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As complex security threats are increasing the need for international cooperation on Earth, the growing number of actors in space increasingly demands collaboration in space and security. This need is intensified by the unique environmental attributes of space. For example, debris from space assets can orbit the Earth for years, rendering large areas of orbital space unusable. Moreover, as space becomes more crowded, the lack of comprehensive international governance amplifies the chance of mishaps above Earth.

This paper examines and considers the prospects for space and security cooperation between the United States and Europe. It carries out this inquiry by focusing on different European approaches in this area. This issue is explored because the transatlantic partnership, with the North Atlantic Treaty Organization (NATO) as its institutional cornerstone, remains a durable and robust alliance. Also, the United States and Europe share many of the same values and interests over a long history of cooperation, and their partnership forms the core of multilateral endeavors. Furthermore, in the past 60 years, international cooperation and integration has taken place in Europe. More recently, Europe has become an emerging player in space and security through some innovative initiatives, and the European Union (EU) is playing a role in space as a result of the Lisbon Treaty.[1]

Transatlantic cooperation is necessary for addressing security challenges on Earth and it will be a crucial foundation for international cooperation in space and security. However, U.S. policy makers and space experts must understand how processes in Europe over the past 60 years have shaped what it is today. This insight can help provide realistic expectations of the direction Europe is heading in space and security.

This paper offers such a forecast. It begins by examining the historical development of alternative European and Atlantic security structures, thereby spelling out the principles and preferences that guide Europe in international relations. The paper then discusses current developments in European space and security cooperation before assessing the prospects for transatlantic cooperation in this area. Finally, the paper concludes with several policy recommendations for enhancing transatlantic cooperation in space and security.

Terms and Definitions

The term "space and security" refers broadly to the safety of human assets in space, such as satellites and spacecraft, and has two different dimensions. One aspect involves the threat to space assets posed by human-made space debris, space weather, Near-Earth Objects

[1] *Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community* (hereinafter *Treaty of Lisbon* or *Lisbon Treaty*), signed 13 December 2007, and entered into force 1 December 2009, http://europa.eu/lisbon_treaty/index_en.htm (accessed June 2010).

(NEOs), accidental collisions with other space assets, and unintentional radio interference. The other aspect involves the threat posed by intentional human disruption, such as radio jamming, anti-satellite weapons (ASATs) launched from Earth, and potential space-based weapons. A wide view of space and security addresses both of these hazards, and draws on concepts developed in international forums. The United Nations Committee on the Peaceful Uses of Outer Space (COPUOS), for example, seeks to ensure the "long-term sustainability" of outer space activities by mitigating both the human and environmental risks of space operations. The draft EU Code of Conduct, discussed further below, aims to "enhance the safety, security, and predictability of outer space activities for all" by establishing norms for human activities in space.[2]

Europe has become an emerging player in space and security… and the European Union is playing a role in space as a result of the Lisbon Treaty.

"Space weapons," in this paper, refers to destructive weapons in space that can attack targets on Earth, in the air, or in space. These might include space-based missiles, lasers, or a space fighter plane. Under this definition, no space weapons have been deployed yet. Although the term is broad, it is not all-encompassing. For example, the United States and China have already used missiles to destroy their own satellites in space, but these weapons were not designed explicitly to damage space objects nor were they deployed in space. Furthermore, the Space Shuttle or even satellites could hypothetically be used as "weapons" to collide with and disrupt other space assets. These all-inclusive definitions would imply that the deployment of space weapons has already occurred, and is not used in this paper.

Space weapon issues are chiefly addressed by the Outer Space Treaty (OST)[3] and the Conference on Disarmament (CD). The OST establishes, among other principles, that space shall be used "for the benefit and in the interests of all countries." Regarding weapons, the OST declares that states shall not "place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner." It does not, however, ban the deployment of conventional weapons in space – the "space weapons" mentioned above. Efforts to legally ban space weapons have taken place since 1985, with little progress, in the CD, which was established by the United Nations General Assembly in 1979 to deal with a wide range of multilateral disarmament issues. Most recently, the CD has discussed a draft *Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects* (PPWT), which would ban the deployment of weapons of any kind in space.[4]

An adequate discussion of "space and security" also needs to look at what Europe is

[2] *Council conclusions and draft Code of Conduct for outer space activities* (General Secretariat, Council of the European Union, 17 December 2008), http://www.stimson.org/space/pdf/EU_Code_of_Conduct.pdf (accessed June 2010).

[3] *Treaty on Principles Governing Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies*, United Nations Office of Outer Space Affairs, http://www.oosa.unvienna.org/oosa/SpaceLaw/outerspt.html (accessed June 2010).

[4] *Report of the Conference on Disarmament to the General Assembly of the United Nations* (Conference on Disarmament, 2009).

doing in this area. Within this context, and in addition to the safety of human assets in space, space and security refers to the use of space and space assets for security purposes on Earth. Thus far, space assets have been primarily used as force enhancers and strategic enablers. For example, orbital satellites make possible a range of capabilities for security forces, including precision-guided weapons, integrated communications, and accurate navigation. Satellites can provide intelligence on changes in terrain and weather, as well as enemy movements and operations. Space and security, as used herein, does not refer to hypothetical force application from space. Space weapons, if they were deployed, could be used to attack targets on Earth for security purposes, just as they could, in theory, be used in space to protect assets from enemies. As mentioned above, this paper does not maintain that space weapons have been deployed. Thus, force application could only be a theoretical aspect of space and security and is not covered herein.

Space and security issues are also tied to the concept of "militarization" in space. In this paper, militarization refers to military control of space assets for military purposes. For example, the United States military has deployed satellites for the purposes of force enhancement mentioned above. Thus, the United States has militarized space, although it has not deployed space weapons. However, this concept is often complicated by dual-use systems, which are space assets that can serve multiple purposes. For example, Global Positioning System (GPS) can help military units navigate hostile terrain and help civilian motorists navigate the Los Angeles freeway system. Communications satellites can serve both cell phone companies and security forces, while satellite imagery can help plan a military assault or construction of a city. Spacecraft can be used to explore space or, hypothetically, to attack other space assets or targets on Earth. Hence, the key aspect of militarization is military control for military purposes.

Transatlantic cooperation is necessary for addressing security challenges on Earth and it will be a crucial foundation for international cooperation in space and security.

