

United Arab Emirates' Space Diplomacy in the Era of Space Commercialization

الدبلوماسية الفضائية لدولة الإمارات العربية المتحدة في ظل عصر تجارية الفضاء

HAMAD SALAH SALEM HELAL
Sharjah University, College of Law, United
Arab Emirates
Email: U24107815@sharjah.ac.ae

SHEER ABBAS
Sharjah University, College of Law, United
Arab Emirates
Email: Sheer.abbas@sharjah.ac.ae

Date of send: 16/03/2026

date of acceptance: 19/05/2026

date of publication: 10/06/2026

Abstract:

The global trends of increasing space commercialization and growing role of private actors in launch services and satellite manufacturing have pressured states worldwide to resort to space diplomacy for joining and benefiting from this commercial space era. This paper examines the United Arab Emirates (UAE) case to demonstrate how strategic diplomacy can be an enabling mechanism in this era of space commercialization. The UAE focused on various diplomatic partnerships facilitating launch access, technology transfer, and key commercial partners. Moreover, this paper analyzes how the UAE's entry into commercial space was accelerated by its diplomatic engagements in Earth observation. Space diplomacy reduces political, regulatory, and operational constraints hindering commercial space development. The paper also discusses the outcomes of the UAE's diplomatic efforts and recommends further strengthening of the UAE's position in the global space market. Finally, the highly competitive and interconnected space sector requires sustained efforts in market-oriented and institutionalized space diplomacy by the UAE to stay competitive and secure gains from the commercial space era.

Keywords: United Arab Emirates, Space Diplomacy, Space Commercialization, Strategic Partnerships, Earth Observation, Diplomatic Partners

المخلص:

أدت التوجهات العالمية نحو تزايد استغلال الفضاء تجارياً وتنامي دور القطاع الخاص في خدمات الإطلاق وتصنيع الأقمار الصناعية إلى دفع دول العالم نحو اللجوء إلى الدبلوماسية الفضائية للانضمام إلى عصر الفضاء التجاري والاستفادة منه. تتناول هذه الورقة البحثية حالة دولة الإمارات العربية المتحدة لتوضيح كيف يمكن للدبلوماسية الاستراتيجية أن تكون آلية تمكينية في هذا العصر. ركزت الإمارات على شراكات

دبلوماسية متنوعة سهّلت الوصول إلى مواقع الإطلاق، ونقل التكنولوجيا، وإقامة شركات تجارية رئيسية. علاوة على ذلك، تحلل هذه الورقة كيف ساهمت مشاركة الإمارات الدبلوماسية في مجال رصد الأرض في تسريع دخولها إلى الفضاء التجاري. تساهم الدبلوماسية الفضائية في الحد من القيود السياسية والتنظيمية والتشغيلية التي تعيق تطوير الفضاء التجاري. كما تناقش الورقة نتائج الجهود الدبلوماسية الإماراتية وتوصي بتعزيز مكانة الإمارات في سوق الفضاء العالمي. وأخيراً، يتطلب قطاع الفضاء شديد التنافسية والمتربط جهوداً متواصلة من جانب الإمارات في مجال الدبلوماسية الفضائية المؤسسية والموجهة نحو السوق، وذلك للحفاظ على قدرتها التنافسية وتحقيق مكاسب من عصر الفضاء التجاري.

الكلمات المفتاحية: قانون الفضاء، الدبلوماسية الفضائية، معاهدة الفضاء الخارجي، تجارية الفضاء، الإمارات

