

When the Heavens Become a Battlefield: Designing Legal-Strategic Policy in an Evolving Domain

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Outer space is no longer merely a passive enabler of terrestrial military operations. It has become an increasingly contested domain in its own right. Satellites provide intelligence, communications, navigation, missile warning, targeting support, and command-and-control functions without which modern military operations would be difficult, and in some cases impossible, to conduct. At the same time, military planners now increasingly treat space assets not only as support infrastructure, but also as potential objects of competition, disruption, coercion, and attack.

This transformation has not occurred in a legal vacuum. Outer space is governed by international law. The 1967 *Outer Space Treaty*, the United Nations Charter, rules on state responsibility, the law on the use of force, and, where applicable, the law of armed conflict all form part of the legal environment in which military space activities must be assessed. Yet the existence of law should not obscure a more difficult reality: much of the applicable legal framework was developed in a different technological and strategic era. It contains foundational principles, but provides limited specific guidance for many contemporary military uses of space.

The result is a domain that is legally governed but normatively unsettled. This condition creates risk. It also creates opportunity. For spacefaring states, the central challenge is not only to identify the rules that already apply, but to develop legal-strategic policy capable of operating under conditions of uncertainty, shaping emerging expectations, preserving legitimate security interests, and reducing risks of escalation and responsibility.

This contribution argues that states should approach military activities in outer space through an integrated legal-strategic framework. Such a framework should be built around three interrelated axes: first, the normative axis, concerning the choice between voluntary norms and binding regulation; second, the operational axis, concerning the

balance between freedom of action and strategic stability; and third, the institutional-normative axis, concerning the active shaping of law, domestic regulation, and the management of responsibility and liability risks.

A governed but unsettled domain

The basic legal architecture of outer space remains anchored in the *Outer Space Treaty*. The Treaty prohibits national appropriation of outer space, requires activities to be conducted in accordance with international law and the United Nations Charter, prohibits placing nuclear weapons or other weapons of mass destruction in orbit, and limits military activity on celestial bodies. It also establishes that states bear international responsibility for national activities in outer space, including activities conducted by non-governmental entities, and must authorize and continuously supervise those activities.

These principles remain central. But they do not resolve many of the most pressing contemporary questions. The Treaty does not define the precise meaning of “peaceful purposes.” It does not provide detailed rules for anti-satellite operations, rendezvous and proximity operations, electronic interference, cyber operations affecting space systems, or the targeting of dual-use satellites during armed conflict. Nor does it provide a tailored framework for allocating responsibility where private commercial infrastructure becomes deeply integrated into military operations.

Other legal regimes also apply, but they too leave gaps. The law on the use of force governs whether a hostile act in or through space may constitute a prohibited use of force or an armed attack. The law of armed conflict, where applicable, regulates the conduct of hostilities and other aspects of armed conflict. In the context of attacks, it requires, among other things, compliance with the principles and rules of distinction, including the protection of civilian objects, precautions in attack, and proportionality. The law of state responsibility addresses attribution, breach, and consequences of internationally wrongful acts. Regulatory regimes governing registration, liability, frequency allocation, orbital coordination, licensing, and supervision also play important roles.

Yet these regimes were not designed as an integrated code for military operations in space. They must be interpreted and applied across a domain characterized by unusual features: pervasive dual use; complex attribution; private ownership of strategic infrastructure; orbital mechanics; global interdependence; and the possibility that a single kinetic event may generate long-term debris affecting states and actors far removed from the original dispute.

The challenge is therefore not the absence of law, but the absence of settled operational meaning.

The difficulty of simply applying terrestrial rules

A recurring question is whether the law of armed conflict applies to military operations in outer space. Some states and commentators are cautious about emphasizing its applicability, fearing that doing so may normalize the idea of war in a domain traditionally associated with peaceful use and international cooperation. Others argue that if hostilities reach outer space during an armed conflict, the law of armed conflict must apply; otherwise, military operations would take place in a zone of reduced protection and heightened uncertainty.

