



Foreign, Commonwealth  
& Development Office



Wilton Park

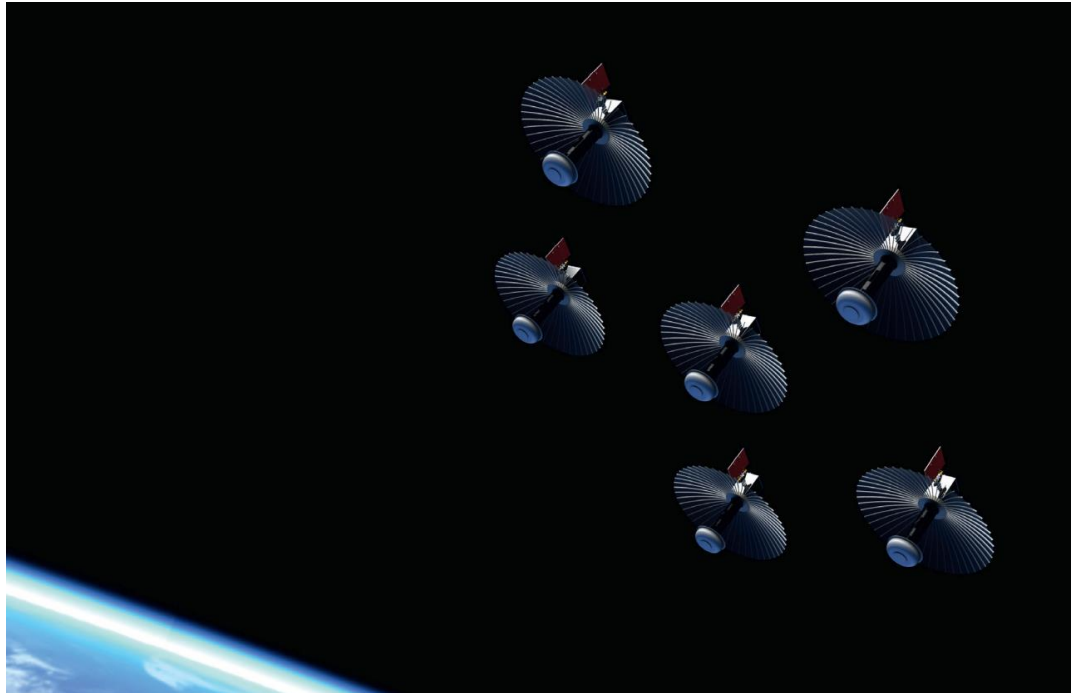


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Report

## Considering responsible behaviours as part of managing threats to space systems

Wednesday 30 March – Friday 1 April 2022 | WP2009

In association with:

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**AIRBUS**



## Report

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In partnership with the FCDO and with support from Airbus

## Introduction

This short report captures the key points emerging from informal multilateral discussions at Wilton Park, convened on behalf of the UK Foreign, Commonwealth and Development Office (FCDO). This three-day event brought towards governmental representatives from 20 nations including from Central and South America, Africa, Australia and New Zealand, Southern and South-East Asia as well as Europe and North America. Also participating were selected industry, civil society and academic experts in aspects of space technology, security, and law.

The purpose of these discussions was to share perspectives and debate relevant issues ahead of the upcoming United Nations (UN) Open-Ended Working Group (OEWG) on Reducing Space Threats through norms, rules and principles of Responsible Behaviour, which will meet for the first formal session on 9 – 13 May 2022 in Geneva.<sup>1</sup> While the discussions were conducted under the Chatham House rule, with comments non-attributable to individual participants, this report is intended to summarise the key insights emerging from the discussions.

The report begins with an overview of the background to the Wilton Park event and UN OEWG, before moving to discuss themes from each of the plenary and breakout sessions.

## Executive summary

### Preventing an Arms Race in Outer Space

The discussions opened with nations sharing their views on how to prevent an arms race in outer space. The importance of a holistic view was acknowledged that includes all of the segments of a space system, including data links and ground and user elements, as well as all of the threats – kinetic and non-kinetic. Many attendees noted their desire for a treaty but that, in the absence of a viable pathway to a treaty that would include all of the above elements, they were supportive of the behaviours approach.