1. INTRODUCTION

1.1. Background

For the United Arab Emirates (UAE), space is a notable opportunity for future development. Thus, the UAE's Space Policy views space and associated investment as a "vital pillar" of national development.ⁱ The UAE's Federal Law No. 46 of 2023 regulates activities in the space sector, ensuring that space activities are aligned with national interests and international regulations. This Federal Law empowered and developed the UAE Space Agency as "the primary governing body" that oversees space activities.ⁱⁱ Therefore, this law allows the UAE to develop and invest in space safely and structurally. The primary rationale for establishing this kind of law can be divided into three main reasons: the first rationale is the peaceful use of space and a focus on national development, as space industry can improve the quality of life, growth, and economic diversification in the UAE while respecting international law.ⁱⁱⁱ The second rationale is related to the UAE's geography and environment because investment in space can help the UAE, a desert country, monitor its air quality, pollution levels, climate change, dust storms, and greenhouse gases to effectively plan its cities and mitigate potential environmental disasters.^{iv} The third rationale is that under this law, the UAE will appear as a trustworthy partner in the space sector, enhancing international cooperation and investment. Overall, the UAE's efforts to invest in and develop space are motivated by its national interests, future growth, and economic benefits. Therefore, the UAE intends to join the global trend of space commercialization, in which space activities achieve economic goals rather than purely scientific ones.^v The development and investment in the

commercial space industry is also included in the UAE's national space agenda.vi The UAE uses space diplomacy as a key tool to achieve its commercial space goals in this era of global space commercialization.

1.2 Problem Statement

Space commercialization has strengthened the relevance of space diplomacy. Therefore, this paper investigates how space diplomacy can be a key enabling tool in acquiring the commercial gains of the space industry. As the latter remains not fully explored, this paper aims to investigate and explore in detail the successful case of UAE space diplomacy. The UAE views space commercialization as an opportunity for economic growth and development. Therefore, it has invested in many tools for success in space commercialization. This paper first investigates the UAE's space diplomacy in the era of space commercialization and then examines how the UAE can achieve further success and even greater growth.

This paper primarily examines the UAE's efforts in space diplomacy and showcases the importance of these efforts in achieving remarkable progress in space and how they can be further developed in the future by addressing two main research questions:

- a. What is the relevance of the UAE's efforts in space diplomacy for space commercialization development?
- b. How can the UAE develop its space commercialization efforts in the future?

1.3 Research Objectives

- A. To explore the UAE's commercial space sector and its achievements.
- B. To highlight the key opportunities and challenges of the UAE in the era of global space commercialization.
- C. To investigate the role of space diplomacy in accelerating the UAE's space commercial goals.

1.4 Research Methodology

This study employs a qualitative research design with a descriptive and analytical approach to explore the achievements of UAE space diplomacy in the global commercial era through the academic literature, official reports, laws, and policies. Therefore, primary and secondary documents related to the UAE space sector and space commercialization are examined to investigate how the UAE's achievements in space commercialization can be further accelerated through strategic space diplomacy.

2. THEORETICAL FRAMEWORK

2.1 Space Commercialization

Space commercialization can be traced back to the Telstar-1 telecommunication satellite in the early 1960s, which is considered the first commercial space activity.^{vii} This satellite is considered partially commercial because it was built and managed by AT&T while receiving government support from the United States, United Kingdom, and France.^{viii} Herein, we note the first glimpse of commercial space activity and private-sector involvement in space. These efforts initially faced various limitations but grew with the growing interest in space commercialization over the years.^{ix} The definition of space commercialization is disputable; authors such as Davidian state that space commercialization has different definitions and is contested as the term “commercial” itself.^x Therefore, the lack of a clear definition of space commercialization induced vagueness around what is and is not considered commercial. Moreover, Davidian mentions that owing to complex definition, countries including the United States cannot properly assess the space commercial activities of China, for instance.^{xi} Overall, despite the controversy, commercial space activities are profit-seeking and occur in space.^{xii} Furthermore, space activities performed by nongovernmental actors (i.e., private actors) that are market- and trade-oriented, such as satellite communications, resource mining and recovery, launching services, and remote sensing, count as “commercial space activities.”^{xiii} Thus, space is no longer an arena for governments alone but for private actors, who use space for business activities, as well. Consequently, commercial space activity made up approximately “357\$ billion, which is 80% of the world’s global space economy.”^{xiv}

This shift from government-only space to private commercial space actors has resulted in many innovative achievements. Previously, space was dominated by government institutions and states such as NASA, USSR, and ESA that were the only parties involved in and funding space activities.^{xv} The venture of private companies into space was gradual, commencing as government contractors before creating independent space initiatives.^{xvi} For example, SpaceX entered space through a contract with NASA; it later evolved into launching its rockets and space initiatives.^{xvii} Today, private actors have become pioneers of innovation in space and attained numerous achievements.

