

LUXEMBOURG

Bob Calmes, Laurent Schummer and Błażej Gładysz-Lehmann¹

I INTRODUCTION TO THE NATIONAL LEGAL, REGULATORY AND POLICY FRAMEWORK

Luxembourg established itself very early on as a state fostering entrepreneurship and the development of commercial activities in the space sector. By supporting the creation of SES, one of the biggest satellite operators in the world, and by creating legislation specific to the transmission of satellite services shortly thereafter, Luxembourg has demonstrated its ability to build a favourable environment for the structural development of activities related to the use of outer space.

Luxembourg is party to the following United Nations space treaties:

- a* the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies 1967 (the Outer Space Treaty), signed in 1967 and ratified on 17 January 2006;
- b* the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space 1968, signed in 1968 but not yet ratified;²
- c* the Convention on International Liability for Damage Caused by Space Objects 1972, signed in 1972 and ratified on 9 June 1983; and
- d* the Convention on Registration of Objects Launched into Outer Space 1975 (the Registration Convention), ratified on 15 December 2020.

The Agreement Governing the Activities of States on the Moon and Other Celestial Bodies 1979 (the Moon Agreement) has been neither signed nor ratified by Luxembourg.

As a party to the Registration Convention, Luxembourg created a national and publicly available register of space objects. All the existing space objects for which Luxembourg assumes the obligation of registration by virtue of Article II of the Registration Convention are now registered in the national register.

From an institutional standpoint, Luxembourg has always benefited from governmental impetus in setting new policy standards. In this respect, the Ministry of the Economy initiated the creation of the Luxembourg Space Agency (LSA) in 2018. On 8 July 2021, the LSA became a foundation governed by Luxembourg law, founded by the Luxembourg state and represented by the Minister of the Economy. Although the LSA has independent status, five of its eight board members are appointed and may be revoked by the government on the proposal of the Minister of the Economy. As defined in its articles of foundation, the mission

1 Bob Calmes and Laurent Schummer are partners, and Błażej Gładysz-Lehmann is counsel at Arendt & Medernach.

2 Luxembourg's parliament is currently considering the ratification of this agreement.

of the LSA is to promote, encourage and support the development of technologies in the field of space in Luxembourg. As such, the LSA supports the development of the space sector and contributes to the development of the Luxembourg space ecosystem.

II REGULATION IN PRACTICE

The Law of 27 July 1991 on electronic media applicable to the operation of a Luxembourg satellite system and the transmission of services by satellite (the Electronic Media Law), the Law of 30 May 2005 on the organisation of the management of frequency bands (the Frequency Bands Law), the Law of 20 July 2017 on the exploration and use of space resources (the Space Resources Law) and the Law of 15 December 2020 on space activities (the Space Activities Law) are the main pieces of legislation applicable to the space industry.

Despite only recently being implemented, the Space Activities Law is the *lex generalis* applicable to all space activities not yet covered by the existing legal framework. The drafting of the Space Activities Law was inspired largely by the Space Resources Law, notably through the implementation of general concepts already set out in the latter and by mirroring the phrasing of certain articles.

As a general rule, the Space Activities Law applies to any space activity³ that is conducted: by any Luxembourg or foreign operator on the territory of Luxembourg or by means of installations, whether movable or immovable, that are under the jurisdiction or control of Luxembourg; and elsewhere by any Luxembourg national or legal person.

A new authorisation is required under the Space Activities Law for all current and future space activities, independently of whether they fall within the scope of the Electronic Media Law. However, space activities covered by an existing licence (concession) entered into by the space operator and the Luxembourg government based on the provisions of the Electronic Media Law may be exercised without the new authorisation being required until 31 December 2022.

The Ministry of the Economy as the regulator has been tasked with authorising and supervising space activities, and will assume responsibility for the authorisation procedure set forth in the Space Activities Law.

The conditions for obtaining the new authorisation substantially mirror the conditions set out in the Space Resources Law with respect to a space resources mission and can be summarised as follows:

- a* the production of evidence showing the existence in Luxembourg of the central administration and of the registered office, including the administrative and accounting structures of the operator to be authorised;
- b* the communication to the regulator of the identities of the direct or indirect shareholders or members, regardless of whether they are natural or legal persons, that have direct or indirect holdings of at least 10 per cent of the capital or the voting rights in the operator, or if the 10 per cent threshold is not met, the identities of the 20 largest shareholders or members;
- c* the submission for review of the risk assessment for the intended space activity;
- d* the confirmation that one or more independent auditors will audit the annual accounts of the operator;

3 Except for any space resources activity where the relevant authorisation will be granted based on the provisions of the Space Resources Law.