### Growing reliance on space across the global economy and society

Space systems are critical to most aspects of our daily lives providing essential services. The number of space-faring nations is increasing. Militaries and civil governmental agencies seek to drive national prosperity, development, influence, and security through space activities. Commercial space organisations play an increasingly important role.

<sup>1</sup> For an overview of the scope, participation, and programme of the UN OEWG, see: <https://meetings.unoda.org/meeting/oewg-space-2022/>

## **Challenges to maintaining a sustainable space environment**

Space is becoming increasingly congested, contested, and competitive. Threats to space systems could disrupt, damage, destroy or disable services dependant on them.

## **Towards the UN OEWG on reducing space threats**

In December 2020, the UN General Assembly, through resolution 75/36, requested the Secretary-General to seek the views of Member States on the further development and implementation of norms, rules and principles of responsible behaviours. Following the UN Secretary-General's report,<sup>2</sup> in December 2021 resolution 76/231 called for convening an OEWG on reducing space threats through norms, rules, and principles of responsible behaviours.<sup>3</sup> This will have its first formal session in May 2022.

## **Understanding the mounting threats to space security**

Space threats include Earth-based weapons and capabilities, as well as threats to the ground-based infrastructure and datalinks. Threats are growing reflecting the increasing development, deployment and proliferation of military technologies.

Participants emphasised a holistic policy approach, including a mix of practical and political measures and building a broad awareness and shared understanding of the space domain. They supported initiatives to improve Space Surveillance and Tracking (SST) and enhance collective Space Domain Awareness (SDA), to understand not only what is happening in space, but why. And to understand what constitutes normal, non-threatening behaviour and what should be viewed as threatening, to avoid unintended escalation and conflict.

## **Navigating the international humanitarian legal aspects**

Civilian populations rely on space for access to a wide range of essential services; growing threats to space systems raise the importance of focusing on space through the lens of International Humanitarian Law including the Law Of Armed Conflict to protect civilians in a conflict; participants emphasised engaging NGOs and civil society perspectives.

Norms of responsible space behaviour should be consistent with, and reinforcing of, existing legal frameworks and focus on space threats outside of conflict. Norms can help build a broad agreement about the types of principles and behaviours that states then want to codify into 'hard' law where possible – an idea described as 'crystallising consensus' by one participant.

## **Understanding the role and impact of deterrence**

Hostile actions in space could affect all space-faring nations and non-space-faring nations. Given the role space systems play in nuclear command and control and missile early warning, there is direct link between space security and the risk of escalation to nuclear conflict.

Classical principles of deterrence theory apply to space as to Earth, language, perception, and communication all matter re-emphasising the need to build a common understanding of what is happening in space. Deterrence is not sufficient on its own; broader diplomacy, norms and legal instruments are essential to build the trust needed to achieve genuine space security.

## **Considering the industry perspective**

Commercial actors have a major role to play and direct commercial interests in space. They bring valuable technical knowledge and operator experience and often have access to better technology, data and specialist skills than nation states, and can improve 'space literacy' and support capacity-building. They have different incentives which need to be considered in discussion of responsible behaviours.

### **Avoiding arms races**

There was debate among participants about the realism, seriousness and long-term challenge of preventing, and that there is progress to be made in the short- and medium-term to reduce risk in specific areas. Common themes included: engaging the largest space-faring nations especially the U.S., Russia, China; building common understanding; improving transparency and communication; assuring smaller space-faring nations; an equitable approach; addressing the challenges of monitoring and verification; building trust.

There may be opportunities to learn lessons on generating laws and norms from the maritime domain and from the parallels of technology, governance and activity with the cyber domain.

### **Building norms, rules and principles of responsible behaviour**

In four breakout groups participants discussed: the threat technologies to consider, what they are; how these technologies are used and how they drive an arms race; what the mechanisms are to avoid conflict or manage an arms race; the effects to be managed/mitigated; what the implications would be if those technologies were used/deployed; and how can we manage/mitigate the effects and avoid conflict; and, which of the mechanisms discussed would be useful for each effect.