2.2 Space Diplomacy

Polkowska states that diplomacy is key in all areas of life from culture to technology.^{xviii} Space is no exception because “space diplomacy” has recently

emerged as a new form of diplomacy, gaining considerable relevance. Space diplomacy can be defined as diplomacy entailing dialog between sovereign states “responsible for maintaining the peaceful use of outer space,” and “process of creating space law and overseeing its implementation.”^{xix} The purpose of space diplomacy is to strive to achieve the peaceful usage of space and prevent conflicts, risks, and uncertainty through diplomacy. Moreover, diplomacy is necessary in space, considering that states are interdependent in technology, orbital slots, and launch services; therefore, they must cooperate. For instance, countries rely on diplomacy and agreements to gain access to information, satellites, launch services, and ground stations. For example, the UAE signed an agreement with Russia (Roscosmos) on the peaceful use of space.^{xx} through which the UAE gained access to space knowledge, launch services, and joint projects such as GLONASS stations installations.^{xxi}

Another reason diplomacy is necessary in space is that diplomatic relations and agreements on space matters create a safety net for states and companies that can help mitigate financial, technological, or operational risks that occasionally arise in joint projects.^{xxii} Therefore, diplomacy can reduce financial loss and technical failure because if one partner fails for a given reason, the other can fill the gap; as the OECD space economy report states, risks are thereby “distributed.”^{xxiii} Finally, space diplomacy is critical, as states that have stable diplomatic relations attract more companies to invest in them than do states that lack them.

With the growing worldwide trend of space commercialization, space diplomacy has gained increasing importance as states become more competitive in using diplomacy to secure greater advantages and economic benefits in space.^{xxiv} Therefore, space diplomacy facilitates economic competitiveness, market access, and technology sharing.^{xxv}

Space commercialization has made space a hub for private actors' economic gains and technological innovation. Space diplomacy has thus become a key tool in building beneficial partnerships that help in technology and information sharing, risk mitigation, and economic benefits, and as space commercialization has grown, space diplomacy is even more necessary to secure all the gains of commercial space activities. Today, many states around the world resort to space diplomacy to achieve their commercial goals, and the UAE is one of these states.

3. Space Diplomacy in Practice: The UAE's Story

In this section the concepts of space commercialization and space diplomacy will be examined in the context of the UAE to showcase how the UAE uses diplomatic partnerships to advance its commercial activities and economic gains in outer space. This section will first discuss the agreements that the UAE has been involved in, then move to achievements and commercial gains. This section also addresses the first research question: What is the relevance of the UAE's efforts in space diplomacy for space commercialization development?

3.1 Diplomatic Agreements

3.1.1 Diplomacy for Launch Access and Satellite Deployment

The primary aim behind the UAE's active involvement in space diplomacy is to use diplomatic agreements and partnerships to help the UAE gain foreign launch capabilities, considering that commercial gains can never be achieved without reaching orbit and deploying satellites. Through various agreements, the UAE has launched its satellites via international commercial providers. Moreover, the UAE has a strong, long-term, and multi-project partnership with Japan because even before the 2022 agreement, a 2018 agreement allowed the launch of Khalifa-Sat, a dual-use satellite with commercial purposes.^{xxvi} The latter is an example of continued agreements with the same diplomatic partner to deepen the partnership and ensure continuity of the mutual beneficial relationship, which in this case started with science and expanded to commercial purposes. Another example is the agreement with SpaceX in 2023 regarding the launch of the MBZ-SAT in 2024, reflecting partnership with the United States.^{xxvii} MBZ-SAT is a commercial satellite that provides Earth observation data services.^{xxviii} Therefore, the UAE has secured launch capabilities through space diplomacy, which is the bottleneck to all commercial space activities. Moreover, access to reliable and affordable launch and satellite deployment allows the UAE's commercial space sector to expand and grow.