- e* the appointment of at least two persons for the management of the operator with adequate experience and professional integrity – if the replacement of any such persons is intended, the change must be communicated in advance to the regulator, which may refuse the proposed change if these persons are, in its view, not of adequate professional repute or do not have sufficient professional experience, or where there are grounds for believing that the proposed change would pose a threat to the sound and prudent management of the operations; and
- f* the payment of a fee set by the regulator to cover the administrative expenses incurred in relation to the processing of the application (which is between €5,000 and €500,000 depending on the complexity of the application and the amount of work involved).

Given the high risks involved with space activity, the Space Activities Law also requires sufficient financial means from the space operator that should be appropriate to the risk of the space activity. The risks may be covered by one of the following: the financial resources of the space operator; an insurance policy; or a guarantee from a bank. The Space Activities Law does not specify what type of guarantees could qualify. In any case, the operator should not be part of the same group of companies as the insurer or guarantor.

The scope of these conditions is not exhaustive as the legislator has empowered the Ministry of the Economy with the right to request additional information on a case-by-case basis.

Moreover, the authorisation will be subject to payment by the operator of an annual fee for supervision activities of the Ministry of the Economy ranging between €2,000 and €50,000 per year, depending on the complexity and the amount of work involved in the supervision. The annual fee may be increased to a maximum amount of €500,000 to cover any specific expert's work if required for the purpose of the supervision.

Further to the obligation to register the relevant space object, the Space Activities Law now provides for the space operator to transfer, under certain conditions and subject to a specific authorisation,⁴ its space activity or the effective control over any space object, or both.

However, any transfer to a foreign operator is, in accordance with the Space Activities Law, subject to a special agreement with the state of which the transferee operator is a national or that has international responsibility for the latter's space activities and that would guarantee the Luxembourg state against any recourse against it in respect of its international responsibility or in respect of compensation for damage.

The Space Activities Law also provides for a separate authorisation regarding the change of control over the shareholding of a space operator authorised to carry out a space activity in accordance with the Space Activities Law. The Regulator may express its opposition to the above-mentioned change of control if the impact of the transaction is, in its view, likely to be detrimental to the sound and prudent operation of the operator.

Where a transfer of the operator's shares or voting rights is performed despite the Ministry of the Economy's opposition, the latter may suspend the exercise of the corresponding voting rights or initiate court proceedings in view of enforcing the nullity or cancellation of the votes cast.

The Space Activities Law specifies the circumstances in which the authorisation may be withdrawn. The legislator has foreseen the following reasons for withdrawal:

- a* the operator no longer meets the criteria of the authorisation;

⁴ Any space activity authorisation is, in principle, personal and non-assignable.

- b* the authorisation was granted based on inaccurate statements made by the operator; or
- c* the operator has failed to use the authorisation for over 36 months, or renounced or ceased to carry on the authorised space activity for over six months.

In the event of withdrawal of authorisation, the Ministry of the Economy is empowered by the Space Activities Law to take all measures to ensure that the space activities for which the authorisation has been withdrawn do not endanger the safety of persons, property or the environment, or give rise to an increased risk of international liability for Luxembourg.

For these purposes, the Ministry of the Economy may require the services of third parties or transfer control over the space object to another operator to ensure the continuity of operations and, if necessary, proceed with re-orbiting or de-orbiting, even if this may result in the loss or destruction of the space object.

The Space Activities Law also includes a number of criminal sanctions for the space operator contravening specific provisions of the Space Activities Law.

In particular, anyone who carries out a space activity without the valid authorisation to do so or transfers the space activity (or transfers the control over a space object) without authorisation is subject to between eight days' and five years' imprisonment or a fine of between €5,000 and €1.25 million, or both.

