



**Committee on the Peaceful
Uses of Outer Space****Report on the United Nations/Germany High-level Forum:
The way forward after UNISPACE+50 and on “Space2030”****(Bonn, Germany, 13–16 November 2018)****I. Introduction**

1. The United Nations/Germany High-level Forum: The way forward after UNISPACE+50 and on “Space2030” was jointly organized by the Office for Outer Space Affairs of the Secretariat and the Government of Germany, through the German Aerospace Center (DLR), and was hosted by the DLR. The Forum was co-sponsored by the European Space Agency, the Secure World Foundation and the International Committee on Global Navigation Satellite Systems.

2. As a follow-up to the fiftieth anniversary of the first United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE+50), a milestone that was seen as a unique opportunity to visibly highlight key societal benefits of space and subsequently to define a stronger future international collaboration on the peaceful uses of outer space for the benefit of all humankind, the 2018 High-level Forum advanced the debate on the way forward after UNISPACE+50 in the context of the process to establish a “Space2030” agenda. The Forum thus provided a unique opportunity for representatives of the collective space community to address international cooperation in the peaceful uses of outer space activities related to the seven thematic priorities and four pillars of UNISPACE+50.

3. The seven thematic priorities of UNISPACE+50, endorsed by the Committee on the Peaceful Uses of Outer Space in 2016 (see [A/71/20](#), para. 296), are related to promoting enhanced international collaboration in outer space, the mobilization of space technology and applications for socioeconomic development, and more effective space governance. The seven thematic priorities are the following:

- (a) Global partnership in space exploration and innovation;
- (b) Legal regime of outer space and global space governance: current and future perspectives;
- (c) Enhanced information exchange on space objects and events;
- (d) International framework for space weather services;
- (e) Strengthened space cooperation for global health;
- (f) International cooperation towards low-emission and resilient societies;



- (g) Capacity-building for the twenty-first century.
4. A path for “Space2030” is defined by the four cross-cutting pillars and their objectives:
- (a) Space economy: to further develop space-derived economic benefits;
 - (b) Space society: to advance the societal benefits of space-related activities;
 - (c) Space accessibility: to provide access to space for all;
 - (d) Space diplomacy: to build partnerships and strengthen international cooperation and the governance of space activities.
5. The Forum concluded with specific observations and recommendations (see section III) which, inter alia, underscored that the establishment of a “Space2030” agenda represented a valuable opportunity to increase recognition of space activities as an important pillar of the global agenda.
6. As agreed at the United Nations/United Arab Emirates High-level Forum held in 2017, the Forum continued to serve to promote dialogue between Governments, international organizations, industry, the private sector, academia and civil society, to connect the four pillars of UNISPACE+50 and “Space2030” and to facilitate partnerships with the Office for Outer Space Affairs (see [A/AC.105/1165](#), para. 4).
7. The present report describes the background, objectives and programme of the Forum, provides a summary of the sessions and concludes with the observations and recommendations made and agreed by the Forum participants.

A. Background and objectives

8. The 2018 High-level Forum has been widely received by the broader space community as an important platform for providing updates and recommendations on the potential of space innovations to address new and emerging sustainable development challenges, and is considered a forum for the exchange of views and recommendations on the ever-changing space sector.
9. Space science and technology provides the means of transforming traditional approaches in virtually all sectors of the economy. The General Assembly, in its resolution [72/77](#) on international cooperation in the peaceful uses of outer space, recognized that the fundamental significance of space science and technology and their applications for global, regional, national and local sustainable development processes should be promoted in the formulation of policies and programmes of action and their implementation, including through efforts towards achieving the objectives of those conferences and summits and in implementing the 2030 Agenda for Sustainable Development.
10. Participants in the high-level segment of the Forum discussed the various factors of access to space, space technology data and facilities, and the importance of joining a global effort for developing the entire space arena for the benefit of humanity; the attention paid by Governments to the need for regulatory frameworks and mechanisms at the national, regional and global levels; and the role of international mechanisms for cooperation in the peaceful exploration and use of outer space.
11. The objectives of the Forum were to have presentations and exchanges on the lessons learned from UNISPACE+50 and to propose new ideas under the four pillars: space economy, space society, space accessibility and space diplomacy. Accordingly, the specific objectives were as follows:
- (a) Address and discuss the outcomes of UNISPACE+50 and the way ahead with respect to the seven thematic priorities of UNISPACE+50;
 - (b) Building on those discussions, focus the Forum on the production of pertinent recommendations about the way ahead after UNISPACE+50 and on “Space2030”;