3.1.2 Diplomacy for Technology and Knowledge Sharing

Another aim of the UAE is to gain knowledge and technology through space diplomacy to be less dependent on foreign suppliers and become more competitive commercially. Therefore, this subsection showcases how diplomacy has prepared the UAE to compete in the commercial space era. One example is the UAE's partnership with South Korea, which facilitated launch services and knowledge sharing regarding satellite manufacturing, as UAE engineers received training in satellite system design and assembly as part of a technology transfer

program.^{xxix} Through a bilateral diplomatic partnership with Korea, a technologically advanced partner, the UAE gained the knowledge to build satellites internally, which will help it grow its commercial space sector. For instance, with the South Korean technology transfer and training for the DubaiSat 1 and DubaiSat 2 projects, the UAE gained the skills to build MBZ-SAT, which was later launched by a US launch provider (SpaceX). MBZ-SAT is considered the most advanced commercial satellite in the region for Earth observation imagery, making the UAE a regional leader.^{xxx}

3.1.3 Diplomacy for International Commercial Partnerships

Another aim of the UAE space diplomacy to further its commercial goals besides launching and building satellites is to secure markets, buyers, and space industry contracts so as to be able to sell space services and enter commercial markets through space diplomacy rather than starting from scratch. One great example is the diplomatic and technological partnership with the United States who is considered a leader in commercial space allows the UAE to benefit from being in its ecosystem. The UAE maintains diplomatic partnership with the US which paved the road for MBRSC to have commercial launch agreements with SpaceX. Therefore, the latter was possible due to space diplomacy creating a friendly regulatory and political environment. This showcases that space diplomacy acts like an enabler for key commercial partnerships in space.

3.2 Achievements of UAE Space Diplomacy

3.2.1 Commercial Satellite Deployment

One evident achievement of the UAE's space diplomacy is the nation's commercial satellite deployment. For instance, space diplomacy facilitated the partnerships with launch providers, such as SpaceX, through which the UAE launched MBZ-SAT on SpaceX Falcon 9.^{xxxi} Thus, the UAE was able to deploy satellites quicker and more often through space diplomacy than by developing its own domestic rockets, which is considered the first critical step in achieving goals in space.

3.2.2 The UAE as a Provider of Earth Observation Data

Another accomplishment that the UAE's space diplomacy permitted is the development of Earth observation satellite capabilities. These satellites collect high-resolution imagery to support various urban, environmental, and disaster-related activities.^{xxxii} The UAE's space diplomacy facilitated the launch of MBZ-SAT which is an earth observation satellite.^{xxxiii} Therefore, with the launch of MBZ-SAT through space diplomacy and strategic partners, the UAE can now

generate Earth observation data and serve customers in the future. Finally, as MBZ-SAT is the most advanced Earth observation satellite in the region, the UAE is a regional leader in Earth observation data generation.^{xxxiv}

3.2.3 Growth of the Commercial Space Capabilities

Through space diplomacy, the UAE could gain knowledge and technology from advanced space actors. For instance, various tech-transfer partnerships helped the UAE gain knowledge that allowed Emirati engineers to domestically design and build satellites. For example, knowledge gained from the technology transfer program with South Korea helped the UAE build its satellites such as MBZ-SAT.^{xxxv} Therefore, the UAE could reduce its dependency on foreign suppliers through its space diplomacy, as with Khalifa-Sat and MBZ-SAT, which were domestically designed and built by Emirati engineers.^{xxxvi} Finally, by reducing dependency on others, the UAE can create new jobs in engineering, data services, and satellite operations that can support sustainable commercial growth by making space activities part of the national economy.

