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GLOBAL SPACE GOVERNANCE AND THE FUTURE OF SPACE

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Abstract

Since the beginning of the space age, international cooperation in the peaceful uses of outer space has evolved in such a way as to provide the impetus for a consideration of international mechanisms and infrastructures for space cooperation and coordination mechanisms at the international, regional, interregional and national levels.

The governance of space, which has been depicted as humanity's most expansive global common, has become increasingly complex due to the growing number of actors, both governmental and non-governmental, new technologies and approaches such as the public-private partnerships and private funding initiatives.

The concept of global space governance refers to the international action or manner (process) of governing and regulating space-related activities and as such, encompasses a wide range of instruments, institutions and mechanisms, ranging from international and regional treaties, agreements and regulations, model national laws and regulations to a wide-range of international cooperative mechanisms utilized in space cooperation, guidelines and transparency and confidence building measures, aimed at ensuring a certain level of predictability and orderly conduct of space activities.

Multilateral work to strengthen space governance has concentrated primarily on voluntary measures undertaken at the United Nations Committee on Peaceful Uses of Outer Space (COPUOS) level, an intergovernmental body that represents the most comprehensive forum to discuss cross-cutting areas of space governance, capacity-building, resiliency of space systems, interoperability and space for sustainable development.

The evolution of international cooperation in the peaceful uses of outer space provided impetus for considering the immense potential of international mechanisms and infrastructures of space cooperation and coordination as core drivers for a more effective governance. Moreover, the United Nations Office for Outer Space Affairs (UNOOSA) has always been committed in engaging States and international organizations to increase their efforts in order to fortify their cooperation. In this context, the United Nations organized three unique global Conferences on Exploration and Peaceful Uses of Outer Space – UNISPACE.

As an ambitious undertaking by COPUOS, the fiftieth anniversary of the first UNISPACE conference, UNISPACE+50, to take place in 2018, will consider the current status and chart the future role of the Committee and UNOOSA as important players in shaping the global space governance.

This paper will analyse the concept of 'global space governance' and its evolution with a special focus on multilateral developments and the UNISPACE Conferences leading towards the charting of the "Future of Space: Space2030".

Keywords: United Nations, Space governance, Space and sustainable development, UNISPACE

1. Introduction

In only 60 years, since the launch of Sputnik, the perception of Space has changed drastically and has become one of the cornerstones of our society. The world has become dependent on outer space activities and on the wealth of information, which they generate and the services they provide. From navigation to weather forecasting, from disaster response to monitoring of climate change, all Member States of the United Nations are in one way or another benefiting from the advancements of space technology, which is making Space an important "global commons".[1, 6]

The 2030 Agenda for Sustainable Development (2030 Agenda) is designed to collectively address global challenges and space technology can and will support our common goals coming to fruition. But as on the one hand the recent developments in outer space improve our global strive for a sustainable world, Space is, on the other hand, a limited resource which has to be protected through one joint vision.

With the increasing number of actors and with more and more states and private entities entering the space arena the world today finds itself at the same decisive crossroads as in 1957 shortly after the launch of the first satellite. Currently, there are over 70 space agencies in the world and 12 countries and one

international intergovernmental organization with independent launch capabilities. With more than 1.400 satellites operated by over 60 countries governments are no longer the dominant actors in outer space as there are now more commercial operators than governmental. Furthermore, Space has become a major societal and economic factor valued at around 320 billion US dollars which will rise heavily in the future due to fast-paced progress and innovations ranging from the developments of cubesats to the private partnerships in the supply of the International Space Station.

In line with the dynamic developments in outer space activities, the on-going task of the international community is to prove its 'response capacity' and react to the current developments in order to preserve outer space as a limited resource for the benefit of humankind. It can therefore be argued that the 'global space governance' will determine the 'future of space' and possibly, in the long run, only new collectively negotiated norms under the umbrella of a truly global international organisation, as the United Nations is, can guarantee that the benefits of Space are preserved for future generations.