<sup>2</sup> Report of the Secretary-General on reducing space threats through norms, rules and principles of responsible behaviours (A/76/77). See UN Office for Disarmament Affairs (2021): <https://www.un.org/disarmament/topics/outerspace-sg-report-outer-space-2021/>

<sup>3</sup> For more on resolution 76/231 (2021), see: <https://daccess-ods.un.org/tmp/9271150.23136139.html>

## Background

### Growing reliance on space across the global economy and society

Space systems – comprising satellites or spacecraft, ground-based infrastructure and the data that travels between them – now enable most aspects of our daily lives. They already provide essential services such as satellite communication (SATCOM), precision, navigating and timing (PNT) and Earth observation (EO). These have become critical to healthcare, transportation, communications, energy grids, financial systems, and international trade. They also underpin humanitarian responses to conflict or natural disaster and are increasingly critical to national security and defence.<sup>4</sup>

Rapid growth in the so-called NewSpace economy, the falling cost of space launch, and the development of new space-related technologies, products, and services, offers significant opportunities for the future. The number of space-faring nations is increasing, with both militaries and civil governmental agencies interested in capturing benefits from space activities in terms of driving national prosperity, influence, and security. Commercial space organisations, such as SpaceX, Blue Origin or OneWeb, also play an increasingly important role. End-users for space services now comprise actors from across all sectors of the global economy, as well as individual citizens and consumers.

### Challenges to maintaining space as the province of all humankind

All these diverse global actors have a direct interest in promoting the secure, safe, and sustainable use of space. This is reflected in the principles of the 1967 Outer Space Treaty (OST), the foundational text of space law and regulation. The OST declares space “the province of all [hu]mankind” and recognises the benefit to all nations and peoples of exploring and using space.<sup>5</sup> At the same time, space is becoming increasingly congested, contested, and competitive. Threats to space systems could disrupt, damage, destroy or disable services dependant on them, and the growing role of space in military operations increases the likelihood space systems will be threatened.

### Towards the UN OEWG on reducing space threats

Against this backdrop, the United Nations and its Member States have been taking collective action to address the mounting threats, risks and hazards to space systems and space-enabled services on Earth. Preventing an arms race in outer space (PAROS) has been on the disarmament agenda since SSOD-1 in 1978.

In June 2019, Guidelines for the Long-term Sustainability of Outer Space Activities were adopted, building on the work of the Committee on the Peaceful Uses of Outer Space (COPUOUS).<sup>6</sup> In December 2020, the UN General Assembly, through resolution 75/36, requested the Secretary-General to seek the views of Member States on the further development and implementation of norms, rules and principles of responsible behaviours and on the reduction of the risks of misunderstanding and miscalculations with respect to outer space.<sup>7</sup> Following the UN Secretary-General’s report,<sup>8</sup> in December

<sup>4</sup> This includes an important contribution to strategic stability, given the role that space-based capabilities play as verification means for arms control treaties and in early warning and nuclear command and control systems.

<sup>5</sup> Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967). See UN Office for Outer Space Affairs (n.d.): <https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html>

<sup>6</sup> For more on the guidelines (2019), see: <https://www.unoosa.org/oosa/en/ourwork/topics/long-term-sustainability-of-outer-space-activities.html>

<sup>7</sup> For more on resolution 75/36 (2020), see: <https://daccess-ods.un.org/tmp/5491605.99708557.html>

<sup>8</sup> Report of the Secretary-General on reducing space threats through norms, rules and principles of responsible behaviours (A/76/77). See UN Office for Disarmament Affairs (2021): <https://www.un.org/disarmament/topics/outerspace-sg-report-outer-space-2021/>

2021 resolution 76/231 called for convening an OEWG on reducing space threats through norms, rules, and principles of responsible behaviours.<sup>9</sup> Following an initial administrative meeting in February 2022, this will have its first formal session in May 2022, chaired by a representative from Chile.

These informal Wilton Park discussions are intended to help inform this upcoming session, as well as build a broader understanding and consensus around threats to space security and possible avenues to addressing them, including by establishing norms and shaping behaviours. This emphasises an inclusive approach, engaging both established and emerging space-faring nations, as well as a holistic one that considers a range of different practical and policy responses to the common threats faced in and through space.