In addition, any person that contravenes or attempts to contravene the provisions of the Space Activities Law by failing to communicate to the Ministry of the Economy changes relating to the management or the appointment of an independent auditor, or that contravenes the terms and conditions of the authorisation, may be sanctioned with a term of imprisonment of between eight days and one year or a fine of between €1,250 and €500,000, or both. Finally, the court to which the matter is being referred may declare the termination of a space activity contravening the provisions of the Space Activities Law, under a penalty that shall not exceed €1 million per day of infringement.

According to the provisions of the Electronic Media Law, no one can establish and operate a Luxembourg satellite system without first obtaining a licence (concession) granted by the government, upon the joint proposal of the Minister in charge of telecommunications and the Minister in charge of media. The national concession creates a legal nexus between Luxembourg and the licensee (concessionaire) for the implementation of Luxembourg satellite systems.

In connection with the concession and the constant necessity to monitor the space activities of Luxembourg operators (resulting from Luxembourg's international obligations), the Electronic Media Law sets a number of criteria that any operator must fulfil at all times. In particular, Article 21 of the Electronic Media Law contains a non-exhaustive list of conditions that the concessionaire must respect. These requirements relate, among other things, to:

- a* the government's right to inspect the concessionaire's articles of association, shareholding and management;
- b* the conditions under which the concessionaire may make its transmission capacity available to users (and the government has the right to express its opposition to the choice of users); and
- c* the conditions for the supervision of the concessionaire's activity by one or more government commissioners.

In addition, the Electronic Media Law provides for a list of specifications, which may include any additional requirements to be duly observed by the concessionaire and by the concessionaire's customers at any time. These specifications remain confidential and are adapted to the context in which each concession is awarded.

The concession is personal and non-assignable (neither against payment nor for free). It may include elements of exclusivity in the use of certain frequency bands or orbital positions, or for certain types of applications in the field of satellite telecommunications. The period of the concession is limited but renewable.

In accordance with the provisions of Article 35 *sexies* of the Electronic Media Law, the concession may be withdrawn if the conditions required to obtain it are not being met, the obligations set out in the specifications are not met or it is not regularly operated in accordance with the procedures laid down.

The transmission of Luxembourg services by satellite is subject to a second licence (services concession), distinct from the concession required for the establishment and operation of a Luxembourg satellite system. The services concession may be obtained upon the proposal of the Minister in charge of media and after consultation with the Luxembourg Independent Audiovisual Authority (the Audiovisual Authority).

Only legal persons governed by Luxembourg law may apply for a services concession. A set of specifications must be complied with to apply for this concession and such specifications may be adapted according to the number of services offered by the applicant. Each specification may contain provisions on:

- a* the monitoring of the services;
- b* the government's right to inspect the operator's articles of association, shareholding and management, and those of all companies involved in the operation of the services concession;
- c* the supervision of the activity of the licensed operator by one or more government commissioners; and
- d* the obligation for the operator to identify itself as a Luxembourg organisation and to contribute, through its services, to the reputation of Luxembourg.

The services concession is personal, non-assignable (neither against payment nor for free) and applies for a limited period, but is renewable. It may be withdrawn at any time in accordance with the provisions of Article 35 *sexies* if the conditions required to obtain it are no longer being met or the obligations set out in the specifications are not being met.

When the Audiovisual Authority becomes aware, either by itself or through a complaint, of a breach by a concession holder or a services concession holder of a provision of the Electronic Media Law, one of the regulations adopted pursuant to the Electronic Media Law, or the concession or services concession specifications, it will invite the operator to provide an explanation within one year of the breach occurring. Depending on the seriousness of the breach, it may impose disciplinary sanctions ranging from a reprimand to a fine of up to €25,000. If, subsequently, the operator does not comply with the Electronic Media Law or commits a repeat offence within six months of the imposed sanction, it may be fined up to €50,000. If the operator is a services concession holder, the Audiovisual Authority may propose the temporary suspension or withdrawal of the services concession and the government will ultimately decide on the sanction. The operator can appeal against the decision of the Audiovisual Authority to the Administrative Tribunal. The administrative judge may make a final decision and validate or reject the appeal.

In addition, in accordance with the Frequency Bands Law, in Luxembourg or on board a ship, boat, aircraft or any other medium subject to Luxembourg law, frequency bands may not be used without the prior authorisation of the Minister in charge of the management of frequency bands, who allocates frequency bands according to an allotment and frequency band allocation plan. The assignment of frequency bands is recorded in a public ledger called the frequencies register, which provides information on the obligations associated with frequency bands. Access to this register may be limited at the discretion of the Minister in charge of frequency bands.