2. Global space governance

Although not legally defined at the intergovernmental level, the concept of 'global space governance' may be referred to an international manner of governing and regulating space-related activities. This is the founding pillar of the concept as presented and analysed below. It encompasses a wide range of instruments, institutions and mechanisms, ranging from international and regional treaties, agreements and regulations, model national laws and regulations to a wide range of international cooperation mechanisms utilized in space cooperation. Furthermore, it entails guidelines as well as transparency and confidence building measures aimed at ensuring a certain level of predictability and orderly conduct of space activities for all actors in the field. The global space governance also refers to the institutional framework for governance and international cooperation in using outer space for peaceful purposes. At the centre of global space governance are the United Nations treaties and principles on outer space guidelines adopted by the Committee on the Peaceful Uses of Outer Space (COPUOS) and the United Nations General Assembly resolutions on outer space as well as supporting efforts at the national, regional and global levels, within the United Nations system and among international entities dealing with space-related matters. Furthermore, international initiatives for cooperation on specific aspects of the exploration and

use of outer space, such as Earth observation and global navigation as well as multilateral coordination mechanisms through space-system operators coordinate the development of applications of space systems for the benefit of the environment, human security and welfare, and are aimed at increasing coherence and synergy in international cooperation in space activities at all levels, also forming an integral part of global space governance.[2]

Observers might argue that the term 'global space governance' is vague and lacking a clear definition from the perspective of the international relations (IR) theory. Realists, or rationalist see the basic foundation of a governance model in maximising self-interests resulting in a zero-sum game or, when looking beyond zero-sum game, the global cooperation is viewed upon as a form of cooperation where the benefits from collaboration exceed the transaction costs of actions. In a theory, where the gain for one actor constitutes a loss for the other, economic gain and national security are at the centre of attention and states only act for as long as such action provides direct benefits to them in a form of wealth or power. [3] Consequently governance is set, monitored and enforced by the powerful. Conflicts can therefore arise when the zero-sum game gets out of balance or when rules are not adapted to the interests of rising powers. Liberalisms claims that states act according to rules because of the legitimacy of these rules and that goals of self-interest can be achieved as well through coordination and cooperation among all actors. Legitimacy creates a kind of a 'pull' factor for the nations to join the international legal scheme as [4] "in a globalized world, security can no longer be thought as a zero-sum game involving states alone. Global security, instead, has five dimensions that include human, environmental, national, transnational and transcultural security, and, therefore global security and the security of any state or culture cannot be achieved without good governance at all levels that guarantees security through justice for all individuals, states and cultures". [5] Governance models emerge from negotiations which set rules as well as reinforcement mechanisms. Lastly, constructivism proclaims that nations came to value norms - as a valuable characteristic and hence by treating the rules of the international game based on the nation's social norms and values, states profit from compliance since the value of reputation will cover any transition losses, providing the regimes are already built around the norms practiced by the states. [6]

Looking at the area of Space from these three IR schools of thoughts, one can argue that interestingly elements of all, the realist, liberalist and constructivist approach can be found. Space

exploration has come a long way from a purely realist perspective during the times of the Cold War and the mere focus on economic, technical and military advantages to a more liberalist behaviour where the great economic and societal value of Space laid the basis for more international cooperation. This was apparent in the willingness of states to create international space treaties, legal principles on outer space and related General Assembly Resolutions and is mirrored in the joint space exploration and collaboration endeavours, such as in the longest human habitat in outer space, the International Space Station. The collaboration has expanded to a variety of other significant areas, where building norms and cooperation behaviours has been valued, such as in the field of global navigation satellite systems (GNSS) working on interoperability among global systems under the roof of the United Nations, in the International Committee on Global Satellite Navigation Systems (ICG), to which UNOOSA serves as the Executive Secretariat. Or, for example, in the area of near-Earth objects (NEOs), where a possible global threat of NEOs led to the provision of “Recommendations of the Action Team on Near-Earth Objects for an international response to the near-Earth object impact threat”[7] and the creation of two entities: Space Mission Planning Advisory Group (SMPAG)¹ and International Asteroid Warning Network (IAWN)², work of both being facilitated by the United Nations and with UNOOSA serving as the permanent secretariat to SMPAG. Looking at another subfield, the Earth observation, the fact that all major spacefaring nations operate independent systems on the one hand while at the same time national institutions maintain strong international cooperation can be documented as another bipolar field in the space arena looking through the IR theories lens. Nonetheless, the theoretical reflections on space policy and governance have changed in the past years as the outer space has become more precarious and complex due to increasing involvement of the private sector, new markets and actors as well technology cooperation and collaborations. These new trends are game changers which require new norms and rules as well as regulatory frameworks and reliable regulation. Moreover, they require a collective vision, in order to guarantee sustainability, safety and security of outer space, international cooperation and the ongoing peaceful uses of outer space.[8] The necessity for a collective approach and exemplary of all three IR schools of thoughts, becomes apparent when looking at the ‘tragedy of the