3.2.4 Confidence and Credibility in International Markets

Successful partnerships through space diplomacy can majorly enhance confidence and credibility globally, and this is certainly true of the UAE's strategic partnerships. For example, the SpaceX partnership showed the world that UAE satellites meet international commercial standards and are trustworthy ventures in commercial space, motivating new investors and space companies to cooperate with the UAE.

Altogether, space diplomacy allowed the UAE to become more active and effective in space commercialization. The UAE's strategic diplomatic partners accelerated its commercial development and allowed it to benefit from the gains of joining the commercial space and achieve goals through strategic space diplomacy: a faster and more reliable deployment of satellites, prestigious positioning, economic independence, and accelerated growth.

4. Analytical Overview

This section analyzes the UAE's efforts and achievements in space diplomacy in the space commercialization era. The first analytical insight is that the UAE employs space diplomacy as an enabling mechanism, a tool that supports commercialization rather than an objective. Therefore, space diplomacy and diplomatic engagement are critical tools for the UAE to gain launch access, secure technology transfer, and create key commercial

partnerships these diplomatic partnerships are thus a tool and not the end goal. This underscores that the success of the UAE space diplomacy can be seen and measured through tangible and practical outcomes rather than symbolic ones.

Another analytical insight is that the UAE's efforts in space diplomacy reflect a pragmatic approach to keep up with the current space commercialization trends and market realities. Therefore, the UAE understands the gains and commercial competitiveness of the space sector and adapts its diplomatic efforts to meet requirements, reduce costs, and ensure market entry through key partnerships rather than pursuing costly and time-consuming self-reliance in the fast-moving commercial space realm. Thus, such space diplomacy is adaptive and rational, accepting the realities of the current global market to reduce costs and accelerate the UAE entry into space. For example, the UAE's choice of SpaceX to launch MBZ-SAT exemplifies its strategic, market-oriented decision-making process.

The third analytical insight is the clear link between diplomacy and commercialization speed. Speed is advantageous in the era of commercial space, and space diplomacy helps the UAE maintain this speed. For example, the sooner a satellite is launched, the sooner it can become operational and generate data, provide its intended services, and showcase investment. Here, speed is not merely technical but also economic. The case of the UAE demonstrates that diplomatic cooperation can reduce time-to-launch and the political factors that limit commercial contracts and regulations, such as export controls and licensing approvals, by reducing political barriers and revealing states as trustworthy, responsible, and compliant with international law. Overall, the UAE's space diplomacy showcases its ability to reduce barriers to joining the commercial space trend.

Fourth, the case of the UAE makes clear that the success of space diplomacy depends on selective strategic partnerships. For instance, the UAE did not choose its partnerships randomly but rather strategically, focusing on technologically advanced states that were already established commercial space actors, such as the US, Korea, and Japan. This selectivity makes space diplomacy more effective and strategic and reduces dependency on a multiplicity of actors, which can waste time and effort. Moreover, this selectivity benefited the UAE by allowing it to gain a credible position in international markets, such as the Earth observation commercial market, through its partnership with SpaceX.

The fifth point in this analysis is how space diplomacy allows states to transition from access seekers to providers. For instance, through space

diplomacy the UAE went from seeking access for launches, training, and knowledge to positioning itself as a service provider.

Sixth, diplomacy itself does not generate revenue; rather, diplomatic partnerships help a nation gain international trust by showcasing responsibility, compliance with international law, and willingness to cooperate commercially with actors, which in turn enhances the effectiveness of space diplomacy, further supporting space commercialization ambitions.

Finally, despite effective space diplomacy, states operate within a broader system that no single state can ever fully control. For instance, dominant space powers and large private firms as well as international and global regulations shape market access, competition, and pricing—structural features embedded in the global space economy, rather than shortcomings in the UAE's diplomacy or policy. Awareness of these constraints allows states to recognize their limits vis-à-vis the realities of the global space economy and not view their policies as failures. These analytical insights can help the UAE identify future opportunities for space diplomacy and promote its space commercialization ambitions.

