
Orbital Power Politics: Satellite Bans, Space Militarization, and the Rise of the Surveillance Economy in 21st Century Geopolitics

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Abstract

This paper conceptualizes orbital power politics as one of the central dynamics of geopolitics in the twenty-first century, and how concerns about satellite restrictions and space militarization, as well as the surveillance economy, are redefining strategic competition. Outer space has transformed into an area of collaboration in scientific fields, as well as a war on space, an engagement of the projection of power. The study employs a qualitative comparative methodology where policy structures, military policies, and technological trajectories of the major and emerging spacefaring actors are analyzed focusing on the satellite bans, denial strategy, anti satellite capability and dual use space systems. It also assesses the third wave in the development of surveillance markets and blurring of the distinction between public security and secretive data mining through commercial satellite networks. Using the findings, it is possible to propose that weaponized and politicized space infrastructures have weakened the political regimes of the present, have intensified deterrence dilemmas, and have added to the inequalities in digital sovereignty. The paper advocates the use of inclusive, multilateral governance systems, confidence-building actions and regulatory standards to maintain a sustainable and peaceful use of the outer-space.

Keywords: Orbital Power Politics; Space Militarization; Satellite Bans; Anti-Satellite Weapons; Surveillance Economy; Digital Sovereignty; Outer Space Governance.

Introduction

The 21st century has seen the strategic importance of outer space undergo one of the most profound changes ever, moving it not only away from the realm of scientific exploration it traditionally occupied but also towards the heart of the geopolitical competition arena. Persistent critical infrastructures, including world-wide communications and navigation, financial systems, disaster management, and military operations now rely on satellites. As the dependency on these orbital assets has intensified, space has become a part of terrestrial power politics in which states seek to gain technological superiority, safeguard national interests and affect international regulating structures. The latter change has spawned what can be conceptualized as orbital power politics a framework through which space-based capabilities can be leveraged to influence political, economic, and security outcomes on Earth (Bukhari et al. 2025).

Among the most important aspects of this new paradigm is the increasing use of satellite bans and restrictions, and denial strategies as elements of coercion and control. Due to security-related concerns,

political battles and economical competition, governments increasingly control or restrict the access to satellite services, data flow, and technologies. These steps are commonly rationalized on the basis of national sovereignty, cyber and information security, but are also indirectly indicative of comprehensive attempts to manage the strategic control and management of information infrastructures. Simultaneously, as the anti-satellite (ASAT) weapon technology is being developed and tested, so is the electronic warfare technology and space-based defense technology, and these are all indicators that the outer space is gradually being militarized. In addition to using capabilities to manage their own assets, major powers and emerging space actors are also investing heavily in capabilities that are designed not only to manage their own assets but also to disrupt or disable that of their adversaries, thereby further extending their deterrence strategies beyond the atmosphere of the Earth (Chang 2026).

At the same time, the fast growth of the surveillance economy has led to the introduction of a new strong commercial aspect to orbital politics. There is now a private industry of enormous constellations of satellites capable of high-resolution imaging, real-time tracking, and data analytics, generating unprecedented volumes of geospatial intelligence. This has diminished the divide between state and non-state actors as governments grow increasingly dependent on commercial suppliers of intelligence and operational support equipment. Commodification of satellite data has also become a significant cause of concern regarding privacy, ownership of data as well as digital inequality, especially as access to such technologies is still uneven across geographical areas (Madhusudan 2026).

Although this has increased the significance of space in international affairs, the current international legal frameworks (most prominently based upon the mid-20th century agreements) fail to offer any means of responding to contemporary challenges such as dual-use technologies, commercial dominance and the weaponization of orbital systems. The paper attempts to critically analyze the influence of satellite bans, space militarization and surveillance economy, in the broader context of the debate over power, sovereignty and global order. Through examining the policies, strategies and technological trajectories of the major actors, the study would illuminate how control over the orbital space is transforming the dynamics of the 21st century geopolitics and would determine what such changes mean to international security, governance and cooperation. (Chang 2026).