commons’³, describing the coordination problem when many self-interested and short-sighted actors “try to maximize their own gains from consuming a non-excludable public good without regard for the net negative effects on other users, on finite resources, on the shared environment, and even on their long-term benefits”[4]. In order for every actor to maintain the same level of benefit in the common good or shared environment the contested area becomes overcrowded and degraded and eventually a downward spiral begins which the individual user is unable to stop. Finally to avert such a negative scenario either a central authority has to be established that creates rules and monitors those, or further informal self-regulatory norms, voluntary actions, transparency measures have to be implemented to guarantee and ensure sustainability. Up until today the international space community was able to respond to the issues arising in the contested Space arena through different forms of space governance.

3. Global space governance until today

The international community has come a long way in the determining rule and regulations in the conduct of outer space activities. It was able to act agile in response to the first concrete activities in outer space in the late 1950s, when under the umbrella of the United Nations, the first UN Committee on Peaceful Uses of Outer Space (COPUOS) was created in 1959 with the General Assembly Resolution 1472 (XIV). This unique Committee, which remains to date at the centre of international cooperation on the peaceful uses of outer space and space governance, has placed the United Nations at the centre of developing and implementing international legal regime in outer space. COPUOS is tasked with the review of international cooperation in the peaceful uses of outer space, studying space-related activities that could be undertaken by the United Nations, encouraging space research programmes as well as studying legal problems arising from the exploration of outer space. The Committee was instrumental in providing contributions to the laws governing outer space. ‘The Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space’ was the first essential step taken by the General Assembly in 1963, setting the ground for the negotiations on five multilateral United Nations treaties on outer space:

1967: Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer

¹ <http://www.cosmos.esa.int/web/smpag/home>

² <http://iawn.net/>

³ Garrett Hardin

Space, including the Moon and other Celestial Bodies

- 1968: Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space
- 1971: Convention on International Liability for Damage Caused by Space Objects
- 1974: Convention on Registration of Objects Launched into Outer Space
- 1979: Agreement Governing the Activities of States on the Moon and Other Celestial Bodies

With the advancements in science and technology and the developments in the space field the international community had to address new areas. Between 1982 and 1996, an additional four sets of principles were negotiated to complement the existing treaties. The “Principles on the use by states of artificial earth satellites for international direct television broadcasting” (1982), the “Principles relating to remote sensing of the earth from outer space” and the “Principles relevant to the use of nuclear power sources in outer space” (1992) are veritable examples on behalf of international community of its ‘response capacity’ to new emerging issues in the realm of outer space that needed immediate attention.

Since 1957 the international community has not only proven its capacity to act and address new challenges but has throughout tried to reinforce one of the fundamental principles in outer space activities as enshrined in the Outer Space Treaty and the “Declaration on international cooperation and use of outer space for the benefit and in the interest of all states, taking into particular account the needs of developing countries” (1996). [1, 3] In other, more specific realms for cooperation and regulation, the Space Debris Mitigations Guidelines and the Nuclear Power Sources Safety Framework further underline the response capacity of the international community to new arising challenges. Furthermore, COPUOS through its Legal Subcommittee has developed a set of General Assembly resolutions in the past decade to deal with specific elements of the space law treaties, namely resolution 59/115 of 10 December 2004 on the application of the concept of the “launching State”; resolution 62/101 of 17 December 2007 on recommendations on enhancing the practice of States and international intergovernmental organizations in registering space objects; and resolution 68/74 on recommendations on national legislation relevant to the peaceful exploration and use of outer space.

