

THE SPACE LAW  
REVIEW

FOURTH EDITION

Editor  
Joanne Wheeler MBE

THE LAWREVIEWS

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SPACE LAW  
REVIEW

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# PREFACE

The space industry was busy in 2022.

The US National Aeronautics and Space Administration's Artemis spacecraft finally reached the Moon, laying the foundations for future lunar exploration. Artemis 1 transported many small lunar research spacecraft – including Japan's OMOTENASHI lunar lander – as secondary payloads. South Korea's first lunar orbiter Danuri was launched into space by a Falcon 9 rocket, one of which also launched the Hakuto-R Mission 1, a private Moon mission by Japanese company ispace.

The year 2022 has also been busy for space tourism. Blue Origin's New Shepard launched six passengers on a suborbital trajectory in three flights. SpaceX's Crew Dragon space capsule launch was the first American space tourist mission to the International Space Station. The crew on board the Axiom Space-operated mission included one professional astronaut and three tourists.

China finished the construction of the Tiangong space station with the addition of the Wentian and Mengtian lab modules. Both Wentian and Mengtian were successfully launched and docked to the space station.

Boeing launched the second unmanned test flight of its Starliner space capsule. The test flight was successful and will lead the way for Starliner's first crewed test flight in 2023.

We are also seeing predicted consolidation in the industry, including the proposed merger between Viasat and Inmarsat, and between OneWeb and Eutelsat.

What particularly stands out to me is the increased recognition in recent years, and especially in 2022, of the value of space for our life on Earth and the view that space is very much part of our terrestrial ecosystem. This reached the public agenda at the United Nations (UN) Climate Change Conference in 2021, more commonly referred to as COP26, and also in 2022 at COP27. The value of space applications for methane and carbon measurements, monitoring and verification, for example, were clearly evidenced. Linked to this is the increasing recognition of the urgent need to protect the Earth and space environment. The growth in commercial activities and orbital populations has a large impact on the sustainability of long-term space activities.

Some companies are actively seeking out licensing regimes and regulators with clear procedures and processes that comply with space debris mitigation standards and sustainability goals. Licensing regimes that recognise environmental, social and governance (ESG) objectives can assist companies with raising finance, offer a better insurance risk and can allow market access in other jurisdictions. In fact, the UN Environment Programme Finance Initiative recently stated that it is part of a company's fiduciary duty to integrate ESG issues into its investment analysis.

The ecosystem comprising international guidelines, national implementation and commercial ESG concerns linked to investment is a powerful one. The international community must:

- a* enable more states to access and use outer space; and
- b* allow more – and more innovative – commercial activities to safely and sustainably use the space domain, benefitting life on Earth.

States and private entities must accept greater responsibilities and the need to ensure that such activities in space are sustainable. Effective national regulation that enables innovation and encourages investment while meeting international obligations is an increasingly important source of competitive advantage globally. This is especially the case when such national regulation embraces sustainability goals in relation to the mitigation of space debris and the protection of the outer space environment.

There is a related need for recognised standards that will ensure the safe and sustainable use of space-based equipment and operations, thereby increasing confidence for all who wish to develop their businesses and uses of space, including investors and insurers. Those involved in uses of space for science and research share the need for such a framework. To aid this, in March 2022, the International Astronomical Union announced the establishment of the Centre for the Protection of the Dark and Quiet Sky from Satellite Constellation Interference to coordinate and aggregate measures to mitigate the effects of satellite constellations on astronomy. More on the need to ensure space sustainability can be found in the jurisdictional chapters of this edition.

I am very pleased to say that this fourth edition of *The Space Law Review* contains contributions from three new firms: Zhong Lun Law Firm in China; Sorainen in Estonia; and Milbank LLP in the United States. It has been a pleasure to engage with these new contributors.

My thanks go to all the authors, who have contributed their time, expertise and enthusiasm to this edition. Their practical knowledge of their respective legal and regulatory frameworks – and related challenges, risks and solutions – makes this book unique. The contributors' expertise will grow in importance as the value of the space domain and the extent of space applications is increasingly recognised by states, the space industry, other industries and international organisations.

I am grateful to the contributors of *The Space Law Review* and wish them success for the years ahead in the space domain. I hope that readers will find this edition valuable and recognise the benefits that the international space industry can offer our life on Earth.