5. Recommendations

This following section suggests five main recommendations for the UAE to further their space commercialization goals and efforts in the future. Therefore, the section addresses the second research question: How can the UAE develop its space commercialization efforts in the future?

5.1 Shift from launch and knowledge-centric diplomacy to market-oriented diplomacy

The first recommendation is for the UAE to build upon its diplomatic efforts in space diplomacy and to further its new ambitions. The UAE has already secured launch access and technology sharing and transfer through strategic diplomatic partnerships, allowing it to undertake satellite deployment, build technical capacity, and gain knowledge. The UAE must now shift the focus of its diplomatic agreements from satellite launch and knowledge sharing to more diplomatic agreements on market access and long-term commercial service agreements.

5.2 Using Space Diplomacy to Ensure Sustained Commercial Demand

The UAE can focus on space diplomacy to promote data and services generated through its satellites such as Earth observation services within international organizations and regional institutions and by targeting customers.

The UAE can integrate its generated data for international monitoring practices to meet the needs of climate monitoring, disaster management, and urban planning. For instance, MBZ-SAT showcases how the UAE builds and launches satellites to generate Earth observation data, but for a satellite to become “commercial,” it must have stable demand, regular customers, and long-term service use. Therefore, the UAE should focus its diplomatic efforts on securing technology and launch partners and on stable, regular commercial demand for the data that the UAE satellites generate by long-term service users.

5.3 Strengthening the Role of the UAE in Shaping International Norms for Commercial Space Activities

The third recommendation is to gain long-term strategic advantages by participating in norm-setting discussions, regulatory dialogs, and discussions and dialogs related to the commercial space agenda, as by, for example, joining forums such as United Nations space governance discussions and multilateral space cooperation platforms. Therefore, the UAE could shape norms and rules for space commercialization, which can further reduce regulatory uncertainty and support and protect its commercial investments.

5.4 Institutionalize Commercial Space Diplomacy

The UAE would benefit more in the commercial space era by institutionalizing space diplomacy rather than by employing it as a strategic tool for specific projects and missions only. Therefore, instead of negotiating and conducting space diplomacy when a launch is needed or a satellite is ready, the UAE must move toward a systematic and continuous diplomatic-commercial system providing constant support to space commercialization by creating permanent coordination channels between space, diplomatic, economic, and commercial actors. Moreover, this would make space diplomacy more proactive, consistent, and commercially aware, rather than reactive and project based.

5.5 Maintain Strategic Diplomatic Relations while Expanding Commercial Partnerships

The UAE must recognize the relevance of commercial space partnerships and the criticality of maintaining key partnerships while expanding and exploring new partners, for the UAE must avoid dependency on any single foreign actor to ensure balance and avoid over-reliance on any single partner that can create long-term vulnerability. Therefore, the UAE must continually diversify its diplomatic partnerships in the commercial space era. Furthermore, flexibility and variety in its launch, data, and services agreements and partnerships are needed to avoid

dependence on a single country or company. This will protect the UAE's decision-making freedom in commercial space activities, protecting national interests. Finally, maintaining several strategic relationships rather than dependence on a few will allow the UAE to remain resilient in the competitive and politicized commercial space market.

5. Conclusion

Space diplomacy facilitates the entry, position, and achievement of goals of states in the commercial space era. The UAE is not different, as space diplomacy has helped the UAE achieve its commercial space goals in this era of space commercialization. First, diplomatic partnerships are not the end goal of space diplomacy but key tools to reach the actual goals of space commercialization ambitions. Maintaining diplomatic partnerships without achieving any space goals is not something that can advance one's position in the commercial space era. Thus, the UAE's strategic space diplomacy allowed it to reach its commercial space goals, such as access to launch services and technology partners. Second, the UAE's space diplomacy reflects a pragmatic approach to the reality of the global markets. Thus, the UAE chose specific partners that could deliver the speed, capabilities, and reliability that afforded the UAE faster entry into commercial space markets. Third, speed and time are relevant in the commercial space era and diplomacy can contribute to faster commercialization cycles.