The space treaties include a number of confidence-building measures that States have asked the United Nations to act upon. One such prime mechanisms is the United Nations Register of Objects Launched into

Outer Space Register, entrusted with UNOOSA. The Register is the central repository of official information provided by States on space objects in accordance with the Convention on Registration of Objects Launched into Outer Space or, on a voluntary basis, under General Assembly resolution 1721 B, and has been maintained by UNOOSA since 1962. To date, over 91 per cent of around 7,500 satellites, probes, landers, manned spacecraft and space station flight elements launched into Earth orbit or beyond have been registered with the Secretary-General.

The Committee on the Peaceful Uses of Outer Space (COPUOS) and its two Subcommittees have throughout the space age retained the inimitable position as a global platform for international cooperation in the peaceful uses of outer space and dialogue among major space-faring nations and emerging space nations. Their role has also been reaffirmed through the increasing number of States that have become members of the Committee, from the initial 24 States at the establishment of the Committee as a permanent body in 1959 to the current 83 States members of the Committee and 34 international governmental and non-governmental organizations with space-related mandates as permanent observers, reflecting the growing community of States and organizations for which space is not only an area of interest but also an arena of increasing cooperation.[9.]

Coordination mechanisms within the intergovernmental processes in COPUOS to deal with topics of particular interest and in need of governance, should be adequately mentioned in view of their importance to move the global space agenda forward. As such, the prime example is the multi-year Scientific and Technical Subcommittee Working Group on the Long-Term Sustainability of Outer Space Activities, which is engaging a large number of States members of COPUOS on a pertinent, long-term issue of sustainable use of outer space. Other examples include the dedicated Expert Groups on Space Weather and Global Health, respectively, which work through the Scientific and Technical Subcommittee. These examples of governance mechanisms have been acknowledged under the UNISPACE+50 process to form platforms for further consideration.

With the report of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities (A/68/189) (GGE-Report) an entirely new era in the consideration of the broader concept of space security at the intergovernmental level was set in motion. COPUOS began to deal more in depth with areas of security concerns that seemed politically unfeasible earlier. For the first time there was a call for closer

cooperation between the Office for Outer Space Affairs and the Office for Disarmament Affairs. With this in mind, global space governance and space security are now inseparable notions at the global level. This movement is witnessed by the structure of UNISPACE+50 thematic priorities where clear inter-linkages have been made between the various processes on the long-term sustainability of outer space activities, the status and application of the five United Nations treaties on outer space, and on enhanced information exchange and notification procedures on space objects and events, where elements on risk reduction notifications as presented by the GGE-Report would be assessed and further considered within the framework of the legal regime of outer space. These are particularly interesting examples of how the intergovernmental community uses global space governance models to reach goals of common interest to the overall space community.

4. UNISPACE Conferences

Due to its unique mandate and positioning at the centre of global space governance, COPUOS played a key role in the organization of the three global United Nations Conferences on the Exploration and Peaceful Uses of Outer Space (UNISPACE conferences), which convened in Vienna in 1968, 1982 and 1999. The UNISPACE conferences examined the practical benefits of space science and technology and their applications, with special relevance to the needs of developing countries and in support of global and regional development agendas and of gaining benefits for society at large. By providing a platform for international dialogue on key issues related to space exploration and the practical applications of space technology as well as facilitating the cooperation of States and organizations in outer space activities for peaceful purposes, the UNISPACE conferences have unquestionably succeeded in delivering vast economic, social and technological benefits to humankind.

The success of UNISPACE I (1968) in putting space activities on a global political agenda and developments that followed, including the establishment of routine space operations as well as the discussions on access to and sharing of information, in particular examining opportunities and practical benefits of space science and technology applications for developing countries have paved the way for UNISPACE II (1982). At this second global conference building capacities in developing countries, with a particular focus on technical assistance and its financing; strengthening regional cooperation (UN-affiliated regional centres

for space science and technology education) and dealing with the concern of preventing an arms race in outer space in order to be able to reap the benefits from the peaceful uses of outer space were at the centre of discussions.