"Europe" is another term that can have multiple meanings. Here, it refers to the region of Europe, as well as the sovereign states and institutions that exist therein. The EU is an organization of 27 member states. It is essentially supra-national and intergovernmental in economic issues, and intergovernmental in political and security issues. Within the EU, there are various institutions with different responsibilities, while member state governments retain their national sovereignty. The European Space Agency (ESA) is an intergovernmental organization of 18 member states, two of which are not in the EU, which seeks to coordinate and develop the space capabilities of its members. This paper differentiates between the EU, the various EU institutions, ESA, and the member states that are in each organization. These actors are increasingly seeking to cooperate on space and security issues, as illustrated by the Structured Dialogue that was established in 2007. This dialogue brings together EU institutions with space responsibilities, including the European Union Satellite Centre (EUSC) and the European Defence Agency (EDA), ESA, and relevant member state agencies from the organizations.[5]

[5] *Space and Security* (European Commission/European Space Agency, Joint Secretariat Paper, 2010).

For clarity, this paper considers Europe to fall within the borders of the Structured Dialogue, meaning states within the EU and ESA. Thus, developments and initiatives happening on a European level are meant to incorporate the Dialogue's participants. Debates over future EU membership, among others, indicate that Europe is an arbitrary term. Other countries, particularly those on the eastern boundaries of Europe, can legitimately claim to be European. Turkey, for example, is a member of NATO and a major contributor to the region's security. However, the Structured Dialogue involves the key actors in space and security initiatives in the region, and thus, delineates Europe in this paper.

Development of European and Atlantic Security Structures

At the end of the Second World War in 1945, Europe lay devastated. The battles of the preceding six years were more mobile and destructive than anything the world had seen before. Millions of soldiers and citizens alike had been lost to conflict and the privations of war, and the cities, infrastructures, and economies of Europe had been shattered. Moreover, a threat still loomed in the east. The Soviet Union, one of the victorious Allied powers in the war, represented an ideological rival to the United States and its allies. More importantly, the Soviet Union commanded a vast number of military forces, which were now positioned within striking distance of Western Europe.

Europe's leaders realized they needed a new way to ensure the security of their states. A military commitment from the United States was considered essential, and leaders on both sides of the Atlantic agreed that they needed to pool their limited resources in a collective defensive effort. Moreover, the new speed and destructiveness of war made an integrated military approach necessary, because only standing forces backed by plans for joint action could hope to be militarily effective. In particular, U.S. officials "favored an integrated approach because it offered the promise of combining the relatively small armed forces of the European allies within a larger collective effort that would make more efficient use of the Europeans' resources, but without jeopardizing economic recovery in Europe. The Europeans welcomed an integrated approach because it offered the prospect of a permanent claim on American resources."[6]

Thus, NATO was formed in April 1949. It originally consisted of 10 European states in addition to the United States and Canada. Article Five of the North Atlantic Treaty states that an attack against one of the members in Europe or North America is an attack against them all; each member, in coordination with the others, will take whatever action it deems necessary to restore and maintain security in the North Atlantic area.[7] The treaty also establishes a council to oversee NATO, as well as goals of collective defense and the preservation of peace and security.

NATO was not the only European institution created following World War II. In addition to the Soviet threat, there were residual fears in Europe, especially in France, over a rearmed Germany. Accordingly, the French pushed for the creation of a European Defence Community (EDC), which would help ensure that German rearmament would be structurally controlled. The EDC was developed alongside the European Coal and Steel Community (ECSC), which was designed to control the war-making capacity of Germany. The logic

[6]Wallace Thies, *Why NATO Endures* (Cambridge University Press, 2009).
[7]*The North Atlantic Treaty*, 4 April 1949, http://www.nato.int/cps/en/natolive/official_texts_17120.htm (accessed June 2010).

behind these organizations was that "binding the countries of Europe closely together in integrated institutions would make war impossible between them."[8] Defense was thus being used as a mechanism to advance integration; there were also debates taking place about developing a European political community.

The EDC Treaty was signed in May 1952 with the support of the United States, which saw the "EDC as essential to give NATO a stout and dependable heart."[9] However, the British refrained from joining the treaty, mainly because they still felt they had a broad range of national interests and were hesitant to become involved in a supranational organization on the European continent. The United States did not press the issue for fear of delaying the EDC. However, there were doubts as to whether France could manage Germany by itself. Consequently, the French rejected the EDC treaty when it was seen to lack firm commitments from Britain and the United States. The treaty's failure raised uncertainties about the political will within Europe to contribute to the common defense. Most significantly, the lack of European unity threatened to reduce the United States commitment to the continent, which was partly predicated on a European willingness to join together and contribute to their collective good.[10]

As the European Union begins to deploy space assets for an increasing number of security-related functions, European officials… have expressed the need for measures to protect those systems.

In order to preserve the United States presence and facilitate controls on German rearmament, Britain arranged a series of agreements that created the Western European Union (WEU) in 1954. The WEU was formed from the Western Union, itself a defensive alliance founded in 1948 between France, Britain, Belgium, the Netherlands, and Luxembourg. Germany and Italy became members of the new organization; Britain also pledged several divisions and a Tactical Air Force to the continent. Unlike the supranational EDC, the WEU was an intergovernmental actor; it functioned as a "facilitating mechanism" to enable NATO to play the leading defense role in Europe. Instead of deterring an external threat, the WEU served as a "reconciler of differences between allies."[11]

To some states, like Britain, the formation of the WEU showed the inability of European states to agree on a defense structure without U.S. guidance. In economic matters, however, European integration continued from the foundations of the ECSC. In 1957, the Treaty of Rome established the European Economic Community (EEC), an organization of six European states designed to foster economic cooperation and integration. Six additional states later joined the EEC, including Great Britain. In 1992, the Treaty of Maastricht was signed by the EEC's members, creating the EU from the original organization. Maastricht established three pillars of the EU. The first was the European Community, which incorporated the EEC and dealt with economic matters. The common market of the EEC became the EU single market, which facilitates the free flow of goods, capital,

[8]G. Wyn Rees, *The Western European Union at the Crossroads* (Westview Press, 1998).
[9]Edward Fursdon, *The European Defence Community: A History*, (Macmillan, 1980).
[10]G. Wyn Rees, *The Western European Union at the Crossroads* (Westview Press, 1998), p. 8.
[11]Ibid., p. 9.

people, and services within the EU. This single market also acts as a customs union, which applies a common external tariff on all goods entering the market. In 2002, twelve of the EU's member states began using a common currency, the euro, essentially completing a 45 year long process of economic integration.