The latter view is, in my assessment, the more persuasive as a matter of legal structure and humanitarian policy. Acknowledging that the law of armed conflict applies where armed conflict exists does not legitimize war in space. It recognizes that if military operations occur, legal constraints must follow them. The alternative — denying or obscuring the applicability of the law — risks producing precisely the kind of normative vacuum that the law of armed conflict is designed to prevent.

But recognizing applicability is only the beginning. The more difficult question is how the rules apply.

Consider dual-use satellites. A commercial communications satellite may serve civilian users, financial markets, emergency services, and military forces at the same time. A navigation system may support both civilian transportation and military precision-strike capabilities. A remote-sensing satellite may assist agriculture, disaster response, intelligence collection, and targeting. In such circumstances, the classification inquiry

remains anchored in the traditional military-objective test: whether the satellite, by its nature, location, purpose or use, makes an effective contribution to military action and whether its capture, destruction or neutralization, in the circumstances ruling at the time, offers a definite military advantage. Yet classification is only the first step. Even if a satellite is properly regarded as a military objective, the lawfulness of a specific operation against it will still depend on precautions and proportionality, including, in some cases, the availability of less harmful alternatives, the reversibility of the intended effect, the dependence of civilian users on the system, and the likelihood of broader systemic consequences.

The same is true for non-kinetic operations. Jamming, spoofing, dazzling, cyber interference, and temporary degradation may produce effects ranging from tactical inconvenience to strategic paralysis. Some may be reversible and localized; others may produce cascading consequences across civilian systems. Whether such operations constitute a use of force, an armed attack, or an attack under the law of armed conflict cannot be answered by labels alone. The relevant analysis must focus on effects, severity, functionality, foreseeability, and context.

Space debris presents an additional complication. In terrestrial warfare, incidental damage is usually assessed by reference to persons and objects affected in a relatively identifiable geographic area and timeframe. In space, debris may persist for years or decades, endanger unrelated space objects, complicate future access to orbits, and affect the interests of states and private entities not involved in the conflict. This raises difficult questions regarding precautions, proportionality, environmental harm, and the long-term strategic cost of actions that may appear militarily useful in the short term.

In this sense, military space operations challenge not the relevance of existing law, but the adequacy of traditional modes of legal reasoning when transplanted into a radically different operational environment.

From *lex lata* to legal-strategic policy

Over the past decade, significant efforts have been made to map the law applicable to military uses of outer space. The *McGill Manual* and the *Woomera Manual* are the most prominent examples. They differ in important respects, including in their treatment of

the law of armed conflict, but both reflect a broader recognition that states, lawyers, military planners, and scholars require more structured legal guidance.

Such mapping is necessary. But it is not sufficient.

For states, the challenge is not only to determine what the law currently requires. It is also to decide how to act in a domain where the law is unsettled, state practice is still emerging, and present choices may shape future norms. Every public legal position, doctrinal statement, national space strategy, military manual, operational practice, and diplomatic intervention may contribute to the interpretive environment in which future claims will be assessed.

Legal policy in outer space is therefore not merely defensive. It is constitutive. It helps shape the future operating environment.

This is why the debate over military activities in space cannot be reduced to a binary choice between legalism and operational freedom. Law may constrain, but it may also enable. It may reduce uncertainty, stabilize expectations, facilitate cooperation with allies and commercial partners, support deterrence, and strengthen legitimacy. Conversely, poorly designed legal commitments may create asymmetric constraints, expose states to responsibility risks, or restrict adaptation in a technologically dynamic environment.

What is required is a legal-strategic approach that treats law as part of statecraft.

The normative axis: voluntary norms and binding rules

The first axis concerns the choice between voluntary norms and binding regulation.

Recent inter-state discussions have reflected a growing preference, particularly among several Western states, for norms of responsible behavior, transparency and confidence-building measures, political commitments, and codes of conduct. The voluntary commitment not to conduct destructive direct-ascent anti-satellite missile tests is the most visible example. It does not create a new legal prohibition as such, but it seeks to

shape expectations, stigmatize irresponsible behavior, and reduce the risk of long-term harm to the space environment.