(c) Provide recommendations on how voluntary actions from Governments, international organizations, research and development institutions, academia and other relevant stakeholders could support the partnerships for the increased use of space as a driver for socioeconomic development;

(d) Elaborate the way ahead by means of recommendations to inform, as appropriate, future sessions of the Committee on the Peaceful Uses of Outer Space and its subcommittees and related working groups.

B. Attendance

12. The Forum brought together participants from national, regional and international public and private organizations and institutions, including decision makers from governmental agencies, high-ranking officials from regional and international agencies, representatives and experts from the United Nations agencies, experts from the space community, experts from industry, business and academic communities and policymakers, experts from international centres of excellence, researchers involved in the use of space technologies, representatives of the private sector in the space and non-space fields, and civil society leaders.

13. Funds provided by the United Nations, the Government of Germany and the co-sponsors were used to defray the costs of air travel and accommodation for 29 participants. A total of 307 participants from the broader space community attended the Forum.

14. Participants from the following 58 Member States attended the Forum: Australia, Austria, Azerbaijan, Bahrain, Belgium, Botswana, Brazil, Cameroon, Canada, China, Colombia, Czechia, Egypt, Ethiopia, France, Germany, Ghana, Greece, Hungary, India, Indonesia, Italy, Japan, Kazakhstan, Kenya, Lao People's Democratic Republic, Libya, Luxembourg, Malaysia, Mauritius, Mexico, Monaco, Morocco, Myanmar, Nepal, Netherlands, Nigeria, Oman, Pakistan, Philippines, Poland, Portugal, Romania, Russian Federation, Saudi Arabia, South Africa, Spain, Sudan, Sweden, Switzerland, Tajikistan, Thailand, Tunisia, Turkey, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland and United States of America.

15. Representatives of 66 intergovernmental and non-governmental organizations and private sector, civil society, academic and other entities also attended the Forum. A complete list of those entities is available on the website of the Office for Outer Space Affairs (www.unoosa.org).

16. Representatives of the following United Nations entities were present at the Forum: Food and Agriculture Organization of the United Nations, International Maritime Organization, United Nations Development Programme, United Nations University, World Health Organization and Office for Outer Space Affairs.

C. Programme

17. The programme of the Forum was developed by the Office for Outer Space Affairs in cooperation with DLR.

18. The primary purpose of the sessions held on 13 and 14 November 2018 was to gather technical experts to present their views, work and new ideas that addressed the seven thematic priorities of UNISPACE+50. An exhibition, a poster session and a dedicated young professionals event were also integrated into those sessions.

19. The Forum events of the following two days, 15 and 16 November, brought together decision makers from Governments, space agencies and other stakeholders to discuss and exchange views and recommendations relating to the four pillars: space economy, space society, space accessibility and space diplomacy.

20. All presentations and panel discussion interventions can be found on the website of the Office for Outer Space Affairs (www.unoosa.org).

II. Summary of the Forum programme

21. The presentation sessions on the thematic pillars of UNISPACE+50 enabled participants to learn about the value of space technology for a variety of applications and led to discussions on numerous international initiatives in the field of promoting the use of space technology. Presentations delivered during the thematic sessions are summarized below.

22. The session on the thematic priority of global partnership in space exploration and innovation highlighted that public-private cooperation and the application of space technologies were important for achieving the Sustainable Development Goals. It was noted that the potential of space technology for socioeconomic development was immense and that the best way to reap those benefits was through international cooperation. The session emphasized the need for enhanced capacity-building for sustainable development and called for the strengthening of technical and scientific cooperation, including training, the exchange of experiences and expertise, knowledge transfer and technical assistance.

23. It was explained that the Office for Outer Space Affairs and Sierra Nevada Corporation had proposed an orbital space mission using Sierra Nevada Corporation's Dream Chaser Mission which was open to all States Members of the United Nations and would provide inclusive access to space and thus contribute to the achievement of the Sustainable Development Goals.