In the first pillar, the EU acted as a supranational body; its decisions were binding on its member states and did not always require unanimity. The Council of the EU, which brings together the ministers of each member state, had the ultimate authority in these legislative areas, as it did in all areas falling under EU competence. The European Council, which brings together the heads of state from each EU member, is the highest configuration of the council and the EU's ultimate decision making body. However, the European Commission had the responsibility for proposing legislation in economic areas, and the council gave it primary responsibility for implementing legislation. The commission is made up of 27 commissioners, one from each member state, who are supposed to act independently on behalf of the EU as a whole.

The development of European SSA capabilities has been viewed as an important first step toward protecting European space assets.

The Maastricht Treaty's second pillar was the Common Foreign and Security Policy (CFSP), and the third was Police and Judicial Cooperation in Criminal Matters (PJCC). In these areas, the council had ultimate responsibility for all decisions. In contrast with the first pillar, these pillars were intergovernmental; decisions required unanimity and were not binding on member states. The CFSP and PJCC were designed to coordinate the policies of the EU's member states, aligning them as closely as possible, while allowing for national autonomy over sensitive security matters. The CFSP included the European Security and Defence Policy (ESDP), which was created to harmonize EU military and defense policies.

As with nascent European security structures in the 1940s and 1950s, the development of the ESDP has been marked by tension between collective security and national sovereignty. Furthermore, there has been a divide within the EU about the ideal direction of the ESDP. Some states, led by France, have wanted to build-up the ESDP as an independent European alternative to NATO. Other states, led by Great Britain, have preferred to develop the ESDP within the transatlantic framework of NATO. In an attempt to address some of the institutional and jurisdictional questions of the EU-NATO relationship, the Berlin-plus agreement of 2003 enables the EU to use NATO structures, mechanisms, and assets to execute military operations if NATO declines to act.[12]

Some European security missions are carried out by the Organization for Security and Cooperation in Europe (OSCE), which evolved from the Conference on Security and Cooperation in Europe (CSCE). The CSCE began in 1975, when 35 heads of state from North America and Europe, including General Secretary Brezhnev from the Soviet Union, met and signed the "Final Act," which included ten normative principles to guide international relations. These principles included the peaceful settlement of disputes, nonintervention in internal affairs, respect for

[12]Gulnur Aybet, "The European Security and Defense Policy: Capabilities and Institutions," in Yannis Stivachtis, ed., *The State of European Integration* (Ashgate Publishing, 2007).

human rights, and fulfillment of obligations under international law.[13] The CSCE consequently established a link between the political-military aspects and the human dimensions of security. It also developed confidence-building measures (CBMs) in the realm of military security, and called for cooperation in economic, scientific, cultural, and educational fields.

Following the collapse of the Soviet Union, the heads of state of the CSCE met in 1992. The original intent of the leaders was mainly to create temporary, ad-hoc missions to deal with conflicts as they arose. However, by this time, the CSCE had become the "principal venue for negotiating, verifying, and discussing the enforcement of the major non-nuclear arms control measures on the Eurasian continent."[14] It had also developed a broad set of instruments for use in conflict management throughout the territory of its member states in Eurasia. Thus, at the 1994 Budapest Summit, the CSCE became the OSCE, a fully institutionalized regional security organization. While the OSCE developed a permanent secretariat, it remained a political organization, which was thought to be more flexible than a collective, legal institution. The Budapest Summit also produced a Code of Conduct on Politico-Military Aspects of Security, which created a regional normative framework for all aspects of military activity, including civil-military relations and the conduct of warfare.[15]

Although it has limited resources and is often overlooked, especially in the United States, the OSCE has managed to persist and accomplish a number of objectives due to several unique attributes. The OSCE responded more directly than other European security institutions to the specific threats that emerged with the collapse of the Soviet Union, such as ethno-political conflict and violence as states divided along ethnic lines. Now consisting of 56 members, it is the only pan-European security organization with universal membership.[16] The OSCE's greatest assets include its ability to strengthen democratic institutions in transitional societies, thus alleviating potential conflicts, and its capacity to respond rapidly to crises.

Nevertheless, NATO remains the chief military and defense institution in Europe, with responsibility for the continent's territorial defense. It continues to exist 60 years after its creation, and 20 years after the demise of the Soviet Union, the main security threat that prompted its formation. NATO has endured, and will continue to endure, because it is an alliance of liberal democracies that contains self-healing tendencies. First, there is an attraction felt by democracies to working closely with each other; moreover, the internal workings of democracies enhance their suitability as long-term allies, both due to their emphasis on consultation and cooperation, and their continual changeover of political leaders.[17] Thus, NATO's member states have managed to work through various crises without breaking up the alliance. While some observers claim that the current NATO mission in Afghanistan is a critical test for its future existence, it will probably only determine whether or not NATO will carry out future missions beyond its borders.

Thus far, transatlantic cooperation in space and security areas has been limited.

[13]P. Terrence Hopmann, *Building Security in Post-Cold War Eurasia: The OSCE and US Foreign Policy* (United States Institute of Peace, 1999).
[14]Ibid., p. 12.
[15]Ibid., p. 14.
[16]Ibid., P. 5.
[17]Wallace Thies, *Why NATO Endures* (Cambridge University Press, 2009), p. 294.

After its creation, the WEU also remained involved in European security issues in three ways: as a channel of intra-European communication and conflict resolution, as part of the debate about U.S. leadership on the continent, and as an element in the evolution of European integration.[18] In June 1992, at the Hotel Petersberg in Germany, the WEU laid out three types of security tasks it planned to undertake: humanitarian operations, peacekeeping, and the employment of combat forces in crisis management.[19] These "Petersberg Tasks" were adopted by the new ESDP in 1997. Shortly after, the WEU began to transfer its capabilities and functions to the EU. After the Lisbon Treaty entered into force on 1 December 2009, the member states of the WEU collectively decided to close the organization. WEU activities are planned to cease by June 2011.

There continues to be a major capabilities gap between the United States and Europe, both in general defense and in space.