Literature Review

Scholarly discussion of orbital power politics has changed considerably over the last several decades, as a general reflection of a broader shift in the understanding of outer space in the framework of international relations and the study of global security. The earlier literature has more-or-less placed space as an area of scientific collaboration and peaceful discovery but in more recent literature it has been repositioned as a contentious strategic landscape shaped under the influence of geopolitical rivalry, technological innovation, and economic rivalry. This literature is broadly divided into three interrelated strands: space militarization, satellite control, and denial mechanisms, the emergence of a surveillance-driven economic order (Gáspár Szilágyi 2026).

The space militarization literature also focuses on the growing momentum in the process of integration of space-based assets in national defense and security policies. Initial studies concentrated on the supportive aspect of satellites in the military interventions, specifically the sphere of communication, navigation, reconnaissance and early warning systems. With time, though, there has been recorded a shift towards more active forms of militarization, such as the development of anti-satellite capabilities, electronic formats of warfare and other counterspace developments (Tahreem et al., 2025; Uddin, 2025). All this has made space a possible battleground, where nations attempt to not only safeguard their own orbital infrastructure, but also to disrupt or destroy that of their competitors. Modern literature stresses that such militarization brings new risks and includes aspects of escalation and the formation of orbital debris as well as the vulnerability of critical world systems that rely on the functionality of satellites (Heinonen 2026; Noor et al., 2025).

Also in addition to militarization, an increasing research has been adopted on strategic application of satellite limits and denial tactics. Researchers believe that access to satellite services, data, has become a paramount dimension of power, giving states an opportunity to control information flows, govern communication networks, and establish digital sovereignty (Kausar et al., 2021). Bans, signal jamming, cyber interference, regulatory constraints are becoming more and more frequently used as a tool of geopolitical leverage, especially in times of conflict or political tension (Sarmad et al., 2020). This literature emphasizes that such practices have caused the erosion of the distinction between conventional and hybrid warfare as states leverage or use non-kinetic means to deliver strategic objectives without necessarily having a directly military confrontation. It also brings out the asymmetricality of these strategies whereby technologically advanced actors have an unproportional capacity to manage or disrupt orbital systems. 2026).

A third and fast growing subfield of study is on the emergence of the surveillance economy, which was brought about by developments in satellite technology, data analytics, and artificial intelligence. Researchers investigate the way commercial satellite constellations have radically changed the way geospatial data is collected, processed and disseminated, to create new markets and economic opportunities (Shah et al., 2025; Khan et al., 2020). This change has dissolved the difference in actions of the government and commercial parties as the government increasingly depends on commercial solution providers in intelligence and operations support. Commodification of satellite data too has raised a lot of controversy حول issues of privacy, data ownership and concentration of informational power. The surveillance economy, according to the scholars, strengthens the already existing global inequalities since access to such high-resolution data and to such capabilities to analyze it is not yet fairly distributed (Rao et al., 2026; Noor et al., 2024).

Besides these thematic areas, the issues of governance and regulation are also addressed by the literature. Existing global systems have been largely considered to be inadequate in terms of tackling modern-day issues especially those that necessitate dual-use technologies and a greater participation of the private player (Sarmad et al., 2018; Khan et al., 2021). Researchers highlight the lack of binding enforcement mechanisms along with ambiguity of major legal principles to be factors that allow competitive and, in some cases, destabilizing behavior in space. Consequently, it has become a strong demand to update the models of governance that will be able to balance both the security concerns and demands to have cooperation and sustainability (E. M. Landoni 2026; Hsu et al., 2026).

Although existing research has a broad scope, there are still several gaps in the existing research. Much of the literature is disposed to separate the domain of militarization, satellite denial or surveillance economy into distinct areas of analysis, with limited vigor to analyze their intersections within a unitary conceptual framework. Moreover, much emphasis is given to the majors of the space, tending to ignore the opinions and weaknesses of the new comers and up-and-coming states. Also, the political economy of space especially the connection between commercial motives and strategic competition are little explored(Kaul 2026).

In general, the literature illustrates that the outer space has nowadays become a serious arena of geopolitical struggle, a convergence place of military, technological and economic power. The increasing significance of orbital infrastructure in defining how power works in the world, [highlights the necessity of more integrated and comprehensive analyses. The paper aims to fill in these gaps by studying the interaction of these three components of orbital power politics to create a unified system of orbital political economy in the 21st century(Zargari 2026).