**Joanne Wheeler MBE**

Alden Legal Limited

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# TAXATION

Tom Gilliver<sup>1</sup>

## I INTRODUCTION

For companies in the space industry, tax is an important factor in determining where to base themselves. This chapter surveys the basic conceptual framework relevant to the direct taxation of space companies, focusing particularly on the operation of satellites. While the United Kingdom's corporate taxation is the author's area of practice, this chapter does not focus on any particular jurisdiction; rather, it highlights concepts and issues that are common to many jurisdictions.

## II CORPORATE TAXATION

### i Foundational concepts

Tax laws, both domestic and international, typically identify taxable persons or transactions by reference to a physical presence in, or connection with, a particular territory. Thus, extraterrestrial commercial activities do not always fit naturally within the current conceptual framework. Nevertheless, it has been suggested that the laws that apply to the high seas could be used as a starting point for future related legislation.<sup>2</sup>

Direct taxes are levied on a person's income, profits or gains, whereas indirect taxes are imposed on transactions involving the production, consumption, sale, transfer or registration of assets, goods or services. As regards direct taxation, commercial space businesses are generally carried on through corporate vehicles, and they may, therefore, be subject to corporate income tax or corporation tax.

As a matter of domestic law, residence for corporate tax purposes is typically determined by a test relating to the place in which the company is incorporated or the place from which it is managed or controlled, or both. The detailed mechanics of the tax code then determine where a particular corporate tax system lies on the spectrum between worldwide taxation (i.e., taxing resident companies on their global profits, whether generated in that country or abroad) and territorial taxation (i.e., taxing companies only on their profits generated within that country). Non-resident companies, on the other hand, are generally taxed only on profits generated in the taxing state, whether through a permanent establishment or (in some cases) otherwise.

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1 Tom Gilliver is an associate at Slaughter and May. The author gratefully acknowledges the assistance of Carmelo Franceschino in researching this chapter.

2 Timothy G Nelson and James Anderson, 'Can Space Activities be Taxed?', *Financier Worldwide*, November 2019.

Double taxation can arise if two countries seek to tax the same profits of a company. This might be the case, for example, if a company were to be treated as resident in two countries under their respective domestic laws. Domestic relief may be given for double taxation. Tax treaties are also bilaterally negotiated to allocate taxing rights between the signatory states and thereby minimise double taxation. Such treaties are often based on a historic version of the Model Tax Convention on Income and on Capital published, and periodically updated, by the Organisation for Economic Co-operation and Development (OECD).

## ii Application to commercial space activities

The border between airspace and outer space is not defined in international law. This is pertinent because, while states generally claim rights in respect of the airspace above their territories, the international community has rejected the notion of sovereignty in respect of outer space.<sup>3</sup> For example, the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, one of the foundational texts of international space law, provides that outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.<sup>4</sup>

While various practical and unilateral definitions of space exist, such as the Kármán line,<sup>5</sup> there are no international legal definitions of 'airspace' and 'outer space'. This has left the door open for attempts to assert sovereignty over outer space in certain respects. For instance, in 1976, seven equatorial countries made the Bogotá Declaration, asserting their sovereignty over the segments of the geostationary satellite orbit directly above their respective territories.<sup>6</sup> The signatories contended that the geostationary orbit is not part of outer space, but is a 'physical fact' resulting from Earth's gravity, therefore constituting a scarce natural resource that they were entitled to control.<sup>7</sup> Such attempts have occasionally related not just to direct taxes, but also to property taxes, such as California state property taxes.<sup>8</sup> This background informs the question of whether a satellite in orbit above a particular country generates a taxable presence in that country for its operator. The Commentary on the 2017 OECD Model Tax Convention observes that a permanent establishment may only be considered to be situated in a contracting state if the relevant place of business is situated in the territory of that state.<sup>9</sup> Accordingly, whether a satellite in geostationary orbit could constitute a taxable permanent establishment for the satellite operator depends upon how far the territory of a state extends into space. However, the Commentary states that no OECD Member State would agree that the location of geostationary satellites can be part of the territory of a contracting state under the applicable rules of international law. It adds that

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3 Article I of the 1944 Chicago Convention on International Civil Aviation; cf. Article II of the 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (the Outer Space Treaty).