The Lisbon Treaty marks another major step forward in EU integration. It is designed to streamline some of the decision-making processes in the EU and to give the EU greater coherence and capabilities, especially in international relations. This development has been partly motivated by the EU's relative weakness in foreign and military affairs. While the EU is an economic power rivaling the United States, it remains far behind its transatlantic partner in defense capabilities. Under the Lisbon Treaty, qualified majority voting (QMV) has been extended to 40 policy areas, meaning the Council of the EU and European Council can make decisions without unanimity. The rule of "co-decision" has become the regular legislative procedure. This puts the European Parliament on equal footing with the European Council for most legislation areas, notably including the budget. The parliament is the only directly-elected EU institution, and it is intended to represent the citizens of the member states. The European Commission remains the only EU institution that can initiate proposals for legislation. In addition, its Vice-President serves as the High Representative of the EU for Foreign Affairs and Security Policy and chairs the foreign affairs configuration of the Council of the EU. Furthermore, the ESDP has become the Common Security and Defence Policy (CSDP), which establishes the principle of enhanced cooperation for groups of states that want to collaborate on security issues. Autonomy in national defense decisions is kept intact, however.[20] Notably, the CSDP takes on both a civil and a military dimension, recognizing the importance of a broad-based approach to today's security issues.[21]

The Lisbon Treaty makes a number of other changes as well. Significantly, it officially establishes space as an area of shared competence between national governments and the EU institutions in Brussels. Space is also one of the new areas covered by QMV, as well as co-decision. Specifically, the treaty states that the EU "may promote joint initiatives, support research and technological development, and coordinate the efforts needed for the exploration and exploitation of

[18]G. Wyn Rees, *The Western European Union at the Crossroads* (Westview Press, 1998), p. 10.
[19]*Petersberg Declaration, Part II* (Council of Ministers, Western European Union, 1992).
[20]"The Treaty of Lisbon," *EurActiv Network*, 29 January 2010, http://www.euractiv.com/en/future-eu/treaty-lisbon/article-163412 (accessed March 2010); and *Your Guide to the Lisbon* Treaty (Directorate-General for Communication, European Commission, 2009).
[21]Pierre Lemoine, "Civil-military approach: A blank page," *Europolitics*, 17 November 2009.

space." It may also establish "any appropriate relations" with the ESA.[22]

In practice, there remain many questions over how the Lisbon Treaty will impact EU affairs. Baroness Catherine Ashton, the High Representative, is still struggling to set up the EU's new diplomatic corps, the European External Action Service (EEAS). In doing so, she must manage the demands of the council's external relations department, the Commission's Directorate-General for External Relations, and the member states' diplomatic services for positions and influence.[23] In addition, the European Parliament is seeking to ensure that it has adequate oversight of the EEAS. Furthermore, the Lisbon Treaty has not yet created a coherent EU. The Lisbon Treaty created the position of President of the European Council, a politician who is elected for renewable terms of two-and-a-half years. The President chairs EU summits, although ministerial meetings continue to be chaired by the country holding the six-month rotating EU presidency.[24] The President of the European Commission, who heads and represents that institution, is another key decision maker, in addition to the leaders from all 27 member states. In the ongoing crisis in the euro zone, these leaders have struggled to organize a unified EU response, and it is unclear who will do so in the future. Finally, it is not yet certain how the Lisbon Treaty affects the implementation of EU legislation. Due to rules which give it more oversight, the European Parliament may become more willing to delegate implementation to the European Commission. At the same time, the parliament will have more work to do in examining measures drafted by the commission, and will probably spend much more time scrutinizing the implementation of EU policy and law.[25]

… there is an interoperability problem between U.S. and European forces, which hampers space and security cooperation.

European Space and Security Cooperation

European cooperation in space has reflected the broader process of European integration, although it has largely taken place outside the formal EU framework until recently. Realizing that national projects would not be able to compete with the United States and the Soviet Union, European scientists in the 1950s and 1960s pressed their governments to establish organizations for space cooperation. Originally, there were two European space organizations – the European Launch Development Organisation (ELDO) and the European Space Research Organisation (ESRO). ELDO and ESRO were merged in 1975 to form ESA, which is now an intergovernmental organization of 18 member states, two of which, Norway and Switzerland, are not EU members. The ESA Charter states that its purpose is "to provide for, and to promote, for exclusively peaceful purposes, cooperation among European States in space research and technology and their space applications, with a view to their being used for scientific purposes and for operational space applications systems."[26]

[22] *Treaty of Lisbon,* Article 142, http://europa.eu/lisbon_treaty/index_en.htm (accessed June 2010).
[23] "Implementing the Lisbon Treaty: how does Europe tie up the loose ends," *Burson-Marsteller Insight*, 2010.
[24] Ibid.
[25] Ibid.
[26] European Space Agency, 14 June 2007, http://www.esa.int/SPECIALS/About_ESA/SEMSN26LARE_0.html (accessed November 2009).

In recent years, ESA officials have commonly interpreted "peaceful purposes" somewhat loosely, allowing for non-aggressive activities, such as military-support architectures and peacemaking missions.[27] This interpretation has enabled EU-ESA cooperation in security areas. The first ever European Space Policy (ESP), released in 2007, is a joint document of the European Commission and the Director General of ESA; it was compiled in consultation with the member states of both organizations and other interested stakeholders. The ESP states that "Europe needs an effective space policy to enable it to exert global leadership in selected policy areas in accordance with European interests and values." Among other objectives, its strategic mission seeks "to meet Europe's security and defence needs in regard to space." The ESP also stresses the need for establishing a European Space Program and coordinating national and European level space activities, increasing synergy between defense and civil space programs and technologies, and developing a joint international relations strategy in space. For specific applications, the ESP lists satellite navigation, Earth observation, satellite communications, and security and defense. In the last area, it notes that "space system needs for planning and conducting civilian and military crisis management operations overlap." While "military capability will continue within the remit of Member States… Sharing and pooling the resources of civilian and military space programmes, drawing on multiple use technology and common standards, would allow more cost-effective solutions." Furthermore, the ESP states that the EU will lead in "identifying and bringing together user needs" and setting policy objectives, while the ESA will primarily develop space technologies and systems.[28]

… Europe generally prefers to use "soft power" in international politics… as opposed to hard military power.

Michael Taverna accordingly observes there is "growing pressure within the EU to harness space for bolstering security and defense capabilities, combined with a trend among EU states toward greater military space cooperation."[29] The military use of space remains a sensitive issue, however. Several EU and ESA member states have their own military space programs and national leaders have been reluctant to establish similar programs at the European level.[30] This hesitance reflects the desire of member states to retain control over their defense policies and military programs, which has complicated the development of the CSDP.