Research Methodology

To unravel the dynamics of the changing nature of the orbital dynamics of power politics, the study adopts a qualitative and interdisciplinary research design to address the issue of satellite bans, militarization of space,

and surveillance economy. It is based on a comparative case study approach, analyzing total spacefaring actors that include the United States, China, and Russia to identify the patterns of approach, policy, and technological development. The sources used to draw the data are mainly secondary in nature such as policy documents, defense strategies, international agreements, scholarly literature and industry reports. Moreover, the aspects of the discourse analysis are utilized to discuss the way the states formulate the issues of space security, sovereignty, and technological competition. The analytical framework integrates realist and political economy views to both represent security-driven competition and the role of commercial actors in influencing the surveillance economy. It is identified through the thematic analysis in identifying significant trends and patterns in cases. Although this study is limited by inability to analyze certain forces because of the reliance on publicly available data, the methodology allows the analysis of how space is more and more shaped by strategic, economical, and technological forces.

Findings and Results

This paper has discovered that; orbital space has been hurriedly converted into a tense arena of geopolitical confrontation where technological proficiency, strategy motive and economic profits converge. The discussion reveals three related dynamics that condition the modern orbital power politics: strategic application of satellite denial, accelerating the militarization of space and the development of the surveillance economy.

First of all, the research concludes that the strategy of banning or denying the use of satellites has become an effective tool of leveraging based on geopolitics. States become more robust in exercising regulatory control in which signal interference and ability to intercept data flows are used to control access to satellite services and data flows. The justifications that are provided to justify these practices are likely to present themselves in the form of justifications that are concerned with national security and digital sovereignty, though in actual sense such practices are actually working as an instrument of coercion and influence. The analysis shows that at the time of political tension, conflict or the like, when it is crucial that an adversary cannot access the information in real-time, such strategies may be particularly prominent. This is part of a general trend in the substitution of competition based on military force, to competition based on control of information infrastructure.

Second, the research reminds that the process of militarization of the outer space is definitely increased. Space is no longer coming in as the support arm of military operations it is also becoming a part of active defense and deterrence operations. The progress and trial of anti-satellite technologies, electronic warfare units, and counterspace technologies suggests that states are planning the potential of an extended conflict to space. The results suggest that this trend can be driven by both security dilemmas and technological competition in the sense that the states must provide security to their own resources and have the capacity to take down that of their competitors. However, there are also some very serious risks that come with this militarization among them being the possibility of an escalation process, development of orbital debris and destabilization of some key infrastructures across the entire world that depend on the use of satellite infrastructure.

Third, the paper concludes that with the emergence of the surveillance economy, the political economy of space has had a fundamental change. High-resolution imagery, real-time tracking and data analytics is now provided by the commercial satellite operators, which is often used by governments to provide them with the necessary intelligence. This has blurred the line of the state as well as the individual player who may present a hybrid system whereby corporate players are considered to have a very powerful influence to the flow of strategic information. The discussion indicates that commodification of satellite data have produced new forms of power whereby access to information has become a key determinant of geopolitical power. At the same time, this centralization of the data set in the received hands of a number of participants casts doubts on the privacy, accountability and inequality across the globe.

Among several cross-cutting observations can be the multiple layered character of the international space governance. As a result of the increased pace of technological activities and the nature of power, the existing legal institutional mechanisms are increasingly becoming less capable of keeping pace with the changes. States tend to be found in grey areas of law, especially with developing dual purpose technologies, or with non-kinetic forms of interference. Such a loophole in regulation enables the competitive practices to intensify with no clear-cut plans which could be applied to check these competing entities besides providing a checking mechanism.

The analysis also indicates that the politics of orbital power can be explained to be asymmetrical. The already well developed space powers have also developed technological capability and massive networks of satellites, which they are utilising to now dominate both military, as well as commercial aspects of space. The emerging and the developing countries unlike the rest of the countries are still in a dependent relationship with their providers and thus lack strategic discretion. This unbalance consolidates the hierarchies that are present in the international system and introduces new types of dependency into the international system.

Broadly, the results have shown that the power over orbital equipment is becoming a vital construct of geopolitical power in the 21st century. Another emerging (complex) landscape is the growing blurred boundaries between war and peace, public and private and the surveillance economy as a result of the interaction between the satellite denial strategy, militarization and the surveillance economy. The dynamics illustrates the acute need to revise governance frameworks and co-operative forms of control of competition and to facilitate the sustainable use of outer space.