UNISPACE III (1999) outlined a wide variety of actions and most importantly concluded with the adoption of the Vienna Declaration on Space and Human Development, which provided the foundation for a strategy to address global challenges of the 21st century. It was the success of UNISPACE III which shaped UNOOSA for its future and laid the foundation for thematic discussions in COPUOS. The conference was also responsible for the establishment of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER), the International Committee of Global Navigation Satellite Systems (ICG) and the creation of the International Charter on Space and Major Disasters and the Space Generations Advisory Council.[2] Furthermore, following UNISPACE III, the number of ratifications of all five UN treaties on outer space increased, further strengthening the existing space governance regime⁴. The Vienna Declaration namely called for action to promote the efforts of COPUOS in the development of space law by inviting States to ratify or accede to, and inviting intergovernmental organizations to declare acceptance of, the outer space treaties developed by the Committee.

In 2004, the Committee conducted a five year review of the mechanisms for and progress made in implementing the recommendations of UNISPACE III conference (the so-called UNISPACE III+5) and in its plan of action proposed further specific actions in the following areas: (a) Use of space to support overarching global agendas for sustainable development; (b) Developing coordinated, global space capabilities; (c) Use of space to support specific agendas to meet human development needs at the global level; and (d) Overarching capacity development. The plan of action also identified entities willing to undertake some of those actions.

The UNISPACE conferences have thus undoubtedly succeeded in moving have the political agenda and

⁴ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies increased from 95 to 103

Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space increased from 85 to 94

Convention on International Liability for Damage Caused by Space Objects increased from 80 to 92

Convention on Registration of Objects Launched into Outer Space increased from 40 to 62

Agreement Governing the Activities of States on the Moon and Other Celestial Bodies increased from 9 to 16

mandates of COPUOS and its Subcommittees further to keep pace with global developments and space activities. In 2018, the first UNISPACE conference will mark its 50th anniversary and the United Nations and the space community have embarked on a milestone process - UNISPACE+50 - which will culminate in 2018 in further decision-making towards strengthening the international cooperation and global space governance as outlined in Chapters 6 and 7 below.

5. UN-Space and Space in the UN-System

From the earliest days of space exploration, the United Nations recognised the important role that space-related technologies can play in improving the human condition throughout the globe. To conduct these efforts in a cooperative manner, build synergies and avoid duplication, the United Nations created in 1975 the annual interagency meeting of UN entities using space tools in their work, which, under the leadership of UNOOSA, is branded as 'UN-Space'. UNOOSA is the only United Nations office with a number of General Assembly mandates in bridging access to space technologies and space-based information to Member States and other United Nations agencies, as well as to build capacity in the use of such technologies. In this regard, UNOOSA mandates have evolved from the General Assembly Resolutions, such as 27/90 and 54/68 that call for the promotion of greater cooperation and exchanges in space science and technology between industrialized and developing countries as well as among developing countries, and for promoting cooperation in space applications projects between government establishments, universities and research institutions as well as private industry. Furthermore, the General Assembly Resolution 61/110 requests UNOOSA to work towards ensuring that all countries and international and regional organizations have access to and develop the capacity to use all types of space-based information to support the full disaster management cycle.

Space technology, its applications as well as the information drawn from space-based innovation are widely used in the United Nations system. While COPUOS is the prime UN intergovernmental body dealing with space issues and UNOOSA the unique office working with Member States and relevant stakeholders in addressing space-related matters, space technology is used in over 25 United Nations entities and the World Bank group.[9.] The use of space tools in the UN system has gained further impetus with the adoption of the 2030 Agenda for Sustainable Development with a growing recognition that its goals and major targets argue for stronger

space governance and supporting structures at all levels, including improved space-based data and space infrastructure, making space technology essential for the attainment of global development goals and targets.

The 17 Sustainable Development Goals (SDGs) and 169 targets demonstrate the scale and ambition of this new universal Agenda, which constitutes a plan of action for people, planet and prosperity. All countries and all stakeholders, acting in collaborative partnership, have committed to implement this plan by taking the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path.

Space tools carry significant relevance for the attainment of all 17 SDGs and their corresponding targets, either directly - as enablers and drivers for sustainable development, or indirectly - as integral part of the indicators for monitoring the progress towards the 2030 Agenda.