Instead, ESA has been asked by the European Council, Commission, and Parliament to develop dual-use systems that can fulfill security functions. A European Parliament resolution of 2008, for example, calls for encouraging "synergies between civilian and security developments in the field of space."[31] Highlighting the contentiousness of this area, the Parliament's own press release on the

[27]Agnieszka Lukaszczyk, Laurence Nardon and Ray Williamson, "Towards Greater Security in Outer Space: Some Recommendations," *Assessing the Current Dynamics of Space Security* (French Institute of International Relations and Secure World Foundation, 2009), http://www.swfound.org/siteadmin/images/files/file_384.pdf (accessed June 2010).

[28]*European Space Policy,* Communication from the Commission to the Council and the European Commission, European Parliament, 2007.

[29]Michael Taverna, "Aggregating Space-Based Security and Defense," *Aviation Week and Space Technology*, 28 October 2009.

[30]Peter de Selding, "European Parliament Calls for Civil-Military Space Collaboration," *Space News*, 21 November 2008; and Taylor Dinerman. "ESA: The Odd Man Out." *The Space Review*, 1 December 2008, http://www.thespacereview.com/article/1260/1 (accessed June 2010).

[31]*European Space Policy: How to bring space down to earth,* European Parliament Resolution, 2008.

resolution proclaimed that the "Parliament emphasizes that the use of space must serve exclusively non-military purposes, rejecting any direct or indirect military use."[32] At the same time, it maintained that "uses made of Galileo, EGNOS [European Geostationary Navigation Overlay Service] and GMES [Global Monitoring for Environment and Security] by any military users must be consistent with the principle that these are civilian systems under civilian control." The confused nature of this statement implies parliament approval of using space assets for security purposes, despite its assurance that EU space programs will not be militarized.

The Galileo and GMES projects are two key examples of dual-use systems at the European level. Galileo, when active, will provide navigation services similar to GPS. Its two primary contributors are the European Commission's Transportation Directorate and ESA. Galileo will provide services of several different qualities; most notably, the Public Regulated Service (PRS) will provide data for users, mainly governmental, who require service continuity and completely secure access. The Galileo Supervisory Authority (GSA) has been created to oversee the project and prevent any hostile or unauthorized use of its services. Thus, while it remains under civilian control, Galileo's security functions are unambiguous.

Similarly, GMES has evolved from an observational system to monitor environmental security to one that monitors environment and security. A working group of 2002, made up of representatives from 11 EU member states, determined that GMES could address four areas of European security: environmental and technological crisis prevention and rapid reaction, conflict prevention and treaty verification, Petersberg mission support, and European border surveillance.[33] GMES is also a joint initiative between the EU and ESA.

Other space and security initiatives are also underway, both at the European level and between smaller groups of states. The EU Satellite Centre, which originally belonged to the WEU, supports CSDP decision-making through analysis of satellite imagery, although this imagery has mostly been purchased from commercial providers. The European Defence Agency (EDA), created in 2004 to support and sustain ESDP capabilities, is also active in assuring that the next generation of military, or dual-use reconnaissance, satellites is built as a network rather than independently. Six countries, including France and Germany, have already formed a group to design the Multinational Space-Based Imaging System (MUSIS) to assure that future reconnaissance systems can be used by all members. These states are also working on a Common Operational Requirement, known by its French acronym BOC, with the ambition to start "a high-level cooperation process aiming at solidifying, and possibly guaranteeing, longer-term multilateral military space cooperation."[34] BOC is indicative of a bottom-up approach to space and security in Europe,

… space and security is an area with potential for deeper transatlantic collaboration.

[32]Peter de Selding, "European Parliament Calls for Civil-Military Space Collaboration," *Space News*, 21 November 2008.

[33]Xavier Pasco, *A European Approach to Space Security* (Center for International and Security Studies at the University of Maryland, 2006).

[34]Ibid., p. 20.

as opposed to one originating from the EU institutions.[35]

As the EU begins to deploy space assets for an increasing number of security-related functions, European officials and space experts have expressed the need for measures to protect those systems. A panel of space and security experts organized by the European Commission noted that Europe "needs to consider the range of protection measures needed to ensure successful operation of both civil and military satellite systems, including defensive anti-jam countermeasures. Part of the requirement for protection of assets includes the ability to monitor what is happening in space in order to ensure that we understand whence might originate sources of potential threat."[36]

A broadly based conference in October of 2009 on the "The Ambitions of Europe in Space," which included remarks from President Barroso of the European Commission and Director General Dordain of ESA, reached similar conclusions. The conference proceedings state that European "space assets and infrastructure are indispensible for our economy and security, and we need to protect them."[37] To help achieve this goal, ESA is developing a space situational awareness (SSA) system, which will provide services in three main areas: surveillance and tracking of objects in orbit, monitoring of space weather, and detection of NEOs. SSA will provide "rapid and precise information to satellite operators, and to a wide range of civil, industrial, and government users."[38] A meeting of June 2009 involving the commission, the council, and EU member states with relevant space surveillance capabilities concluded that SSA "should be based on a distributed, multilayer network approach. It should build on existing European and national capabilities and assets."[39] Notably, SSA is the first European space initiative to consider dual-use dimensions from the outset. ESA will gather civilian SSA user requirements and design the technical architecture of a potential European capacity, and the EDA is currently drafting military requirements for the system.[40]

The development of European SSA capabilities has been viewed as an important first step toward protecting European space assets. Within European circles, there has been no discussion of deploying countermeasures against potential human threats in space, such as space weapons. Instead, the EU has been seeking to ensure space and security largely through diplomatic efforts and establishing rules of the road. In December 2008, the European Council adopted a draft *Code of Conduct for outer space activities*. The Code emphasizes three principles to guide an approach to space and security: freedom of access to space for all for peaceful purposes, preservation of the security and integrity of space objects in orbit, and due consideration for the legitimate defense interests of states.[41] It also refers to transparency and confidence-building

[35]This may prove to be useful due to the sensitive nature of military cooperation on space issues, particularly at the EU level.

[36]Mike Dillon (rapporteur), *Report of the Panel of Experts on Space and Security*, European Commission, 2005.

[37]"The Ambitions of Europe in Space," *Ambitions of Europe in Space Conference.* 2009.

[38]European Space Agency, *ESA's space hazard programme profiled online,* 18 May 2010, http://www.esa.int/esaMI/SSA/SEMVLPT889G_2.html (accessed May 2010).

[39]European Commission / European Space Agency, *Space and Security,* Joint Secretariat Paper, 2010.

[40]European Commission / European Space Agency, General Secretariat of the Council of the European Union, Spanish Presidency, "Conclusions of the Co-Chairs," *Conference on Space and Security*, 2010.