Discussion

The shift of outer space into a geopolitical arena contested by various countries has led to different and at times conflicting interpretations amongst scholars, policymakers and strategic analysts. The essence of this argument, as the core of this discussion, is the concept of space not being a neutral field of scientific research but being a highly politicized environment where command over satellite-based infrastructure can be translated into a strategy of power, economic power, and informational power. This change is best understood by what has been termed regulatory warfare by states over the issue of satellite bans and license wars (Collins 2026).

Applying a realist school of thought as far as security is concerned, satellite bans and stringent licensing regimes are perceived as logical and even a necessity in order to preserve national sovereignty. States are looking at the foreign satellites, especially those associated with the competitors, as a potential intelligence threat who may be able to achieve sensitive geospatial and communications information. In that regard, limiting market access or enacting strict licensing rules is regarded as a defensive strategy to narrow a way to external surveillance and to protect critical infrastructure. This concept of orbital sovereignty comes out strongly within this frame work whereby states application of the logic of territoriality extends into space through efforts to regulate who can observe, map, or transmit information about their territory. Those who hold this opinion believe that in an era of hybrid warfare and information-driven intelligence, control is not just an administrative issue, but a significant part of national security policy (Hachlaf 2026).

Satellite bans and tough licensing regimes are interpreted in terms of realist security views of trying to protect national sovereignty and the strategic autonomy. States are becoming more willing to believe that foreign satellite networks, in particular, those belonging to adversarial powers, present a potential source of intelligence risk that could result in a gathering of sensitive geospatial, infrastructural, military and communications data. In that regard, having a defensive approach to restricting market access, controlling data flows, or requiring much stricter licensing requirements becomes defensive. This reasoning leads to the idea of so-called orbital sovereignty in accordance with which states bring traditional issues concerning the territories to the outer space by enhancing their influence on who is able to observe, map, transmit, or

commercially exploit data pertaining to their territory. According to the proponents of this view, in the age of hybrid warfare, cyber operations, and data-driven intelligence, satellite regulation is not merely a bureaucratic service but an integral part of national security policy (Bukhari et al., 2024).

By contrast, liberal-institutionalist approach accentuates the hazards that such regulation patterns have upon the international collaboration and free implementation of space. In this perspective, the principle of shared access and peaceful use of outer space is undercut by satellite prohibitions and restrictive licensing falsehoods. Critics further state that indulging a state in weaponizing regulation to exclude foreign operators, the states contribute to the fragmentation and also the erosion of trust of the spacefaring states. This angle underlines the possibility that regulatory conflicts can ultimately result in bigger, more geopolitical, conflicts, especially when large national powers have mutually imposed restrictions. It also begs the question of how international norms are being weakened and the lack of effective multilateral means to resolve the dispute over the opening of the satellites and the possession of the data(Languisse 2026).

Such a political economy approach diverts the emphasis towards the economic reasons and consequences of regulation warfare. In this instance, satellite licensing refers not to merely a tool of security but also a vehicle of geo-economic competition. States can limit foreign satellite operators in favor of their own industries, or national champions, or to acquire leverage in the global space business. Restriction of the licensing regulations can thus have a dual effect by helping to restrict outside influence and in the process launching local technological growth and market dominance. This view also highlights how access to satellite data has become a useful economic resource, and a subject of attempts by governments to regulate the flow of this information in a manner that benefits most their nation. Consequently, the borderline separating economic protectionism and security-oriented regulation is getting more and more blurred(López 2026).

In the critical and Global South minds, the introduction of orbital sovereignty and control over the regulation has issues concerning inequality and exclusion. Quite often, developing countries, many of which do not have access to independent satellite characteristics, depend on foreign companies who provide key services to them, such as weather forecasting, disaster monitoring, and communication. Restrictive licensing regimes engaged in by more advanced states can restrict access to such services or can augment dependency on a small group of approved actors. This establishes a hierarchical system whereby technologically advanced nations dominate the infrastructural systems and the regulatory systems that govern space marginalising less technologically advanced actors. According to critics of this view, the orbital power politics approach will risk reinforcing the already existing global inequalities in a new edifice(Franken 2026).