Despite its lack of independent launch capabilities or manufacturing dominance, the UAE could strategically employ space diplomacy to position itself as a credible and capable actor in commercial space. Nevertheless, diplomacy has structural limits, as space diplomacy cannot control markets or competition and regulations. Therefore, constraints exist even with strategic diplomatic efforts.

The five recommendations presented herein build on the UAE's diplomatic strengths and intensify its efforts and position in the commercial space market. They suggest that efforts must be directed toward market-oriented diplomacy, ensuring sustainable demand, contributing to norms shaping, institutionalizing space diplomacy, and expanding the UAE's diplomatic partnerships. These recommendations would not entail abandoning current diplomatic efforts but strengthen them.

The UAE's efforts in space diplomacy offer a model for emerging space actors aiming to further their commercial space ambitions. This is critical because commercialization is reshaping the global space market. Diplomacy remains the key tool for navigating its perils as space becomes more commercial and

competitive. Moreover, space diplomacy can help states gain the launch capabilities and knowledge that would enhance their commercial space ambitions. The UAE's experience thus reflects how it can achieve its commercial space goals through strategic diplomacy that aligns with market logic.

References:

-
- ⁱ *National Space Policy of the United Arab Emirates* (2016) UAE Legislation <https://www.uaelegislation.gov.ae/en/policy/details/lsty-s-lotny-llfd-ldol-l-m-r-t-laarby-lmthd> accessed 17 November 2025.
- ⁱⁱ Ahmed Moustafa Aldabousi, 'Managing commercial space activities: Legal and regulatory challenges in the UAE's space sector' (2025) 23(2) *Problems and Perspectives in Management* 423, 423 <[https://doi.org/10.21511/ppm.23\(2\).2025.30](https://doi.org/10.21511/ppm.23(2).2025.30)> accessed 17 November 2025.
- ⁱⁱⁱ United Nations Office for Outer Space Affairs (UNOOSA), *UAE National Space Policy – Summary Presentation* (2016) https://www.unoosa.org/documents/pdf/copuos/2016/2016_UAE_National_Space_Policy_Presentation.pdf accessed 17 February 2025.
- ^{iv} UAE National Space Policy (n 1)
- ^v US–UAE Business Council, *The U.A.E.'s Growing Space Sector (Sector Update, Dec 2024)* (2024) https://usuaebusiness.org/wp-content/uploads/2024/12/SectorUpdate_SpaceSector_Web.pdf accessed 17 February 2025.
- ^{vi} UAE National SpacePolicy, https://cms.spacesecurityportal.org/uploads/UAE_National_Space_Policy_English_fecbbbc4bb.pdf accessed 17 February 2025.
- ^{vii} Ken Davidian, 'Operationalizing the definition of "Commercial Space"' (2022) 198 *Acta Astronautica* 541, 541 <https://doi.org/10.1016/j.actaastro.2022.06.04>
- ^{viii} Ibid
- ^{ix} Davidian (n 9) 541.
- ^x Ibid
- ^{xi} Davidian, (n 9) 542.
- ^{xii} Davidian (n 9) 541.
- ^{xiii} Norton Rose Fulbright, *The Commercialisation of Outer Space* (2021) 3–4 <https://www.nortonrosefulbright.com/-/media/files/nrf/nrfweb/knowledge-pdfs/the-commercialisation-of-outerspace.pdf?revision=&revision=4611686018427387904> accessed 27 November 2025.
- ^{xiv} Norton Rose Fulbright (n 15) 4.
- ^{xv} Renata Knittel Kommel, Ashley Peter, Mackenzie Puig-Hall and Luc Riesbeck, *Exploring Insights from Emerging Space Agencies* (CSIS Aerospace Security Project, 2nd edn, 2020) https://aerospace.csis.org/wp-content/uploads/2020/10/2020_GWU_ExploringInsights_FINAL_2nd-Edits-101920-compressed.pdf accessed 27 November 2025.
- ^{xvi} Santiago Rementeria, 'Power Dynamics in the Age of Space Commercialisation' (2022) 60 *Space Policy* 101472 <https://www.sciencedirect.com/science/article/abs/pii/S0265964621000643> accessed 27 November 2025.
- ^{xvii} NASA, 'Commercial Resupply Services Overview' (NASA) <https://www.nasa.gov/commercial-resupply-services-overview/> accessed 27 November 2025.
- ^{xviii} M. Polkowska, "Space diplomacy – future perspective", *Humanities and Social Sciences* (HSS), no. 101 (2020): 121-128.
- ^{xix} Polkowska, (n 21) 124.
- ^{xx} UAE & Russia, "Inter-governmental Agreement on Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes," signed 26 Oct. 2021, ratified by the State Duma Dec. 8 2022.