[41]Council of the European Union, *Draft Council conclusions on the draft Code of Conduct for outer space activities*, General Secretariat, European Council, 2008.

measures, similar to past arms control agreements, which are designed to alleviate anxieties over the potential deployment of weapons in space. The council is using the draft code as a basis for consultations with other countries.

Although the code strongly affirms the principle of no harmful interference against space objects, it does not explicitly mention weapons in space, and notably allows for the consideration of national defense interests. While this may partly be due to difficulties in defining space weapons, the code also seems designed to be acceptable to a wide range of states, including the United States. It is a realistic alternative to a binding legal document against space weapons, which has proven to be complicated and difficult to negotiate due to political resistance and technical complexities. While the code is inherently incapable of preventing deployment of space weapons by itself, it is an important diplomatic initiative in the debate over space and security.

A March 2010 conference on space and security brought together policy makers from several organizations, including ESA member states, the EU, and the EDA. The conference re-affirmed the "relevance of space to security users as a tool with the potential to address specific needs, in particular that of timely response." Echoing earlier proposals, recommendations were made on how GMES could support environmental protection efforts, border and maritime surveillance, and the work of the nascent EEAS. The conference raised the importance of SSA for space and security, but also noted "the complexity of integrating both civil and military requirements." Its conclusions stated that the "EU Council and European Commission, together with potential SSA contributors, will have to define the governance model and the related data policy for an operational European SSA system." In addition, the conference highlighted the importance of national assets as components of European space systems. The conference conclusions referenced the ESP in stressing a need for the EU, ESA, and their member states to "increase synergies between their security and defence space activities and programmes."[42]

Implications for Transatlantic Cooperation in Space and Security

Thus far, transatlantic cooperation in space and security areas has been limited. For example, NATO forces have been mostly reliant on U.S. space assets, while EU forces – and many member state forces – have lacked many of the technological benefits of space systems. Yet, there has been some cooperation, as well as discussion on future joint endeavors. NATO has developed allied space-based telecommunications through a program called NATO Satcom Post-2000. This program will ideally define how future cooperation between allied information systems will work, and establish common technical standards. Establishing Satcom was difficult, however, as NATO governments had trouble agreeing on their choice of wave frequencies – the United States wanted a high-frequency standard, while most of the other members preferred one with a lower capacity.[43]

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[42]European Commission / European Space Agency, General Secretariat of the Council of the European Union, Spanish Presidency, "Conclusions of the Co-Chairs," *Conference on Space and Security*, 2010; and European Space Agency, *Conference highlights deepening connection between space and security*, 11 March 2010, http://www.esa.int/esaMI/SSA/SEMOFO9KF6G_2.html (accessed March 2010).

[43]Xavier Pasco, "Ready for take-off? European defence and space technology," in Carl Bildt, Mike Dillon, Daniel Keohane, Xavier Pasco and Tomas Valasek, eds., *Europe in Space* (Centre for European Reform, 2004), http://www.cer.org.uk/pdf/p572_space_pol_eu.pdf (accessed June 2010).

U.S. defense officials have also expressed openness to cooperating on SSA.[44] One U.S. official of the Department of Defense asserted that "any endeavor by Europe to enhance [SSA] will only increase our ability to conduct safe and responsible operations in space... we look forward to continued exchanges on a range of technical, architectural and related issues." The official added that the United States hosted a U.S.-ESA workshop in June 2008 that addressed transatlantic cooperation on SSA.[45] Discussions between U.S. and European officials on possible SSA data sharing have been ongoing, and have sought to address evolving SSA security policy concerns.[46] At a conference hosted by the New Defence Agenda, Gilles Maquet of Eurospace identified early warning systems as another area for potential cooperation.[47] Karl von Wogau, a member of the European Parliament, made a similar proposal in a parliament resolution: "EU and NATO are urged to launch a [strategic] dialogue on space policy and missile defence, especially on complementarity and interoperability of systems for satellite communications, space surveillance, and early warning of ballistic missiles, as well as the protection of European forces by a theatre missile defence system."[48]

… technical coordination, as well as rules of the road… may govern the security dimensions of space. The European Union could be a driver in this kind of development.

Despite talk of future collaboration, as well as a long history of working together in many areas, there are several issues which pose challenges to U.S.-European cooperation in space and security. There continues to be a major capabilities gap between the United States and Europe, both in general defense and in space. In 2009, the United States spent $43.5 billion on military space, where the Department of Defense's space budget was $26.5 billion, and the budgets for the National Reconnaissance Office and National Geospatial-Intelligence Agency were $15 billion and $2 billion respectively.[49] In contrast, it is estimated that Europe as a whole spends between $750 million to $1.4 billion annually on military space.[50] Europe's more limited military space budget severely restricts Europe's ability to acquire advanced military space assets.

The ongoing crisis in the euro zone will likely complicate this situation. In early May, the EU and the International Monetary Fund (IMF) funded a massive loan package to rescue Greece from bankruptcy. A few days later, they established a mechanism worth around €750 billion to rescue failing EU member states in the future. The measures were unpopular in Germany, which was the biggest contributor to the funds. At the same time, states throughout Europe began to implement

[44] *Aviation Week & Space Technology* of 19 January 2009, noted that reports had surfaced that the United States was putting pressure on Europe to sidetrack or change SSA projects in Europe. This report was confirmed as well by ESA's Director General Dordain through personal correspondence with the author.

[45] Michael Taverna, "ESA plans quick kickoff for space situational awareness and other programs, despite alleged U.S. pressure," *Aviation Week & Space Technology*, 19 January 2009.

[46] "Conversation with Ken Hodgkins," *Aerospace America*, July-August 2009, pp. 16-19.

[47] John Chapman, *Space and Security in Europe* (New Defence Agenda, 2004).

[48] Karl von Wogau, *On the Contribution of Space Assets to ESDP*, Committee on Foreign Affairs, European Parliament, 2008.

[49] *The Space Report 2010* (Space Foundation, 2010).

[50] Futron, "INTEL: Global Military Space," *MilSat Magazine*, September 2009.

austerity programs to reduce their debts.[51] Moreover, the expanded powers of the European Parliament under the Lisbon Treaty should make the EU more accountable to its citizens, although recent voter turnout for parliament elections has been low. Faced with potential cuts in other areas, like social welfare, European citizens are unlikely to support additional security space spending, at the European or national levels.