## Summary of key insights

### Understanding the mounting threats to space security

1. Space threats, risks, hazards, and associated vulnerabilities should be understood through a 'systems thinking' lens. This considers the entirety of the space system as well as the cascading effects that any disruption of space services might have on critical national infrastructure and downstream end-users. Threats to space security do not just arise in space. They include Earth-based weapons and capabilities, as well as threats to the ground-based infrastructure and datalinks. All these elements should thus be appropriately secured to reduce risk.
2. Threats and the range of actors capable of holding space systems at risk are proliferating. This reflects growing military interest in space and a proliferation of kinetic and non-kinetic technologies. Non-state actors are increasingly capable of threatening space systems, most notably through exploitation of cyber vulnerabilities. Growing threats to space security also reflect broader changes in the geopolitical environment, including intensified interstate competition in the 'grey zone', with threats to space systems above and below the threshold of open armed conflict.
3. Prominent examples of space threats include, but are not limited to:
  - a. Direct-ascent anti-satellite (ASAT) missiles
  - b. Co-orbital / loitering systems
  - c. Directed energy weapons (lasers)
  - d. Radio frequency (RF) interference (jamming, spoofing)
  - e. Cyber-attacks
  - f. Physical or cyber-attacks against ground-based infrastructure

Given the high value of many space-based assets these threats posed significant concern to operators and end-users who rely on their services. This can prompt a natural wariness about the activities and intentions of others in space, especially when they are not transparent or well-understood; perceptions matter when it comes to managing the risk of unintended escalation.<sup>10</sup>

4. In addition, there are a range of other man-made risks. Examples include:
  - a. Collisions with debris generated by ASAT tests

<sup>9</sup> For more on resolution 76/231 (2021), see: <https://daccess-ods.un.org/tmp/9271150.23136139.html>

<sup>10</sup> It can also impose significant costs on satellite operators to take evasive manoeuvres, if they worry another satellite is coming too close or has hostile intent, given the need to burn up precious stocks of fuel or potentially disrupt satellite operations while moving.

- b. Collisions with other debris, potentially causing further cascading collisions as more and more debris generated, threatening entire orbits (the so-called 'Kessler syndrome')
  - c. RF 'fratricide' from satellites operating close to each other and sharing the RF spectrum
  - d. Risks to the security and safety of humans in space (e.g., the International Space Station)
5. There are also significant natural hazards facing space systems, including space weather and natural phenomena such as meteors. While these fall outside the formal scope of UN discussions of space security. It is important to consider the interdependencies between possible responses to different hazards, risks and threats. For example, seemingly sensible actions to deal with space debris, such as through active debris removal (ADR), could have unintended consequences for space security if such dual-use technologies were deployed in an opaque manner that undermined trust and strategic stability.
6. The types of space systems held at risk, as well as the nature of the threats faced, can also vary from orbit to orbit. This demands a nuanced understanding of the challenges:
  - a. Low-earth orbit (LEO): While traditionally used for EO, today this is increasingly used for SATCOM and other services. This reflects the proliferation of small satellites (smallsats) and deployment of megaconstellations of hundreds or even thousands of satellites (e.g., Starlink or OneWeb). This is arguably the most complex environment to operate in, given congestion and lots of debris and the impact of ASAT tests, etc.
  - b. Medium-earth orbit (MEO): This is the orbit where many of the most high-value assets (or possible targets) reside, most notably Global Navigation Satellite Systems (GNSS) such as GPS, Galileo, Glonass, BeiDou etc. For now, at least, MEO is mostly the domain of military users and there is less debris or congestion than LEO, though jamming is a significant threat.
  - c. Geosynchronous orbit (GEO): This is a special orbit and comparatively 'small' part of the sky. It is important for SATCOM, weather satellites and missile early warning satellites.
7. Against these challenges, participants in the plenary discussions emphasised the importance of a holistic approach of practical and policy measures, collectively reducing both the likelihood and the impact of threats to space systems. More broadly, there is also a strong need to focus on preventing conflict in the first place. This includes building on established mechanisms for dialogue and the principles of international law (both international humanitarian law and the law of armed conflict), as well as taking new steps to enhance trust among nations in the space domain specifically
8. Participants emphasised the importance of building a shared understanding of the space domain as a prerequisite for further action:
  - a. Promoting a broad awareness of space threats, especially given limited technical knowledge of space systems and operations among many policy- and decision-makers.