24. It was also noted that the Open Universe initiative was aimed at reducing barriers to access to data and, ultimately, at fostering the knowledge resulting from such access.

25. The role of space technology in achieving the Sustainable Development Goals was considered in the session on furthering sustainable development and strengthening international cooperation on global health and low-emission and resilient societies. International Cooperation for Animal Research Using Space (ICARUS), a joint German-Russian project, was a research endeavour that would close the knowledge gap by monitoring local, regional and global patterns of movement of tagged animals. The globally collected data would allow, among other things, observations of the spread of infectious diseases and disaster forecasts.

26. Presentations were also made on other ongoing projects supporting the implementation of the 2030 Agenda for Sustainable Development. The projects, carried out by ESA, the National Centre for Space Studies (CNES) of France and the Japan Aerospace Exploration Agency (JAXA), were in the areas of vegetated wetland inventories (Sustainable Development Goal 6, relating to clean water and sanitation); air pollution monitoring (Goal 3, relating to good health and well-being); and monitoring of greenhouse gas emissions (Goal 13, on climate-related action).

27. The session also showcased the results of the international expert meeting entitled "Towards big (space) data in support of disaster risk reduction and emergency response in Africa", which was organized by the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) on 12 November 2018, immediately preceding the High-level Forum.

28. The session on the legal regime of outer space and global space governance focused on the analysis of relevant and topical aspects of the legal regime applicable to outer space activities and underlined the strong links to global space governance. It was recognized that the Outer Space Treaty remained valid and relevant to today's space activities and that regional cooperation had been considered to be an essential element of space activities since their inception.

29. The session on enhanced information exchange on space objects and events and an international framework for space weather services provided a complete picture of the socioeconomic impact of severe space weather which included both direct impacts, such as power outages and spacecraft anomalies, and the collateral effects of space weather-caused technology failures on dependent infrastructure and services. The discussions on space objects and events highlighted that the growing proliferation of space debris was a severe concern for the safety of space operations and the sustainability of outer space activities. It was noted that this trend was reinforced by the increasing deployment of small satellites and megaconstellations.

30. It was noted that the valuable Online Index of Objects Launched into Outer Space maintained by the Office for Outer Space Affairs was a comprehensive research tool. It was noted that there was a growing number of States of registry providing additional information on objects launched into outer space under the United Nations treaty-based mechanism for information exchange and notification procedures, including General Assembly resolution 62/101 on registration practice.

31. The session on capacity-building for the twenty-first century emphasized that it was important to create new public-private partnerships between diverse actors to promote universal education and learning, and to address collective global challenges. It was noted that the involvement of new actors in space, including new States and new private actors, would expand and transform space activities.

32. Brief presentations and statements by panellists at the beginning of each high-level panel provided participants with an opportunity to share and receive up-to-date information on using space technologies and applications for the benefit of society in the context of sustainable development.

33. The space economy panel discussed ways to continue strengthening the relationship between the space community and end users outside the space sector. The need to engage with non-space actors was emphasized, and the concrete steps to be taken to get involved with the private sector were outlined.

34. The space society panel underlined that the United Nations should expand its use of space technology for raising awareness of societal issues. It was important to provide knowledge and capacity-building for processing information from existing data and to encourage cooperation.

35. Separate projects and joint missions were highlighted by the panel on space accessibility. The Office's role as facilitator in helping deliver those opportunities for space accessibility was highlighted on several occasions, as was the recurring model of triangular cooperation between spacefaring, non-spacefaring and emerging spacefaring nations. The Office also introduced the "Access to Space for All" initiative, which supported the full cycle of space accessibility and all levels of capacity-building.

36. The space diplomacy panel discussed areas to reinforce future international cooperation efforts for the peaceful uses of outer space. The panel stressed the need to encourage the participation of all countries in the process of establishing new elements of international outer space policy and governance. The panel also underlined that there were still many issues for the international community to consider in the efforts to maintain space governance.

III. Observations and recommendations

37. The following observations and recommendations were proposed during the High-level Forum under the discussion of the four pillars of space economy, space society, space accessibility and space diplomacy.

Space economy

38. The space economy was identified as a key enabler and functioned as the driver and connector of all four pillars. In that regard, the creation of a smart economy facilitated by the space economy could make a substantial contribution to the implementation of the 2030 Agenda for Sustainable Development.