Due to these budgetary limitations, there is an interoperability problem between U.S. and European forces, which hampers space and security cooperation. John Sheldon notes that the United States "is hardly going to rein back its continued exploitation of military space in order to ensure that European allies can operate effectively alongside it."[52] Interoperability problems were also cited by several of the experts at the New Defence Agenda conference mentioned above. Additionally, a report to the ESA Director General, commonly known as the "Wise Men Report," stated that increased space and security investment would establish Europe's "credentials both as a credible alternative to the United States for the world and as a credible partner for cooperation with the United States."[53]

While improved European space capabilities are essential for increased cooperation with the United States, they could also fuel calls for greater European autonomy in space and security. This paradox is more complex than the capabilities gap itself, and is tied to a deeper transatlantic divide. The call for European autonomy has typically been led by France; France has advocated a stronger CSDP as an alternative to the United States and NATO. Former French President Jacques Chirac argued that unless Europe develops its own satellite capabilities, it will remain little more than a "vassal" of the United States.[54] The desire for space independence has led to some European-level initiatives, such as Galileo and the nascent SSA systems. And, "Europe can no longer assume a fortuitous coincidence of interest with the USA" and needs to develop its own capabilities. Moreover, the EU cannot be guaranteed access to member state systems "in support of possible or actual deployments of European multinational units or coalition forces under all circumstances."[55] To support the range of security functions it wants to carry out, the EU increasingly feels it should have constant, assured access to a variety of space assets.

The debate over European autonomy is related to a deeper issue – the often differing attitudes of the United States and Europe towards both space policies and security policies. These differences stem from U.S. and European approaches to security after World War II. While the United States policed Europe and most of the world with military power, Europe focused on economic integration and development, and institution building. Alluding to this tradition, an ESA working group on Space and Human Security maintained that "a European space policy should encompass the European way of approaching security problems."[56] The

[51]"EU seals deal to shield euro from speculators," 10 May 2010, http://www.euractiv.com/en/financial-services/eu-sealed-plan-shield-euro-speculators-news-493956 (accessed May 2010).
[52]John Sheldon, "Transatlantic Military Space Cooperation: Addressing the Capabilities Gap," *Astropolitics* 3 (2005): 297-303.
[53]Carl Bildt, Jean Peyrelevade, and Lothar Spath, *Towards a Space Agency for the European Union,* Report to the ESA Director General, European Space Agency, 2000.
[54]Daniel Keohane, "Introduction," in Carl Bildt, Mike Dillon, Daniel Keohane, Xavier Pasco and Tomas Valasek, eds., *Europe in Space* (Centre for European Reform, 2004), http://www.cer.org.uk/pdf/p572_space_pol_eu.pdf (accessed June 2010).
[55]Mike Dillon (rapporteur), *Report of the Panel of Experts on Space and Security,* European Commission, 2005, p. 38
[56]*Basic Information Concerning Space and Security,* Working Group Report, European Space Agency, 2007.

European way consists of several principles: effective multilateralism with an emphasis on strengthening the international order, institutions, and rule of law; promoting a stable international and regional environment for Europe; and cooperation with partners, both directly and through institutions. Thus, Europe generally prefers to use "soft power" in international politics – power combining diplomacy, cooperation, and economic and political action – as opposed to hard military power. Europe also tends to view security rather broadly, encompassing issues, such as economic and environmental security, in contrast with the more traditional military approach, which has often been taken by the United States.[57]

… the United States and Europe must seek to address the problems that might hamper transatlantic cooperation in space and security, and together take the lead on multilateral approaches in this area.

Although the election of President Obama has changed the tone of U.S. foreign policy to include multilateral approaches, the United States is the world's superpower by all measures, especially military might. The United States also has a variety of commitments overseas, many of which it must fulfill unilaterally. Hence, the United States outlook on security is from the perspective of the world's sole military superpower – it keeps the international community, and its homeland, safe by wielding this strength. Accordingly, "U.S. space technology is military oriented due to military strategy, which is increasingly based on the concept of information dominance, while European space technology is more civilian oriented and dual-use."[58] Similarly, the United States' vision of space is "increasingly dominated by military priorities, while the EU emphasizes the use of space technologies for disaster relief" and other humanitarian missions outlined by the Petersberg tasks, as well as civil security interests.[59]

Different transatlantic views of space and security have led to disputes over various initiatives, most notably the Galileo project. The United States was concerned that EU civilian control over the navigation system might lead to security vulnerabilities. In particular, defense officials worried that potential adversaries could utilize Galileo's signals for attacks against U.S. and allied forces. U.S. apprehensions were alleviated when the EU established the GSA, which was tasked with regulating Galileo and preventing its unauthorized use.

Hesitance in Europe to militarize space at the European, EU, or ESA levels has also led to different transatlantic approaches toward space and security. Proposals in France have advocated ensuring the protection of national capabilities and satellites, and continuing work on SSA. Eventually, initial systems would become more operational and more European, but would stop short of developing weapons to be used for space defense.[60] At the same time, diplomatic efforts would ideally establish rules of the road to prevent the deployment of space weapons. Furthermore, at

[57]Wolfgang Rathgeber and Nina-Louisa Remuss, *Space Security: A Formative Role and Principled Identity for Europe* (European Space Policy Institute, 2009), http://www.espi.or.at/images/stories/dokumente/studies/espi%20report%2016.pdf (accessed June 2010).

[58]Ibid.

[59]Ibid., p. 46.

[60]Philippe Henry. "The militarization and weaponization of space: Towards a European space deterrent," *Space Policy* (May 2008): 61-66.

the New Defence Agenda conference, Jack Metthey of the European Commission noted that the EU focus is on security and not defense – in the view of the European Parliament, this rules out the possible militarization of space and use of offensive weapons.[61]

While the United States has not displayed support for a binding legal treaty banning all space weapons, it has also shown self-restraint in deploying them. Concomitantly, the militarization of space will continue to accelerate in the United States. This could complicate future joint efforts between the United States and Europe, at least at the European level. As stated earlier, the space capabilities gap raises additional problems, leading Sheldon to conclude that transatlantic space cooperation will "probably be modest rather than grandiose."[62]

… the United States and Europe can set the norms for future human activity beyond Earth's atmosphere to ensure the secure and sustainable use of space.