4 Article II of the Outer Space Treaty.

5 The Kármán line is an imaginary boundary 100 kilometres above mean sea level.

6 1976 Declaration of the First Meeting of Equatorial Countries, signed by Colombia, the Republic of the Congo, Ecuador, Indonesia, Kenya, Uganda, Zaire (now the Democratic Republic of the Congo) and Brazil (as an observer).

7 Paragraph 1 of the Bogotá Declaration.

8 Cal Code Regs Title 18 Section 206; Nancy Vogel, 'Satellite tax idea is back to Earth', *Los Angeles Times*, 11 July 2011.

9 Paragraph 27 of the Commentary on Article 5 of the 2017 Model Tax Convention.

the area over which a satellite's signals may be received (the satellite's 'footprint') cannot be considered to be at the disposal of the operator of the satellite so as to make that area a place of business of the operator. At present, therefore, the position of the satellite itself and the area that it serves are not usually significant factors from a direct tax perspective: the crucial factor is the tax residence of the satellite operator. In effect, the same is true of manned activities in space, such as astronauts working on the International Space Station: while it may be increasingly possible for individuals to remain in outer space for sufficiently long periods of time to cease to be tax resident anywhere, ordinary principles of tax residence apply.

### III SPECIFIC TAXES

More recently, as the space industry has gained visibility, various policy-driven proposals have been made in relation to the taxation of specific space activities. For example, the implementation of an orbit tax has been discussed to mitigate the dangers and collective risks posed by space debris.<sup>10</sup> The proposed orbit tax is an internationally coordinated orbital use fee, which would act as a Pigovian tax that would be collected annually on the orbiting satellite by the applicable government under which the satellite is registered.<sup>11</sup>

Similarly, taxes on space tourism have been discussed in the United States at the federal level.<sup>12</sup> Earl Blumenauer, a member of Congress in Oregon, has proposed new legislation that would impose new excise taxes on commercial space flights carrying human passengers.<sup>13</sup> Although no such proposals have yet been enacted, there is growing pressure to use taxation as a means through which to address, and potentially compensate for, the negative externalities associated with private commercial ventures in outer space.

### IV OUTLOOK

While national governments and international organisations continue to devote considerable attention and resources to the burgeoning commercial space industry, rather less attention has been given to ensuring that tax systems keep pace. However, if the industry continues to grow rapidly over the coming years and decades, it seems likely that space tax will increasingly come to the fore as a topic for debate.

Parallels may be drawn with the way in which the taxation of digital services has recently become a political battlefield. Arguably, cross-border digital services have exposed the shortcomings of tax systems that are predicated upon physical presence. In response, the OECD, under the aegis of its wide-ranging Base Erosion and Profit Shifting Project, is leading efforts to reshape the international tax landscape in fundamental ways, so as to give due weight to the location of multinational businesses' customers when allocating taxing rights between different jurisdictions. Space tax could eventually go down a similar path; the

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10 Akhil Rao et al, 'Orbital-use fees could more than quadruple the value of the space industry', *Proceedings of National Academy of Sciences* Volume 117 (23), 26 May 2020.

11 Atika Chaturvedi, Urvisha Kesharwani, 'Orbit tax – mitigating space debris or aggravating economic disparity?', *Völkerrechtsblog*, 3 August 2020.

12 Elwyn Sirieys et al, 'Space sustainability isn't just about space debris: On the atmospheric impact of space launches', *MIT Science Policy Review* Volume 3, page 143, 29 August 2022.

13 HR 7547, 117th Congress (2021–2022): SPACE Tax Act (introduced 21 April 2022).

risk, though, is that (as in the digital taxation arena) individual countries will adopt unilateral measures, resulting in a tax landscape for space companies that is ever-shifting and difficult to navigate.

# ABOUT THE AUTHORS

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Tom Gilliver is an associate at Slaughter and May. His practice covers direct taxes, stamp duties and value added tax, with a strong focus on corporation tax. In addition to advising on corporate transactions (including joint ventures, acquisitions and group reorganisations), Mr Gilliver has experience of advising on transfer pricing and diverted profits tax disputes with His Majesty's Revenue and Customs.

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