The frequency allocation procedure is carried out according to objective criteria, and in a transparent manner in accordance with the national frequency allocation plan and the Radio Regulations of the International Telecommunication Union. Where several undertakings apply for authorisation to use the same frequency or frequencies exclusively, the relevant licences shall be granted by the Minister in charge of frequency bands through a public call for applications to the highest bidder, by either competitive or comparative selection. The same process applies to satellite spectrum licence applications.

The obligations of the frequency licence holder are, among other things, to provide a service or use a type of technology for which frequency rights have been granted, including, where applicable, coverage and quality requirements, and establish the technical and operational conditions necessary to avoid harmful interference. Failure to fulfil these obligations carries the penalty of a fine, which can be up to €25,000 for legal persons. The Minister in charge of frequency bands may also temporarily or permanently withdraw the frequency licence. The maximum fine may be doubled in the event of a repeated offence.

In the context of the growing interest in the exploration and use of outer-space resources, Luxembourg has decided to reinforce its position as a European hub for space exploration activities and to offer a legal and regulatory framework to authorise, support and monitor space exploration missions and activities.

The Space Resources Law entered into force on 1 August 2017. In accordance with its provisions, space resources may not be explored or used without a written mission authorisation from the Ministers in charge of the economy and space activities. The authorisation is granted for commercial purposes only on written application by a space resources operator, which must be a Luxembourg-based company incorporated under one of the following legal forms: a public company limited by shares; a corporate partnership limited by shares; a private limited liability company; or a European company. The authorisation is personal and non-assignable (neither against payment nor for free) and may be granted to an operator with respect to one single mission.

The authorisation is subject to similar conditions as those set forth in the Space Activities Law. The scope of the conditions may be extended by the government on a case-by-case basis, which is also similar to the Space Activities Law.

Taking into account the need to ensure sound and prudent operation, the authorisation will be refused if the shareholders or members are found to be unsuitable. Any change of an assessed person must be communicated in advance to the Ministers in charge of the economy and space activities, who may refuse the proposed change on similar grounds as provided for in the Space Activities Law.

Another aspect that is similar to the Space Activities Law is that the Space Resources Law requires sufficient financial assets from the space operator. An insurance policy does

not constitute a *sine qua non* condition for the authorisation if the operator is able to cover its risks by other means. In any case, the operator should not be part of the same group of companies as the insurer or guarantor.

The Space Resources Law also lists the circumstances in which the authorisation should be withdrawn – in particular if:

- a* the mission has ended or been modified;
- b* the operator has entered into liquidation;
- c* the operator has failed to use the authorisation for over 36 months;
- d* the operator no longer meets the criteria of the authorisation; or
- e* the authorisation was granted based on inaccurate statements made by the operator.

Finally, the Space Resources Law provides for criminal sanctions for any violations of its specific provisions, the scope of which is similar to that set forth under the Space Activities Law.

III DISTINCTIVE CHARACTERISTICS OF THE NATIONAL FRAMEWORK

The distinctive characteristic of the national space legal framework derives from the Space Resources Law. Luxembourg also implemented the Law of 27 June 2018 on the control of the export, transfer, transit and import of strictly civilian goods, defence-related products and dual-use items (the Export Control Law).

Following the launch of the space resources initiative in 2016, the Luxembourg legislator adopted the Space Resources Law in 2017, introducing a new element by stating that space resources⁵ are capable of being appropriated. The new law follows the model established in 2015 by the US Space Act.⁶ The enactment of the Space Resources Law was a significant event and brought Luxembourg to the attention of the global space community.

The Space Resources Law reopened a debate regarding the link between two important principles of the Outer Space Treaty: the freedom to use outer space and the non-appropriation of outer space. The Space Resources Law considers the possibility of owning space resources as one of the applications of the freedom to use outer space guaranteed by the Outer Space Treaty.