Effective use of space tools for implementing the 2030 Agenda, its goals and targets, will depend on building strong partnerships and cooperation with all relevant stakeholders, to support Member States in fulfilling the SDGs and targets at their national levels. The United Nations heavily depend on the use of space systems in their daily work which consequently would require a central hub for accessing and using space-based technology as well as a body for awareness raising of the importance of space technology. Inter-agency and inter-disciplinary strengthened collaboration and stronger promotion of space technology at all levels in the United Nations would be an essential step forward to gain the maximum out of the use of space-derived tools. All United Nations entities, from the humanitarian community to the development and climate change communities and resource management organizations would profit from a streamlined use of space technology and eventually the maximized synergies should exert an overall a positive effect on the whole international community.

It is therefore of significant importance that within the United Nations and in the lead up to the 50th anniversary of the first UN conference on exploration and peaceful uses of outer space - UNISPACE+50 in 2018 - this major milestone is used to advance the space agenda and align its deliverables with the global agendas, namely the Sendai Framework for Disaster Risk Reduction, the Paris Agreement on climate change and the 2030 Agenda, its goals and targets, which will stimulate action over the next years in an integrated way, balancing the three dimensions of sustainable development: economic, social and environmental.[2]

6. 2018: UNISPACE+50

As mandated by COPUOS and the General Assembly, the next milestone event, UNISPACE+50, will take place in 2018 as a segment of the 61st COPUOS session in June 2018. While marking the fiftieth anniversary since the first UNISPACE conference in 1968, UNISPACE+50 will at the same time set the scene for the future of space activities on a global scale. It will be an opportunity for the global space community to take stock of what has been accomplished to date and what can be expected for the future. The present space achievements are namely not the result of spontaneous generation but are a result of the combined efforts at the national, regional, and global levels in fostering international cooperation in the peaceful uses of outer space. The global UNISPACE conferences and the work of COPUOS, both supported by UNOOSA, as the main international platform for facilitating international cooperation contributed to the fact that global space activities and international diplomacy efforts in this area continue to flourish.

This is further supported by the fact that at the beginning of the space age in the late 1950s there were two space powers and two satellites launched into outer space whereas today more than 1.400 operational satellites orbit the Earth with over 60 countries, international governmental organisations and multinational corporations operating their own satellites. This evolution and rise of space actors as well as growing numbers of assets in space underpin the necessity to strengthen the legal regime in outer space and build the fundamental basis for a strengthened policy framework in outer space. As exemplified in the beginning of this paper, the collective space community has been able to prove over time its 'response capacity' and it is again a high time to do so and address the changing environment in the space arena. This will be an imperative task of UNISPACE+50 and beyond, not only in terms of offering a predictable and stable system for new actors in the space arena but also in terms of ensuring a long-term sustainability of outer space and a sensible approach in dealing with its limited resources.

UNISPACE+50 is therefore a very timely opportunity to steer the way towards strengthening the COPUOS mandates, to be able to address the current challenges and opportunities, in the areas of enhanced international cooperation, sustainability, safety and security of outer space activities. The Committee therefore adopted the following seven key thematic priorities of UNISPACE+50 to be addressed

and implemented on a global scale, working with all relevant stakeholders:

1. Global partnership in space exploration and innovation
2. Legal regime of outer space and global space governance: current and future perspectives
3. Enhanced information exchange on space objects and events
4. International framework for space weather services
5. Strengthened space cooperation for global health
6. International cooperation towards low-emission and resilient societies
7. Capacity-building for the twenty-first century[10]

These UNISPACE+50 thematic priorities and their long-term deliverables will clearly align with the current developments within the United Nations and its main agendas, the 2030 Agenda for Sustainable Development, the Sendai Framework for Disaster Risk Reduction and the Paris Agreement on climate change.

The space arena requires stronger space governance and supporting structures in various areas in order to protect the space environment and secure the long-term sustainability of outer space activities. Benefits of this modern collaborative space governance should count as strong supporters to nations in implementing the 2030 Agenda and reaching its goals and therefore reaffirm a call for a stable and holistic space governance approach.