^{xxi} Committee on International Affairs of the State Duma, "The Committee on International Affairs recommended ratifying the intergovernmental agreements of Russia with India and the UAE in the field of peaceful space," 23 November 2022.

^{xxii} OECD, *Space Economy Investment Trends: OECD Insights for Attracting High-Quality Funding*, OECD Science, Technology and Industry Policy Papers No 166 (OECD Publishing 2024) 7; W Henry Lambright, 'Launching Commercial Space: NASA, Cargo, and Policy Innovation' (2015) 34 *Space Policy* 23.

^{xxiii} OECD, *Space Economy Investment Trends: OECD Insights for Attracting High-Quality Funding*, OECD Science, Technology and Industry Policy Papers No 166 (OECD Publishing 2024) 7

^{xxiv} Rementeria (n 16)

^{xxv} Ibid

^{xxvi} Mohammad Jassim Almheiri, "UAE-Japan Space Collaborations," Meiji University (2024).

^{xxvii} Government of Dubai Media Office, "Hamdan bin Mohammed approves MBZ-SAT for launch" (15 May 2024).

^{xxviii} Mohammed Bin Rashid Space Centre, "Satellites Programme," MBRSC, accessed November 30, 2025, <https://www.mbrsc.ae/satellites/>

^{xxix} Adnan Rais, Ali Alsuwaidi and Hosni Ghedira, 'DubaiSat-1: Mission Overview, Development Status and Future Applications' in *Proceedings of the IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2009)* (IEEE 2009) V-196 <https://doi.org/10.1109/IGARSS.2009.5417697>

^{xxx} Mohammed Bin Rashid Space Centre (MBRSC), 'MBRSC announces the successful launch of MBZ-SAT, the most advanced satellite in the region' (14 January 2025) <https://www.mbrsc.ae/mbrsc-announces-the-successful-launch-of-mbz-sat-the-most-advanced-satellite-in-the-region/> accessed 1 December 2025.

^{xxxi} Dubai Media Office, 'Most advanced satellite in the region, MBZ-SAT, all set for launch' (14 January 2025) <<https://mediaoffice.ae/en/news/2025/january/14-01/mbz-sat>> accessed 7 January 2026.

^{xxxii} European Space Agency (ESA), 'Monitoring Earth's surface' <https://www.esa.int/Enabling_Support/Preparing_for_the_Future/Discovery_and_Preparation/Monitoring_Earth_s_surface> accessed 7 January 2026.

^{xxxiii} Mohammed Bin Rashid Space Centre (n 30)

^{xxxiv} Ibid

^{xxxv} Rais, Alsuwaidi and Ghedira, DubaiSat-1, (n29)

^{xxxvi} Mohammed Bin Rashid Space Centre, 'KhalifaSat' <<https://www.mbrsc.ae/satellites/khalifasat>> accessed 7 January 2026;

Mohammed Bin Rashid Space Centre, 'MBZ-SAT' <<https://www.mbrsc.ae/satellites/mbz-sat>> accessed 7 January 2026.