in the Seas No. 112: United States Responses to Excessive National Maritime Claims (1992).

[294] *See* UNCLOS, *supra* note 3, at arts. 29, 32, 95–96; *see also* U.S. Naval War College, The Newport Manual on the Law of Naval Warfare (2d ed. 2023) (affirming that warships may be manned or unmanned and that the commanding officer and crew need not be physically on board).

[295] *See* NATO, Alliance Maritime Strategy (Oct. 29, 2025)

[296] UNCLOS, *supra* note 3, at arts. 29, 32, 95–96.

[297] *See* U.S. Naval War College, The Newport Manual on the Law of Naval Warfare (2d ed. 2023).

naval assets from opportunistic interference, protecting sensitive technologies from exploitation, and preserving the operational freedom upon which deterrence, alliance cohesion, and the maritime order depend.

Functionalism secures the bridge between tradition and transformation. It ensures that, as the United States and its allies integrate autonomy into their fleets, the law of the sea continues to perform its most vital role: upholding the sovereign equality of states and protecting the instruments of that sovereignty upon the world's oceans. Sovereign immunity, properly understood, is not about sailors—it is about sovereignty.