39. It was proposed that the challenges and opportunities for the future of the space economy be identified. In that regard, while space infrastructure was boundless and had enormous potential, cooperation, access and sharing became imperative to jointly address the key questions for the future of the space economy. Issues such as tenders, bureaucracy, technology transfer, new space economy, space mining and its legal implications, and sustainability in outer space activities could be considered in that regard.

40. Different financing and funding models were proposed, and possibilities such as increased public-private partnerships, the increased involvement of international financial institutions, and governmental support for the stimulation of start-ups to trigger increased private investments were recommended.

41. “Private all-in-one” space missions were proposed as tools and mechanisms for the democratization of space, for simple and low-cost access to space and as a way to bring economic benefits to all Member States.

42. In order to provide non-discriminatory access to space, gain the cross-sectional benefits from outer space research and development and generate the broadest possible synergy and benefit for the future space economy, participants called for increased efforts to streamline and adopt common standards for outer space research and development, as appropriate.

43. It was proposed that the Committee on the Peaceful Uses of Outer Space should act as an arena for the development of new space law to ensure security for private investments.

44. It was observed that access to space, space data and space technology and its applications have been a powerful factor for economic development and were essential for users in developing countries, and it was proposed that the Office for Outer Space Affairs further act to facilitate access to space in that regard.

45. Technology applications derived from space research and development were revolutionizing other, non-space sectors, and the benefits of using big data were becoming increasingly important, in particular for decision makers. It was noted that the technology applications were able to generate sustainable economic development and that big data derived from satellite technology were for the benefit of all.

Space society

46. It was noted that space technology and its applications were fundamental for the implementation of all Sustainable Development Goals, and to ensure that no one would be left behind, it was proposed that international cooperation be enhanced and that there should be a stronger focus on identifying user needs, and in that regard it was proposed that better links be created within the space society and in support of existing efforts.

47. In that regard, it was proposed that spacefaring nations cooperate more closely in the various capacity-building and awareness-raising efforts in order to avoid duplication and to maximize the benefits of the utilization of space technology and so that developing countries could realize and harness the potential of a space society for socioeconomic development.

48. It was proposed that there be greater inclusiveness at all levels, and to that end it was suggested that actors in the sector should strive for gender balance in the space sector, that the space sector should strengthen links with academic institutions and increase cooperation with civil society organizations, that ways should be found for the inclusion of youth, and that there was a need to include industry and the private sector in the development of the “Space2030” agenda.

49. The facilitation of South-South academic cooperation through the Office for Outer Space Affairs capacity-building network was stressed, as that area required increased attention to facilitate joint action on similar challenges, and it was evident that research and development had a greater impact when they were conducted with a common understanding of what the priority areas were.

50. It had been shown that space weather posed an increasing threat to outer space infrastructure and hence the global economy, in particular because of the global economy's dependency on space technology. A sustainable space society required increased international cooperation to address the space weather threat by means of improved forecasts, environmental monitoring and enhanced infrastructure designs.

51. It was proposed that there be an increased focus on science communication to help to shape a space society by speaking the language of the user. It was important to raise public awareness and to highlight, in a multilingual manner, the potential contribution of space technologies to sustainable development.

52. The integration of space capabilities into global health and national health-care efforts was underlined, as well as the development of sustainable payloads for tracking animal movement, and the global sharing of those data was recommended.

53. During the Forum, new trends in the fast-changing and growing space society were presented, and it was proposed to include the topics of artificial intelligence, life sciences, cloud technology and data cubes, as well as trends in processing and analysing big data in the mandate of the Office for Outer Space Affairs.

Space accessibility

54. Outer space was presented as a global common, and accessibility (access to space, access to data, access to technology and access to financing of instruments) should remain a priority as the international community explored options to maintain the governance structure of the space environment.

55. It was proposed that a "Space2030" agenda could support the Open Universe initiative as a project for increased access to space data and science. Further, it was suggested that a "Space2030" agenda could include the conducting of space exploration and innovation in an inclusive manner.

56. During the discussions at the Forum, it was proposed that open and free data policies be promoted and implemented as the basis for a more accessible and transparent space arena.