- b. Supporting initiatives to improve Space Surveillance and Tracking (SST) and enhance collective Space Domain Awareness (SDA). Unlike many other domains, it is relatively straightforward to detect objects and activity in space, using a mix of different sensors (optical telescopes, radar, etc.). However, there is currently no single independent shared picture or arbiter of what is happening in space, with most space actors reliant on the United States Space Surveillance Network or the European Union to provide alerts on possible collision risks. It is also much more difficult to establish intent and the reasons why space-faring actors (government, military or commercial) are operating the way they are. By understanding not only what is happening in space, but why, those with equities in space can make informed decisions on how to mitigate risk.
- c. Relatedly, there is also a need to build a shared understanding of what then constitutes normal, non-threatening behaviour (and what should be viewed as threatening), so as to avoid unintended escalation and conflict in space. While this would, in an ideal world, be codified through legally-binding instruments, participants also recognised the near-term benefits of building softer norms and principles of responsible behaviour as an adjunct to, and enabler of, any future international treaty.

Given these threats and initial responses from participants, the following sections of this short report consider specific legal, military, commercial, or political and diplomatic aspects in more detail.

#### **Navigating the international humanitarian legal aspects**

9. The 1967 OST makes clear that space should be used for peaceful purposes – though in reality, militarisation has been part of space exploration and exploitation since the very beginning of the space race. The growing threats to space systems and risks of unintended escalation and conflict raise the importance of focusing on space through the lens of International Humanitarian Law (IHL) and the Law of Armed Conflict (LOAC) – though there is no universal agreement among states, or civil society actors, about how to interpret and apply these existing treaties and rules to the space domain.
10. Activities in space also have cascading humanitarian consequences that should be made more prominent in debates over space security. Though space itself is almost entirely unpopulated (for now), civilian populations on Earth rely on space for access to a wide range of essential services, such as food, clean water, and energy. Governments, militaries, and NGOs also rely on space services to support humanitarian assistance and disaster relief.
11. These legal and humanitarian aspects emphasise the obligations to apply existing IHL and LOAC to outer space. Participants in the plenary discussions consequently emphasised the value and importance of engaging NGOs and civil society perspectives as part of the debate, both in the run-up to and beyond the UN OEWG.
12. Looking to the UN OEWG, norms of responsible space behaviour should be consistent with, and reinforcing of, existing legal frameworks. Where such legal frameworks need to be modernised, to reflect the new realities of space must be done carefully to avoid unintended consequences, whether in terms of provoking conflict or inhibiting opportunities.



13. Getting this balance right is important not only to the future of space itself, but also to avoid diluting of international legal frameworks in other domains. Damaging legal or normative precedents in space could later be replicated on Earth. Examples given included ambiguity around ideas of territoriality, attribution, levels that trigger responses, and the principle of due regard. There are also ongoing debates over how best to account for the role of non-state actors given the increasing commercialisation of space.
14. Participants noted that building a shared understanding of norms should not be seen as mutually exclusive with ambitions to work towards more formalised legally-binding instruments. Developing 'soft' norms can help build a broad agreement about the types of principles and behaviours that states then want to codify into 'hard' law – an idea described as 'crystallising consensus' by one participant.