7. Towards Space2030

Although there are still a lot of questions to be addressed on the roadmap towards Space2030 there is one fundamental guideline that can already be acknowledged - that traditional boundaries between the different space sectors - security, commercial and civil - are no longer applicable and that these sectors represent crosscutting areas. Common issues and concerns in outer space activities will have to be considered in a cross-sectoral approach leading towards Space2030. It will be imperative to underline the mutual benefits and identify those areas of cooperation which will eventually lessen the barriers between the sectors that could disrupt cooperation. The reflections on global space governance start under the premises that global space users are sharing similar sets of goals and have a common strategic objectives which include "securing the space domain for everyone's peaceful use; protecting legitimate space assets from the various types of threats; and deriving value from space assets for security, economic, civil and environmental ends." [11]

Additionally, these common objectives would stimulate greater support within those countries and non-state actors who want to benefit from space but do not have their own space programs, and thus a limited possibility to influence space developments that nonetheless affect the livelihoods of their people. While the promotion of the universality of the five United Nations treaties on outer space is one of the main objectives of UNISPACE+50 it is as well planned to study potential future legal and institutional initiatives to ensure that outer space is explored and used for peaceful purposes and that access to outer space remains open and free for the benefit of all countries. As the proliferation of norms and regulations in outer space tried to find answers to the developments at given times in history, an integrative approach to the existing outer space treaties and conventions and efforts towards the harmonisation of the existing national and international legal frameworks would contribute to the predictability of outer space activities. Additionally, strengthening the existing registration regime by looking closely into enhanced information exchange and notification procedures on space objects and events, space debris, space security and transparency and confidence-building measures, and space traffic management will help ensure the long-term sustainability of outer space activities, which is what Space2030 should see evolve. In the long run the sustainable use of space is not only a matter of current spacefaring nations but as well a question for the new actors entering the field, such as the increasing number of emerging space countries as well as a growing number of commercial operators in the space arena.

Only through a common approach can the international community lay the basis for the usage of space for the benefit of all humankind and would be able to collectively address cross-border concerns. The United Nations offer a platform on a global level for a widest participation possible to promote space technology to address issues that are transnational in their nature and to deal with global concerns, such as the mitigation of the effects of climate change, disaster relief and building of resilient societies, and the implementation of the Sustainable Development Goals. .

Space exploration and innovation are essential drivers for opening up new domains in space science and technology and triggering new partnerships and for developing capabilities through space exploration that create new opportunities for addressing global challenges. International cooperation will be essential to foster new ways of space exploration bringing on board new partners and the United Nations and

COPUOS can offer the platform where new cooperation is established and innovation is driven.

UNISPACE+50 in 2018 is the right time and best opportunity for the collective space community to jointly work on a Space2030 policy in order to address global space governance and the future of space.

8. Setting the stage for Space2030

It was until very recently that Space has largely been treated as an area with a subset of goals and targets but it is time to begin outgrowing these limitations and holistically address the different areas through a cross-sectoral approach.

Working with all relevant stakeholders in addressing the overarching long-term concerns, the UNISPACE+50 road-map is aimed to define the Space2030 and its concrete deliverables.

In order to broaden the understanding and effectively raise awareness on the current concerns of the space community UNOOSA elaborated the following four pillars, ‘Space Economy’, ‘Space Society’, ‘Space Accessibility’ and ‘Space Diplomacy’ to enable discussions in the UNISPACE+50 for all stakeholders to address the cross-sectoral impact of integrating economic, environmental, social, policy and regulatory dimensions of space in pursuance of global sustainable development.

With these pillars UNOOSA aims to raise awareness of the upcoming UNISPACE+50 segment in 2018, its deliverables under the 7 thematic priorities as outlined above and its preparatory activities, such as the series of high level fora (HLF): Space as a Driver for Socioeconomic Sustainable Development.

Discussions on **space economy**, which is defined as “the full range of activities and use of resources that create and provide value and benefits to human beings in the course of exploring, understanding and utilizing space”, will allow to address topics including: space technologies and infrastructure, increasing awareness of the benefits of space economy for global sustainable development, the economic rationale for space activities, and discussions on the framework for e cooperation of private and public entities. Addressing space economy aims to show the extensive links that outer space activities have in the growth and sustainable development of all nations.