Article 1 of the Space Resources Law provides that ‘space resources are capable of being appropriated’. To substantiate this reasoning, the Luxembourg legislator, among others, made an analogy using the rules governing the high seas and exploring marine resources without appropriating the high seas. Although the Outer Space Treaty defines and forbids the appropriation of the Moon or any other celestial bodies, it does not prevent the appropriation of outer space resources, as such. The legislator, in its commentary to Article 1 of the Space Resources Law, points out that the wording used excludes any possibility of contradicting the provisions of Article 2 of the Outer Space Treaty in that it does not allow the appropriation of asteroids, comets or celestial bodies and it does not allow or does not constitute ‘a

5 ‘Space resources’ are commonly defined as abiotic resources found in situ in outer space, which can be extracted. This definition excludes satellite orbits and radio spectrum, energy from the sun, and magnetic fields and related gravity.

6 51 USC 51303: ‘A United States citizen engaged in commercial recovery of an asteroid resource or a space resource under this chapter shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use, and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States.’

commencement of a component of sovereignty over a territory above a celestial body or any part whatsoever of outer space and the other celestial bodies'.⁷ In addition, as mentioned in Section II, anyone who explores and uses space resources without government authorisation is subject to imprisonment or a fine, or both.

As Luxembourg (like the majority of spacefaring nations) has neither signed nor ratified the Moon Agreement, it is not subject to its restrictive provisions, which intend to make the appropriation of the resources on the surface or the subsurface of the Moon (and, by extension, on any celestial bodies within the solar system) dependent on the prior establishment of an international legal framework for that purpose. Despite compliance with international standards, the effectiveness of the Space Resources Law and its recognition by some third countries⁸ are under debate. Some scholars consider that the resources to be extracted in outer space are global commons under the jurisdiction of the international community and that the regulatory framework should not be left to the unilateral legislation of different states. The position of the Luxembourg legislator is to consider, however, that if the national legislation complies with the existing international legal framework, the question of the appropriation of outer space resources may be left to the discretion of national legislatures.

Contrary to the US Space Act, the Space Resources Law and the Space Activities Law are unique in that they do not require the shareholding of the operator applying for an authorisation to be exclusively composed of Luxembourg companies or Luxembourg citizens. Thus, a 100 per cent non-Luxembourg shareholding is acceptable, provided that the operator for which the authorisation is issued is a Luxembourg legal person that has its registered office in Luxembourg and abides by all other relevant conditions.

Trade in dual-use goods and technology is not *a priori* prohibited in Luxembourg but is subject to controls by the Office of Export, Import and Transit Control (the EITC Office) of the Ministry of the Economy on export and transit through the European Union to ensure against the proliferation of weapons, based on the Export Control Law and Council Regulation (EC) No. 428/2009. Insofar as space object components are considered dual-use goods, persons wishing to export, transfer, import or transit these goods must first request an authorisation from the Ministries responsible for foreign trade and foreign affairs via a request addressed to the EITC Office. Applications for authorisation must include all the details identifying the parties involved in the transaction, the precise description of the goods concerned, and their origin, final destination, final use, quantities and values covered by the application. Authorisations will be issued after an assessment of the degree of sensitivity of the transfer, based, in particular, on: (1) the nature of the components in relation to the products in which they are to be incorporated and in relation to any end use of the finished products that may give rise to concern; and (2) the importance of the components in relation to the products in which they are incorporated. Ministers do not impose export restrictions on components where the product recipient submits a declaration of use stating that the components covered by the transfer authorisation are or must be incorporated into its own products and may therefore not be transferred or exported subsequently as such, except for the purpose of maintenance or repair.

The authorisation must be issued in individual, global or general form. The individual authorisation is issued to an individual operator and authorises an operation involving a specified quantity of goods and taking place in one or more stages. The global authorisation

7 Rapport de la Commission de l'Economie, 6 June 2017.

8 Mainly signatories to the Moon Agreement.

may be used by an operator that complies with the conditions indicated in the authorisation to carry out operations for goods covered by the Export Control Law either: (1) to recipients located in one or more Member States of the European Union, in a transfer of defence-related products; or (2) from or to third countries or to identified persons, as indicated in the global authorisation. For its period of validity, it will cover the export, transfer, import or transit of the identified goods. The general authorisation may be used by all operators that are established or resident in Luxembourg and that comply with the conditions indicated in the authorisation to carry out transactions for goods covered by the Export Control Law to or from states outside the European Union or identified persons, as indicated in the general authorisation.

Individual authorisations are valid for one year and are renewable by express ministerial decision for a further six months. Global and general authorisations are valid for three years and are renewable, under the same terms and conditions, for a further 18 months.