Despite these challenges, space and security is an area with potential for deeper transatlantic collaboration. As mentioned earlier, U.S. officials have shown interest in cooperating on SSA. SSA is the first European space initiative to be acknowledged as dual-use from the beginning, and officials are working to determine how the military will use its capabilities. While specific questions remain as to how SSA will operate in Europe, an effective multilayer system could serve as a model for international cooperation leading to a global network. Further, the EU's draft Code of Conduct is an innovative way to address the issue of space weapons outside the CD and would not impose any binding legal restrictions on U.S. space activities.

In the past, Europe has developed institutions to constrain the use of force and ensure security. This tradition may lead the EU, along with its member states and ESA, to promote and develop multilateral initiatives for improving space and security. Some organizations and initiatives are already underway. The Inter-Agency Space Debris Coordination Committee (IADC), for example, was launched in 1993 to address the growing problem of space debris in Earth orbits. And, the International Telecommunications Union (ITU) regulates the radio-frequency spectrum and satellite orbit resources to prevent harmful radio interference between countries. Nonetheless, there is still much room for international collaboration for space governance. For example, with an increasing number of actors aspiring for and reaching space, traffic management is a key potential area for multilateral cooperation.

Xavier Pasco notes that technical coordination, as well as rules of the road, could eventually lead to some new space regime, which may govern the security dimensions of space.[63] The EU could be a driver in this kind of development. Past European initiatives, such as the OSCE, have

[61]John Chapman, *Space and Security in Europe* (New Defence Agenda, 2004). Presumably, Metthey meant the use of any weapons in space; a recent European Parliament resolution specifically urges international actors to restrain from using "offensive equipment" in space, including ground-based ASATs. See Karl von Wogau, *On the Contribution of Space Assets to ESDP*, Committee on Foreign Affairs, European Parliament, 2008, p. 14.

[62]John Sheldon, "Transatlantic Military Space Cooperation: Addressing the Capabilities Gap," *Astropolitics* 3 (2005): 298.

[63]Xavier Pasco, *A European Approach to Space Security* (Center for International and Security Studies at the University of Maryland, 2006), p. 41.

focused on transparency, confidence-building, and international cooperation to ensure collective security, and will certainly inform future designs. The Lisbon Treaty, once it is fully implemented, could facilitate the EU's role as a leader in international space and security cooperation. Indeed, the treaty was developed for this kind of purpose. The EEAS, in particular, was created to give the EU more strength and coherence in international affairs. Yet, battles over jurisdiction within the EU, especially between the EU institutions, must be resolved before the EEAS can be effective.[64]

Policy Recommendations

Despite the challenges that complicate transatlantic space cooperation, the United States and Europe continue to be natural partners. They both face a number of complex security threats today, which will require international collaboration. Emerging security concerns in space are no different. The unique environmental attributes of space will increasingly demand multilateral approaches. Consequently, the United States and Europe must seek to address the problems that might hamper transatlantic cooperation in space and security, and together take the lead on multilateral approaches in this area.

A high-level dialogue on space issues could be a useful step toward improved transatlantic cooperation. Transatlantic dialogues already exist on a range of other issues, and could serve as a model for space discussions. In 2007, for example, the United States and the EU created the Transatlantic Economic Council (TEC) to oversee the dismantling of transatlantic economic barriers. Key officials from the United States' administration and the European Commission have been assigned to head the TEC, giving it focus and executive leadership. At the same time, exchanges have taken place between lower level officials on technical issues. An initiative like this for space could have tangible benefits. Yet, due to other concerns, like the ongoing financial crisis, there might not be enough political traction to launch such a dialogue at this time. The lack of clear leadership on space issues, in both the United States and Europe, presents another challenge. In the United States, a Senior Interagency Group for space within the National Security Council would help address this problem, and in the EU, a top adviser on space issues could be created under the new High Representative for Foreign Affairs and Security Policy.

The United States and Europe must also address issues of interoperability. For the EU, ESA, and their member states, this will require additional defense spending, especially for space and security budgets. Funding in this area in Europe will not be able to match the United States, even at the European level. Moreover, the euro zone crisis will make it difficult to increase allocations in the short-term. Nonetheless, there is much room for improvement. The United States, in turn, must continue to be more open and encouraging towards European ambitions for space independence. Security concerns, such as those over Galileo, are legitimate, but need to be addressed through direct, conventional channels. Potential disagreements over space systems between NATO and the CSDP can be mitigated by determining when, where, and how each actor will operate. Fortunately, the Berlin plus agreement already models how NATO and the EU can share assets for security missions. This agreement should now be modified, or a new agreement should be

[64]If the EU can take the lead in this area, it should find a willing partner on the other side of the Atlantic. Given that the Obama Administration has expressed a preference for multilateral approaches in international politics, European-led, multilateral initiatives in space and security could gain traction in the United States.

made, to determine how NATO and the EU will utilize their overlapping and complementary space systems.

Finally, the draft EU Code of Conduct should be adopted by all spacefaring states in North America and Europe. The Code should also be extended to other major actors in space. This approach, focusing on rules of the road instead of binding treaties, is a practical way of addressing the interests of all parties involved. While it establishes principles of behavior that the EU would like to see normalized, it does not legally preclude the United States from taking any actions in space that it feels are necessary for security. Furthermore, the United States and the EU should consider what new multilateral space initiatives might be feasible and desirable, such as one that manages space traffic. Such endeavors could lead to improved coordination and cooperation in the future. Most importantly, they can provide a framework for the United States and the EU to work together in conjunction with other countries. Broad international collaboration will be increasingly important as states like China expand their space programs, and the United States and EU will be able to deal with these other actors more effectively by coordinating their own efforts.

Conclusion

The development of alternative European and transatlantic security structures after World War II established and reinforced several notions in Europe: a preference for institutions for constraining the use of force, the benefits of pooling resources, and the advantages of international cooperation. On the other hand, the history of European integration has also shown the difficulty of merging national defense structures. In space, Europe cooperates to a great extent. While Europe is increasingly developing dual-use systems for space and security, there continues to be great sensitivity over militarizing space at the European, EU, or ESA level. The European approach to space, as well as a gap in capabilities between the United States and Europe, raises challenges for transatlantic cooperation in space and security.

Nonetheless, space and security is an area with potential for U.S.-European collaboration. What is more, some inventive space and security projects are slowly taking shape at the European level. If the EU can fully implement the Lisbon Treaty and increase its effectiveness in international politics, it could become a leader in multilateral initiatives in this area. The United States could, and should, support this type of role for Europe in space and security. Together, the United States and Europe can set the norms for future human activity beyond Earth's atmosphere to ensure the secure and sustainable use of space.