#### **Understanding the role and impact of deterrence**

15. It is important to recognise that deterrence forms part of states' toolkit for addressing threats to space security. The classical principles of deterrence theory apply to space as to Earth, including:
  - a. The importance of understanding
  - b. The importance of relationships
  - c. The importance of communication and signalling
  - d. The need to understand capabilities, vulnerabilities, and intent
  - e. The need to use all levers of influence to shape other actors' behaviours and reduce the risk of taking actions that cause unintended escalation
16. At the same time, the changing nature of the space domain poses new risks of miscalculation. Where deterrence used to be bipolar, in the Cold War, today the world is multipolar and more complex and interconnected. Hostile actions in space could affect all space-faring nations and non-space-faring nations who depend on space services, regardless of whether they are parties to any conflict. Most worryingly, the important role that space systems play in nuclear command and control, as well as missile early warning, means that there is direct link between space security and reducing the risk of escalation to nuclear conflict. Defining responsible behaviours and establishing clear thresholds, trust and confidence-building measures (TCBMs), and avenues for dialogue, deconfliction and de-escalation is therefore in the interests of all parties.
17. While states have legitimate security interests and concerns in space, participants also emphasised the need to avoid an arms race that would be costly and damaging to all involved. While deterrence may inevitably form part of the toolkit, it is not sufficient on its own; broader diplomacy, norms and legal instruments are also essential to build the trust needed to achieve genuine space security.
18. Efforts to reduce threats to space security may yield positive effects in terms of diffusing tensions more broadly on Earth; intensifying competition and conflict on Earth may, in turn, make it harder to achieve the political consensus needed to reduce threats to space security. Participants in the plenary discussions therefore also noted the need to consider interdependencies between space security and capabilities, and other threats, technologies, and issues prominent in other domains and debates (e.g., missile technology, nuclear weapons, cyber, artificial intelligence).
19. Finally, there is the need to address that 'deterrence' thinking may be politically sensitive. As deterrence theory itself acknowledges, language, perception, and communication all matter. This re-emphasises the need to build a common understanding of what is happening in space, and why as well as to identify acceptable behaviours. It also requires thinking about incentives, and how to bring all parties to the table despite their occasionally divergent perspectives and priorities.

## Considering the industry perspective

20. Commercial actors including both established firms and new entrants have a major role to play in space manufacturing, launch, and operations, as well as downstream exploitation of space services.
21. As such, commercial actors have their own direct interest in space security, safety and sustainability, as threats to these have consequences for the commercial viability of their space-related activities. However, commercial actors are structured and incentivised differently to nation-states, requiring that any discussion of norms or legally-binding instruments around responsible behaviours consider how best to tailor its approach to account for these differences. Building on the previous discussion on incentives, for example, this could necessitate changes to contracting, performance metrics, national regulation and laws, and other formal or informal ways of incentivising good behaviours and discouraging bad ones.
22. Commercial actors can bring valuable technical knowledge and operator experience to discussion around the future of norms, rules and behaviours in space. In many cases, private companies have access to better technology, data and specialist skills than even leading space-faring nations. As such, participants in the plenary discussions recognised the benefits of working with the commercial sector to enhance SST and SDA, improve 'space literacy' among policy-makers, and support capacity-building in emerging economies.

## Avoiding arms races

23. Drivers of arms races in space are not unique to the domain but reflect the characteristics of the environment. Examples include:
  - a. Doctrine
  - b. Lack of TCBMs
  - c. Threat perception/analysis
  - d. Weapons/capability
  - e. Competition
  - f. Absence of rules and norms
  - g. Domestic drivers
24. One major point of criticism and debate around the draft Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects (PPTW), for example, is that it purely relates to such space-based capabilities and, some states argue, does not adequately address the broader picture of threats to space objects, infrastructure, and data-links.<sup>11</sup>
25. There was considerable debate among participants as to how realistic it is to prevent an arms race in space. In the more pessimistic views of some, this represents a serious and long-term challenge, and one that potentially cannot be fully overcome short of major changes to global governance. For others, there is achievable progress to be made in the short- and medium-term, with possible 'quick wins' that could help to reduce risk in specific areas (with limits on debris-generating activities, whether due to ASAT tests, poor management of obsolete satellites that should be moved into graveyard orbits, or other examples, as one commonly cited example) and built trust as the foundation for further, more ambitious or legally-binding measures in future.

<sup>11</sup> There was also some limited discussion among breakout groups of the longer-term need to consider space-to-Earth threats, i.e., systems that deliver kinetic or non-kinetic effect from a satellite to a target on the planet below. However, this was not seen as a near-term priority, given the relevant technologies have not yet matured.