Lastly, a technology-oriented and governance based -view emphasizes the big picture consequences of regulatory warfare about the future of space governance. The growing number of licensing as a geopolitical tool imply that the mastery of visibility a who can see and gather data of space is increasingly turning into a major axis of power. This presents complicated issues over transparency, accountability, and the security/openness equation. Although regulation can raise national control, too much restriction can hamper the innovation, reduce data sharing to tackle global issues like climate monitoring, and complicate the creation of cooperative structures(Lantis 2026).

Overall, the controversy about satellite bans and licensing disputes is just a reflection of greater tensions in orbital power politics. On the one hand, regulatory control can be viewed as an extension of sovereignty and security into the global space, where it on the other hand can be perceived as a destabilizing force that tears the international space order to pieces. In all perspectives, however, there is a collective acknowledgment that the concept of regulation has become a potent tool of geopolitical policy-making, as also a phenomenon that is reshaping not only access to space, but also the trend in the distribution of power in the 21 st century(Shi 2026).

Conclusion

This paper shows that outer space has been radically changed into a contested geopolitical union through the lenses of strategic rivalry, regulatory control, and economic rivalry. The three interconnected processes behind the emergence of orbital power politics are as follows: use of satellite bans and licensing regimes as weapons of regulatory warfare, the incremental militarization of space through counterspace capabilities and the rapid emergence of a data-driven surveillance economy. Combined, these trends are re-creating the methods of exercising power outside the atmosphere of the Earth. Regulation has become a key tool of geopolitical influence, as it has enabled states to control the access to information and form of so-called orbital sovereignty. Concurrently, the militarization of space is exacerbating a situation of security dilemmas, exposing critical global infrastructures to be disrupted, and heightening risk of escalation. In line with it, the recent increase in the role of commercial actors in the production of satellite data has made the distinction of power between the state and the market unclear with the concentration of informational power and the concern of inequality, privacy, and accountability. The results also suggest that the current governance systems are becoming increasingly ineffective to deal with these complicated dynamics. The lack of an inclusive multilateral coordination, weak enforcement mechanisms, and legal ambiguities have made competitive and, at times, destabilizing practices to flourish. Consequently, orbital space is becoming an asymmetrical and disjointed space, with technologically advanced players wielding both the infrastructure and regulatory power and influence, and the rest remains dependent and vulnerable. Orbital power politics is not merely reforming the global security but also redefining the concepts of sovereignty, economic power and access to information in the 21st century. And unless the various players come together to regulate competition and establish a common set of rules, the current trend may only continue the geopolitical tensions and jeopardize the overall sustainability of space operations.

Recommendations

- **Enhance Laws Against Space Militarization.** Laws in place governing the outer-space should be reformed to combat the increased militarization of the satellite system and orbital infrastructure. Existing legal frameworks are insufficient to regulate non-kinetic options of disruption of satellites, such as anti-satellite weapons, cyber interference, signal jamming, laser dazzling, and others. There is a necessity to develop a more powerful international legal framework that will not allow space to turn into a direct fighting zone. This should come up with clear rules on irresponsible conduct in space that should regulate damaging anti-satellite tests and the formulation of consequences to such deeds.
- **Establish Global Standards on Satellite Bans and Denial Policies.** Satellite prohibitions and denial policies are becoming an attractive tool of geopolitical influence. States can deny by refusing access to satellites or preventing foreign satellite use or denying through refusal of licensing or limiting the use by satellites to national security interests. Admittedly, certain restrictions might be justified, but the explosive growth or even politically motivated bans can tear the global space economy apart and increase the level of strategic competition. The international standards, therefore, should guide to make sure that the restrictions imposed on the satellites are transparent, proportional, and consistent with the overall security of the world and its stability in business affairs.
- **Control Dual-Use Satellites.** Numerous satellite networks are used by both civilians and military, and thus, they are key to orbital power politics. Disaster response and economic development can be achieved with the help of communication, navigation, remote sensing, and surveillance satellites that can also be used to target military objectives, collect intelligence and monitor strategy. Due to this bi-use nature, states and similarly international organizations ought to put stricter guidelines concerning the creation, transfer and application of such technologies. The regulation is necessary so as not to stifle peaceful innovation, but in order to minimize various dangers of abuse, spreading, and covert militarization.