This approach has advantages. Voluntary norms can emerge more quickly than treaties. They can address specific behaviors without requiring comprehensive agreement on more contested questions. They may be flexible enough to adapt to technological change. They may also allow states to build coalitions of responsible practice even in the absence of universal consensus.

But voluntary norms have limits. They may be under-inclusive. They may be selectively adopted. They may be criticized as entrenching the advantages of established space powers. They may also lack the legal certainty and political weight associated with binding obligations.

Binding regulation, by contrast, may offer clarity and stability. It may be particularly attractive where states share an interest in preventing systemic and irreversible harm, such as the generation of large-scale space debris. Yet binding rules also raise familiar problems: verification, enforceability, definitional ambiguity, unequal capabilities, and the risk that compliant states will bear constraints that non-compliant actors ignore.

A prudent state policy should therefore avoid treating voluntary norms and binding rules as mutually exclusive. The better approach is tiered. In areas where conduct is technically difficult to verify, where capabilities are rapidly evolving, or where states have sharply divergent threat perceptions, voluntary norms may be a more realistic first step. In areas where harm is systemic, persistent, and clearly contrary to shared interests, states should remain open to targeted binding regulation.

The key is not to ask abstractly whether law should be “hard” or “soft,” but to identify which form of normativity best serves stability, compliance, legitimacy, and operational adaptability in a given context.

The operational axis: freedom of action and strategic stability

The second axis concerns the balance between operational discretion and strategic stability.

Space capabilities are deeply embedded in national security. States will understandably seek to protect their own assets, deny adversaries the military benefits of space systems, and preserve flexibility across the spectrum of conflict. A legal policy that ignores operational reality will not be sustainable.

At the same time, outer space is not a conventional battlefield. It is a shared, congested, and highly interdependent environment. Actions taken against one object may affect many others. A reversible disruption may be interpreted as preparation for attack. An ambiguous maneuver may be read as hostile signaling. A kinetic strike may trigger long-term environmental and political consequences disproportionate to its immediate tactical gain.

This produces a distinctive operational dilemma. Too much ambiguity may preserve freedom of action, but also increase miscalculation. Too much transparency may reduce misunderstanding, but also expose capabilities and limit deterrence. Reversible effects may provide useful tools for signaling and escalation management, but they may also blur thresholds. Kinetic options may produce clear military results, but also long-term debris, reputational costs, and regulatory backlash.

Legal-strategic policy should therefore integrate operational planning with escalation management. This does not mean renouncing capability. It means developing a calibrated approach to the use of capability. States should distinguish between reversible and irreversible effects; between temporary degradation and permanent destruction; between targeting military functionality and producing systemic environmental harm; and between signaling, coercion, and attack.

In certain circumstances, restraint may be strategically rational. An action that appears to preserve freedom of action in the short term may accelerate international efforts to

restrict that freedom in the long term. Conversely, a state that demonstrates credible capability together with responsible restraint may strengthen its legitimacy, deepen coalition support, and influence emerging standards of acceptable conduct.

In outer space, therefore, legal compliance and operational effectiveness should not be treated as separate tracks. They are increasingly mutually dependent.

The institutional-normative axis: shaping law and managing responsibility

The third axis concerns institutional design, norm entrepreneurship, and responsibility management.

In a domain where rules are still developing, silence is not neutral. States that do not articulate their views may find that others define the terms of the debate. This is especially important for states that rely heavily on space infrastructure but are not among the largest space powers. Their interests may be affected by norms shaped elsewhere unless they actively participate in the process.

Public legal positions, national strategies, diplomatic submissions, military doctrine, and participation in multilateral forums all matter. They help determine whether the debate remains abstract — for example, whether the law of armed conflict applies — or becomes operationally meaningful — for example, how proportionality should account for debris, how dual-use satellites should be assessed, and how non-kinetic effects should be legally characterized.