Reflecting on **space society** will present the chance to discuss how nations and governments can carry out their core duties and functions, while making the best use of space technologies and space-based services and applications that benefit society.

In the promotion of the peaceful uses of space for humanity, it is essential to address issues that concern

coordination and communication by engaging in dialogue on **space accessibility**. This area of discussions aims to communicate the relevance of space and the need to improve the access that all countries have to space-based data, as well the importance of capacity-building and education that will support the global effort in the development of the space sector for the benefit of humanity.

Space diplomacy will draw attention to the global governance of space, and the vital role of COPUOS as the United Nations platform for space diplomacy. In addition, the cooperation among nations in using space technologies and applications to address common challenges facing humanity and building constructive, knowledge-based partnerships, will also be discussed.⁵

These four pillars underline the increasingly pivotal role of space in our daily lives and its essentiality in our modern society and for global economic development. Satellite technology is omnipresent and constantly drives innovations and creates new markets contributing to economic growth, social well-being, societal progress and sustainable development, fundamentally laying the basis for permanent investment in outer space activities.

9. Conclusion

The increasing number of actors as well as the growing population of space debris constitute a major challenge to the long-term sustainability of space activities. Hence, the improvement of safety of space operations is one of the important issues for the long-term sustainable use of space.

Bringing the benefits of space to humankind as well as the promotion of international cooperation in the peaceful uses of outer space has been on the banner of UNOOSA since its existence. While in the beginning of the space age, activities in outer space have been exclusive areas for just a few, there is currently an increasing number of actors involved in the field. The space arena is changing heavily and its growing complexity calls for a fundamental simplification of the legal framework to guarantee an equally long-term sustainable and supportive system while at the same time providing for strong capacity-building and learning opportunities, which constitute an important part of UNOOSA mandates.

Another central element of the work of UNOOSA is to further increase coherence and synergy as well as build partnerships in the space-related work of entities of the United Nations system and international space-related entities. A strengthened

Inter-Agency Meeting on Outer Space Activities, UN-Space, will be fundamental in the harmonization of the usage of space in the United Nations system.

UNOOSA works closely with governments and national space agencies as well as other specialized centers and institutions in the fulfillment of its mandates, but the fact that the space arena is currently at crossroads and that specialized commercial entities have gained a growing importance and an increased role cannot be ignored. Particularly in the last years the governments have come to rely more and more on collaborations with private entities, in various areas, such as for fulfilling their long-term data and Earth observations requirements, privatizing the supply for the International Space Station as well as in the development of private launch capabilities. All these trends can be seen as game changers in the international arena.

“Specifically, with the growing importance of international cooperation in space for reducing costs and dealing with shared problems in this highly interdependent environment, alliances, networks and transnational ties may become the true test of a state’s “power” in space, rather than, as in the past, only its own national assets.”[4]

The increasing number of space-faring nations, major advances in space technologies and the spectacular rise of the commercial space industry must be taken into account when discussing the future of space and possibly Space2030.[11] The international practice over the past 30 years has made it clear that the preference within the international community was to undertake the ‘rules of the road’ approach, which could serve as a starting point for future space governance discussions. However, by looking at the global space governance structure today and comparing it to the realities of a fast changing environment, such as the space arena is, it is about high time to address the new arising issues. This is the aim of UNISPACE+50, with its seven thematic priorities that will lead to concrete deliverables for strengthening the space agenda and aligning it with the global development agenda. The UNISPACE+50 outcomes, presented thematically under the pillars of space economy, space accessibility, space society and space diplomacy, should enable nations to build and strengthen their space infrastructures, enhance their capacities in space activities and share the dividend of space exploration. With the increasing number of actors and new emerging fields in outer space, the “Future of Space:Space2030” should lead towards the creation of a stable and predictable framework for outer space activities in the future.

⁵ See also: IAC-16,D4,1,1,x34405: Four Pillars to address the Future of Space (Simonetta Di Pippo, Sharafat Gadimova, Markus Woltran)

The views expressed herein are those of the author(s) and do not necessarily reflect the views of the United Nations.

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