Legal entities and natural persons covered by the provisions of the Export Control Law may be sanctioned by the Minister responsible for foreign trade in the event that they:

- a* refuse to provide documents or other information requested by the Minister or the EITC Office;
- b* have provided the Minister or the EITC Office with documents or other information that is found to be incomplete or incorrect;
- c* interfere with the exercise of the powers of the Minister or the EITC Office; or
- d* do not comply with instructions from the Minister or the EITC Office.

Consequently, the Minister may impose a prohibition limited to six months or an indefinite prohibition in respect of carrying out one or more activities that are subject to the Export Control Law, as well as any other restrictions on the activity of the legal or natural person, or a suspension for a maximum of six months from the use of a general authorisation from the European Union or national authorities, or a global authorisation. There may be additional sanctions of a term of imprisonment for five to 10 years and a fine of €25,000 to €1 million.

IV CURRENT DEVELOPMENTS

The development of the Luxembourg space sector has always been driven by commercial activities related to the space sector and Luxembourg has adopted a framework in line with the progress made by private-sector companies. It was owing to the provision of a legal framework for the activities of SES that Luxembourg adopted the Electronic Media Law (see Section II). Subsequently, the provision of a favourable environment for companies whose purpose was the exploration and use of outer-space resources was the catalyst for the Space Resources Law. The legislator has also created a general framework applicable to all space activities to enable companies operating in the space sector to have at their disposal a single piece of legislation applicable to the whole industry (with the exception of space resources operators).⁹

The Space Activities Law provides, by its nature, for a set of general provisions without taking into account any considerations that may be applied to a specific operator. Therefore,

⁹ The authors of the Space Activities Law point out, in this respect, that ‘the concession regime provided for by the Electronic Media Law only applies in the event that the concessionaire is granted the right to use Luxembourg frequencies. Thus, an operator established in Luxembourg who did not request the

the practicalities of the application procedure still need to be developed by the Ministry of the Economy as the regulator and the practitioners. The interpretation of the provisions of the Space Resources Law during long debates preceding its enactment may serve as a useful tool for the interpretation of the Space Activities Law.

Nevertheless, the Space Activities Law foresees that a specific Grand Ducal regulation could be implemented to provide for, among other things, a template authorisation form and the procedure for payment of an annual fee. The government has not published a draft regulation at the time of writing. Although further details regarding the implementation of the Space Activities Law are being prepared, the Ministry of the Economy has confirmed that a preliminary free-form written application for authorisation to conduct a space activity must be submitted to the LSA at least six months before the planned launch of a space object. Similarly, when an operator plans to transfer a space activity to another operator, a written application for authorisation must also be submitted to the Ministry of the Economy at least three months before the transfer.

V OUTLOOK AND CONCLUSIONS

The space sector is one of the priority sectors that Luxembourg, partly due to its geopolitical neutrality and political stability, has constantly promoted since its entry into the space industry more than 35 years ago and it continues to develop.

Over the past four years, a significant number of projects have flourished to promote and strengthen Luxembourg's attractiveness on the international scene, including the following.

The University of Luxembourg launched a two-year Interdisciplinary Space Master course in 2019.

The Luxembourg Institute of Science and Technology (LIST) has established multiple space-related departments, including the Environmental Research and Innovation department, the IT for Innovative Services department and the Materials Research and Technology department.

Benefiting from its reputation in the field of space activities, Luxembourg has nurtured a sustainable commercial space ecosystem and developed strong bonds with the pioneers of space exploration, including by way of memoranda of understanding signed with various public and private partners.

With the support of Luxembourg, the United Nations Office for Outer Space Affairs launched the 'Space law for new space actors' project on 13 November 2019 to assist new and emerging spacefaring nations in the preparation and implementation of national legislation.

The Ministry of the Economy, the LSA and the LIST created the European Space Resources Innovation Centre in August 2020, which is dedicated to establishing a favourable environment for the development of initiatives related to the exploration and use of space resources.

In October 2020, alongside Australia, Canada, Italy, Japan, the United Arab Emirates, the United Kingdom and the United States, Luxembourg became a founding member of the Artemis Accords: Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes 2020 (the Artemis Accords). The Artemis

right to use Luxembourg frequencies because it used frequencies allocated by another State could, before the enactment of the Space Activities Law, launch a space object without any authorisation from the Luxembourg State.'