57. In that regard, it was proposed that the Office for Outer Space Affairs could develop and promote capacity-building initiatives for improved and increasing access to, and the use of, space-based information and data. In particular, it was underlined that collaborative tools and exploitation platforms had great potential, and they were recommended as one possible way to leverage existing capabilities, avoid duplication of efforts, and to ensure that users benefited from the increased amount of data.

58. The importance of easier access to data was discussed, and it was proposed that the Office for Outer Space Affairs could take a lead in facilitating the provision of space data through the creation of easy-to-understand data cloud-based products for decision makers.

59. The guidance document under development under UNISPACE+50 thematic priority 2 was recommended as a tool for access to the relevant legal framework.

60. Private actors were identified as important stakeholders in, and contributors to, easier access to space and were important for fostering emerging space capabilities through simplification and democratization.

61. It was proposed that rules, standards and norms be considered that support and allow access to space for developing countries in the development of their technical capabilities.

Space diplomacy

62. The unique character of the Committee on the Peaceful Uses of Outer Space and the importance of international cooperation was emphasized. During the discussions, it was noted that the Committee was an important multilateral mechanism for protecting outer space for peaceful purposes. In that context, it was noted that questions related to the global governance of outer space activities were becoming increasingly important given the fast-changing “new space” environment with a steadily increasing number of actors.

63. It was proposed that the international regime governing outer space activities should remain flexible enough to encourage a diverse range of partnerships in exploration and human spaceflight.

64. It was proposed that the international community make an effort to address the current legal documents and update existing instruments in order to better reflect the reality of the new space era.

65. In that regard, the importance and the unique character of the Committee on the Peaceful Uses of Outer Space and its subcommittees were noted during the discussion, as the Committee functioned as an arena for developing jointly constructed solutions with the broadest possible participation of various stakeholders. In that regard, it was also noted that the Committee had the role of safeguarding existing legal principles and protecting the predictable legal outer space regime.

66. It was proposed that new regulatory frameworks addressing outer space exploration and development, as well as technology innovations, should be developed. It was also proposed that space cooperation should be used as a sustainable tool for peace and diplomacy that addressed challenges of global humanitarian concern and to build constructive, knowledge-based partnerships.

67. The importance of increased international efforts to address space debris threats was mentioned, and in that regard, it was proposed that actions for increased information exchange for effective space debris mitigation should be undertaken.

68. In that regard, it was proposed that a dedicated working group on space objects and events, under the Committee, be considered for establishment as the appropriate platform and the first possible step for the international community to reach consensus on an enhanced information exchange, including on improved registration practices.

69. The importance of the Office as an entity that can assist and facilitate exchange on the increasingly complex nature of outer space and as a central stakeholder to support the discussion on the status and applications of the five United Nations treaties on outer space, including on the guidance document (see in that regard [A/AC.105/1169](#) and the proposal contained in A/AC.105/C.2/2018/CRP.14), was observed during the exchanges at the Forum.

IV. Conclusions

70. The United Nations/Germany High-level Forum: The way forward after UNISPACE+50 and on “Space2030” provided an opportunity to advance the debate in the context of the process to establish a “Space2030” agenda.

71. The Forum demonstrated the increasing interest of the broader space community in collectively addressing international cooperation in the peaceful uses of outer space across the seven thematic priorities created by the international community to drive the process forward after UNISPACE+50, with the four pillars serving as a framework for Forum discussions.

72. Building on the results from the previous high-level forums, which provided an adequate platform for exchange in the run-up to UNISPACE+50, the 2018 High-level

Forum offered an occasion for constructive dialogue among a wide range of stakeholders and for exchanges on key initiatives and projects.

73. DLR made a presentation on their education and outreach activities under the School Lab programme and offered an in-kind contribution for an education workshop entitled “Capacity-building for the twenty-first century”, to be held in 2019.

74. The unique setting of the High-level Forum made it possible to advance the exchange of the broader space community on the four pillars of space economy – space society, space accessibility and space diplomacy – and to contribute ideas and collect proposals on the way forward on the “Space2030” agenda.

75. The 2019 High-level Forum will be held in Vienna, organized by the Office for Outer Space Affairs in collaboration with the Government of Austria. The Office invites all member States and the community at large to express their interest in providing potential support for the 2019 High-level Forum. Member States are also invited to present their proposals to host future high-level forums, from 2020 onwards.