There is particular value in moving the discussion from slogans to scenarios. Much of the inter-state debate has been framed around competing narratives: one side warning against the weaponization of space and the normalization of conflict; another emphasizing the need to apply existing law to military conduct that is already occurring or foreseeable. Both narratives capture part of the truth. But neither is sufficient for operational legal governance.

States should therefore promote applied legal dialogue. How should a state evaluate a commercial satellite used by an adversary's armed forces? What legal significance

should be attached to reversibility? How should effects on civilian users be measured? When does interference with a space system cross the threshold of a use of force? What types of debris-generating conduct should be regarded as irresponsible, unlawful, or strategically unacceptable? These questions are more difficult than general declarations, but they are also more useful.

Responsibility management is equally important. Under the *Outer Space Treaty*, states bear international responsibility for national activities in outer space, including those conducted by private actors. The rise of commercial space infrastructure therefore has direct legal and strategic implications. A private company may provide communications, imagery, launch services, data processing, or operational control that becomes essential to military activity. Its decisions may affect battlefield outcomes. Its assets may become objects of hostile attention. Its conduct may expose states to diplomatic, legal, or operational risk.

Domestic regulation is therefore part of international legal preparedness. Licensing, supervision, contractual arrangements, contingency planning, data-sharing rules, export controls, and liability allocation are not merely technical regulatory matters. They are instruments through which states manage the boundary between sovereignty, security, and commercial space activity.

A credible space policy must therefore connect external norm-shaping with internal governance. It is not enough for a state to participate in international forums while leaving private space activities insufficiently regulated. Nor is it sufficient to regulate domestically without articulating positions internationally. The two dimensions reinforce each other.

Legal policy as strategic infrastructure

The emerging military space environment requires a change in how states think about legal policy. In traditional settings, legal advice may be imagined as a supporting function: it assesses whether a proposed action is lawful. In outer space, legal policy must play a broader role. It helps define acceptable behavior, shape coalition expectations, guide capability development, manage private-sector relationships, reduce escalation risks, and preserve long-term access to the domain.

This broader role does not dilute legal analysis. On the contrary, it requires more rigorous legal thinking. The point is not to convert law into mere strategy, but to recognize that legal interpretation in unsettled domains inevitably has strategic effects. A state's understanding of distinction, proportionality, use of force, responsibility, or due regard in outer space may influence not only its own conduct, but also the expectations by which others judge future conduct.

For this reason, legal advisers, diplomats, military planners, regulators, and commercial actors should not operate in isolation. Space law, national security law, procurement policy, operational planning, and private-sector regulation are now part of the same governance ecosystem. Fragmented decision-making will produce fragmented policy.

Conclusion: shaping the rules of the game

Military activities in outer space are governed by law, but not yet by a sufficiently detailed and settled legal framework. This condition is unlikely to disappear soon. Technological change will outpace treaty-making. Strategic rivalry will complicate consensus. Private actors will continue to transform the operational environment. The boundary between civilian and military uses will remain blurred.

For spacefaring states, this reality presents risks: escalation, miscalculation, legal exposure, reputational harm, and the possible emergence of unfavorable norms. But it also presents an opportunity. States that combine legal expertise, diplomatic engagement, operational understanding, and domestic regulatory capacity will be better positioned to influence the rules of the game.

The relevant question is therefore not only what international law currently says about military activities in space. It is how states should act when law, strategy, and technology evolve together.

A pragmatic legal-strategic policy should preserve legitimate operational discretion while reducing irresponsible behavior. It should support voluntary norms where flexibility is needed, and targeted binding rules where shared systemic interests justify them. It should recognize the applicability of existing law without assuming that terrestrial concepts can be applied mechanically. It should integrate private actors into

the governance framework. And it should treat participation in norm development not as a diplomatic luxury, but as a strategic necessity.

As outer space becomes increasingly central to security, economic activity, and geopolitical competition, legal policy will no longer be a secondary layer added after operational decisions are made. It will be part of the infrastructure of state power itself.

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