Accords were signed during the 71st International Astronautical Congress to guide future cooperative activities, bolster space exploration and enhance peaceful relationships among nations.

In August 2022, the Luxembourg government announced the creation of a new Space Campus. The objective of the Space Campus is to create specific geographic areas in Luxembourg dedicated solely to space-related activities. The first buildings are expected to be operational in 2026 and will integrate office space, shared technical infrastructure for companies, incubators for start-ups, and premises for existing and future research institutions.

Through the efforts made to establish a business environment conducive to commercial activities, and the establishment of an institutional, financial and commercial framework in line with business expectations, Luxembourg is positioning itself as a facilitator – and, increasingly, as an important player – in the space industry.

BOB CALMES

Arendt & Medernach

Bob Calmes is a member of the corporate law, mergers and acquisitions, and private equity and real estate practice areas of Arendt & Medernach. Mr Calmes' practice focuses on mergers and acquisitions, corporate restructurings and the setting up of joint ventures.

He also advises private equity firms and real estate funds on downstream acquisition financing and structuring. Bob is also a trusted adviser to Luxembourg-operational businesses.

Mr Calmes has been a member of the Luxembourg Bar since 2006. He headed the firm's New York office from 2013 to 2017. He is a member of the American Bar Association, where he sits on the M&A Committee and the Space Law Committee, and is co-chair of the European Private Target Deal Point Study.

Mr Calmes has lectured on various topics including cross-border and Luxembourg mergers and acquisitions.

He holds a master's degree in international law from the University of Paris I Panthéon-Sorbonne, a degree from the Institute of Business Administration (University of Paris I Panthéon-Sorbonne) and a master of laws degree from Pace Law School.

He speaks English, French, German and Luxembourgish.

LAURENT SCHUMMER

Arendt & Medernach

Laurent Schummer is a partner and a member of the corporate law, mergers and acquisitions, private equity and real estate, and capital markets practices of Arendt & Medernach.

In addition to general company law, mergers and acquisitions, joint ventures and group restructuring matters, Mr Schummer also handles takeover, equity offering and listing matters. He has been a member of the Luxembourg Bar since May 1998.

Mr Schummer is a standing member of the Mergers and Acquisitions Commission of the International Association of Lawyers. He is a lecturer in corporate law at the University of Luxembourg. Prior to joining Arendt & Medernach, he was a partner at Linklaters LLP, Luxembourg, which he joined in 1997.

Mr Schummer holds a master's degree in law from the Catholic University of Louvain (Belgium) and a master of laws degree (LLM) from the University of Chicago Law School (United States).

He speaks English, French, German and Luxembourgish.

BŁAŻEJ GŁADYSZ-LEHMANN

Arendt & Medernach

Błażej Gładysz-Lehmann is counsel in the corporate law and mergers and acquisitions practice of Arendt & Medernach. He advises clients on local and international transactions, reorganisations, and mainstream corporate matters linked to the setting up and structuring of companies and other joint ventures in Luxembourg. He was admitted to the Luxembourg Bar in 2015.

He has extensive experience in assisting clients throughout the merger and acquisition (M&A) process, including from the corporate, contractual and acquisition finance perspectives. He has been involved in numerous M&A transactions in which he has advised institutional and individual investors as well as private equity funds.

Mr Gładysz-Lehmann is a lecturer in general company law at the Luxembourg Chamber of Commerce and gives guest lectures on Luxembourg space law at the University of Luxembourg.

Mr Gładysz-Lehmann holds a master's degree in space and telecommunications law from the University of Paris-Saclay, and a degree in European law and a master's degree in the history of international relations from the University of Paris I Panthéon-Sorbonne (France).

Mr Gładysz-Lehmann was awarded Rising Star status for his expertise in Luxembourg by *IFLR1000*, the guide to the world's leading financial and corporate law firms.

He speaks English, French and Polish.

ARENDT & MEDERNACH

41A Avenue JF Kennedy

2082 Luxembourg

Tel: +352 40 78 78 1

Fax: +352 40 78 04

bob.calmes@arendt.com

laurent.schummer@arendt.com

blazej.gladysz-lehmann@arendt.com

www.arendt.com