26. Common themes that emerged from these discussions included:
- a. The need to engage the largest space-faring nations (especially the U.S., Russia, China), but also have a more inclusive approach wherever possible, including by engaging emerging space-faring nations and non-space-faring nations, given space security affects all parties.
  - b. The need to build common understanding (e.g., of terminology, threats, vulnerabilities, etc.).
  - c. The need to improve transparency and lines of communication among actors (e.g., around intentions, capabilities, doctrine/policy, ways of de-escalating during an incident or crisis).
  - d. The need to provide assurances, especially to smaller space-faring nations, who cannot afford to invest heavily in their space or counter-space capabilities to deter hostile action.
  - e. The need to ensure an equitable approach, for example avoiding the perception that a small number of nations might push to ban further development of certain technologies and capabilities that they already possess, but which others do not have.
  - f. The challenge of addressing concerns around verification and monitoring, given that most of the capabilities in question in the space domain are inherently 'dual-use, dual-purpose' and thus cannot as easily be counted as in other areas of arms control (e.g., limiting numbers of warheads, tanks, aircraft). This again implies a need to focus on behaviours and effects – that is, what is being done with a given capability (e.g., a satellite) and why:
  - g. The need to focus ultimately on building trust, as a product of all these different factors.
27. Participants also recognised the opportunity to learn lessons from approaches – successful or otherwise – in other domains. A commonly-cited example was the maritime domain, where there have been past struggles with arms control but also successes in generating a body of mature law and norms, including mechanisms for dealing with incidents at sea and reducing escalation risks. Another example cited was the cyber domain, which shares some parallels to space in terms of being an emerging area of technology, governance, and activity, with a major role for non-state actors, and with significant cross-domain interdependencies given the interconnectivity of relevant systems.

## Conclusion

Space represents a 'province of all [hu]mankind' and offers significant opportunities to all nations, whether they currently have space-based capabilities or not. All countries, markets and sectors of the economy, and aspects of our individual daily lives are now touched by space services, directly or indirectly. The increasing affordability of launching, and improvements in the technical capabilities of satellites or spacecraft, offer a raft of opportunities for all nations to exploit.

At the same time, while many states have similar goals and interests, efforts to promote space security are impeded by a lack of trust, shared understanding, and defined principles and rules of behaviour which might be perceived as threatening. There has been significant debate about whether it is best to promote responsible behaviours through 'soft' norms, or 'hard' law. In fact, this is a false dichotomy. Participants of this Wilton Park conference repeatedly emphasised the need for a holistic and adaptive approach, considering a broad toolkit of measures for reducing threats to space systems as a whole (including satellites, spacecraft, launch vehicles, ground infrastructure, datalinks and end-users).

Shaping and agreeing norms of responsible behaviour in the short-term does not preclude legally-binding instruments in the future. Rather, the aim should be for norms to not only deliver immediate practical benefits – in terms of reducing the risks of misperception, miscalculation and unintended escalation of crises or arms races in outer space – but also to help build trust and shared understanding as the basis for future law. In this way, the upcoming UN OEWG might help to develop norms that provide a foundation for subsequent efforts to ‘crystallise consensus’ into international law where the behaviours can be defined in a way such that a treaty would have utility.

Participants at this Wilton Park event also emphasised the urgency of this mission. This reflects the rapid pace of change in space, the proliferating threats to space systems, and the brief window of opportunity to ‘get space governance right’ before the domain becomes more congested, contested, and competitive, or before an arms race or crisis in space gets out of hand – with potentially wide-reaching consequences on Earth. Given this urgency, there was an agreement on the need to sustain the recent momentum achieved through the UN General Assembly and other fora, and translate this into tangible outcomes (i.e., reduced threats), rather than waiting for a perfect solution that may not be achievable ‘at the speed of relevance’.

This effort demands a pragmatic and inclusive approach, engaging a broad range of different perspectives, whether from across space-faring nations big and small, or from regional organisations, industry, civil society, NGOs and academia.

It will also take creativity and compromise to identify areas where agreement on defining responsible (or irresponsible) behaviours is possible, while also recognising that alongside the ‘quick wins’ there will be other more intractable issues on which longer-term efforts to build trust and identify solutions will be required. Given all actors are very much still learning, when it comes to space, there is also a need for an iterative approach, building understanding over time. This also entails a collective effort to boost space literacy and the awareness of political leadership and the general public of the threats faced and the consequences of not getting this right – given the cascading effects that any arms race or conflict in space might have for all humankind today and for future generations.

### **James Black– European Lead, RAND Space Enterprise Initiative**

Wilton Park | April 2022

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