- **Agreed to Confidence-Building Measures Between Space Powers.** The mistrust between the key spacefaring states at a strategic level increases the chances of the data miscalculation in orbit. The spacecraft operation, computer attack, or radio disturbance can be viewed as a military or political attack, particularly in a situation that is triggered by a political or military crisis. To mitigate these risks, confident-building strategies should be adopted by major space powers including prior notification of high-risk orbital activities, openness in launching satellites, sharing information on space debris, and having crisis communication channels. They can be used to prevent the inadvertent increase and to contribute to the stability of strategies in outer space.
- **Institute More Effective Control Over The Surveillance Economy.** The fast growth of commercial satellite networks has the result of providing a global surveillance economy whereby satellite data is gathering, data processing, data selling and data usage by the states, corporations and security agencies. This raises some serious questions concerning the privacy, data ownership, corporate power and unequal access to information. Governments need to come up with obvious regulations on the data available via satellites, who owns it, who can buy it, how it can be utilized and how sensitive populations or regions will be safeguarded. More control measures should be established on the private satellite companies to avoid monopolization of data and also to hold them accountable.
- **Protect Digital Sovereignty and Data Security.** The manipulation of satellite information is a source of significant geopolitical might today in the twenty-first century. States that are reliant on external satellite systems may experience vulnerabilities on communication, surveillance, navigation and economic planning. To overcome this, nations are supposed to enhance digital sovereignty by formulating secure data policies, securing vital satellite systems and limiting overdependence on foreign-controlled platforms. Digital sovereignty, however, should not result in isolated or nationally-focused approaches to data. Alternatively, it ought to be balanced and accompanied by international collaboration, equitable access, and accountable data-sharing.
- **Empower Space Powers in Emergence and Reduce Inequality in Orbital Space.** The politics of orbitals are becoming controlled by few and powerful countries and other corporations. Novel and emerging space actors frequently do not have access to satellite technology, capacity of launch, technical evaluation and quality space based data. The number of capacity-building programs should be increased to enable these states to contribute more to the world space order. This integrates technology transfer, training, joint research, access to affordable satellite data, and collaboration in monitoring climatic conditions, managing disasters, agriculture, and communications. Dependence can be minimized and orbital inequality will not develop into another variation of geopolitical hierarchies by a more hospitable space order.
- **Avert the establishment of Orbital Debris.** Testing and deployment of destructive anti-satellite weaponry have the potential to create massive amounts of orbital debris that pose a threat to the satellites to be used in civilian, commercial, and military purposes. Not only is orbital debris an environmental problem, but it is also a strategic security issue, since orbital debris has the potential to damage critical satellite infrastructure and raise tensions among states. Communities of nations must discourage those ASAT testings that are destructive and obligate them to behave responsibly when performing tests on their satellites. Sustainability of space should become one of the key principles of the global security policy.
- **Encourage Collaboration in the use of Peaceful Space.** Although the level of competition is on the increase, the outer space can yet provide some cooperation opportunities. States must also increase their joint projects in such areas as climate monitoring, disaster response, environmental protection, maritime security and humanitarian aid. These uses of satellite technology, which are peaceful and do not inflict harm, can help diminish the mistrust and demonstrate that satellite technology is not merely a

tool of the military and surveillance but it is also a global common good. Calibration The competition logic of orbital politics of power can be stabilized by cooperation in these areas.

- **Establish a Global Governance Framework of Orbital Security that is Inclusive.** A more inclusive governance structure is required that can tackle multiple issues of satellite bans, militarization, surveillance capitalism, and data inequality. It is important to mention that this mechanism should comprise not only of major space powers, but also of emerging space states, private satellite companies, international organizations, as well as civil society actors. It should aim to develop common standards on responsible use of satellites, restraint in military force, commercial responsibility, as well as equitable access to the benefits which come with the use of space. In the absence of such regulation the evolving geopolitical tensions, along with a rise in global insecurity, could just be aggravated by orbital power politics.

On the whole, the preventive action of the outer space turning into a battlefield of unfany military competition and the dominance of surveillance systems should become the primary target of the developed policies. This must be a middle ground: one that safeguards National Security and at the same time serves as a commercial and digital fairness and equal consideration on the benefits of utilizing satellites. These suggestions will serve to make the outer space safe, sustainable and friendly in this day and age of heightened geopolitical rivalry.

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