

# UNOOSA STUDY GUIDE



**UNOOSA**

**Topic A: Colonizing Mars**

**Topic B: SPACE TOURISM & ORBITAL  
RESORTS**



## CHAIR LETTER

Dear delegates,

We, the chairs of the United Nations Office for Outer Space Affairs (UNOOSA), are thrilled to welcome you to AtidMUN IX! We hope you have a wonderful and memorable time.

In our committee, we will focus on two transformative topics: the colonization of Mars and the burgeoning field of space tourism. As humanity stands on the brink of a new era in space exploration, we must address the ethical, scientific, and logistical challenges these initiatives present.

The colonization of Mars represents not just a scientific endeavor, but a significant step for humanity in becoming a multi-planetary species. The potential benefits are nearly endless, and include significant economic and defense upsides as well as benefits regarding the survival of the human race. However, we must also consider the possible dangers of this endeavor, most notably due to the large role that corporations could play in it.

On the other hand, space tourism is rapidly evolving from a dream into reality, with private companies leading the charge. This new industry holds promise for economic growth and public interest in space exploration, but it also raises questions about accessibility, safety, and the environmental impact of increased space traffic. It is vital that we establish a framework to ensure that space tourism benefits all of humanity and does not exacerbate existing inequalities.

As delegates, you are entrusted with the critical task of formulating comprehensive strategies that address these pressing issues. Your solutions must balance innovation with ethical considerations, ensuring that both the colonization of Mars and space tourism contribute positively to society and the universe.

We have complete faith in you to find these solutions, and are, of course, available for any questions that you might have.

Looking forward to an inspiring conference!

See you soon!

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## INTRODUCTION TO THE COMMITTEE

The United Nations Office for Outer Space Affairs (UNOOSA) promotes and facilitates peaceful international cooperation in outer space. It was established in 1958, originally as a small expert unit to service the *ad hoc* committee on the peaceful uses of outer space, and today it is the main body dedicated to space affairs within the UN. The committee reports to the Fourth Committee of the General Assembly (SPECPOL).

UNOOSA does not have direct legislative powers; its primary function is to implement the decisions of the UN General Assembly and the UN Committee on the Peaceful Uses of Outer Space (COPUOS). UNOOSA supports countries in promoting national legislation aligned with international space law.

While simulating this committee, delegates will represent both countries and space agencies. Delegates representing space agencies or corporations will present the policies of their respective agencies and corporations, and are not obligated to align strictly with their countries' position. All delegates will have a vote in the committee – a simple majority is required for procedural votes (such as votes on motions), but a simple majority in both voting blocs (countries and space agencies) would be required for substantive votes (votes on amendments and draft resolutions). This means that for a resolution to pass, more than half of the countries *and* more than half of the corporations would need to vote in favor of it.

The committee follows standard AtidMUN Rules of Procedure, with the inclusion of a special motion, the "Space Agencies and Corporations Caucus". This motion leads to a split-room Unmoderated Caucus, in which the space agencies and corporations can discuss matters exclusively among themselves in the hallway, while the countries remain in the room and conduct their own unmoderated caucus (much like a P5 Caucus in the Security Council). Only space agencies and corporations may propose and vote on this motion, and it requires a simple majority from their voting bloc. For further clarifications, please refer to the official AtidMUN Rules of Procedure.



## TOPIC A - COLONIZING MARS

### *BACKGROUND TO THE ISSUE*

#### REASONS FOR OUTER SPACE COLONIZATION PROJECTS

Outer space colonization in general, and Mars colonization specifically, is not a new idea. Thoughts of humans living on other celestial bodies have long become a dream of societies on Earth and have been prevalent in many science-fiction writings throughout history. This dream is not just a child's fantasy without any realist implications, though, as there exist many reasons for why we should colonize outer space, and even more reasons to colonize Mars.

Mars' colonization is a promising source for major economic benefits to the parties colonizing it. Research shows that Mars is rich in valuable resources for everyday life and for the facilitation of outer space affairs. Metals such as gold, titanium, iron, nickel, and aluminum, are estimated to be more easily accessible on Mars than Earth. The same stands for other chemical compounds such as deuterium – used for nuclear fusion; oxygen and hydrogen – used for life support and rocket fuel; and natural gas – used for plastics and energy. It should be noted that Mars is still mostly unexplored, and that the assumed abundancy of these resources is only speculative.

Other than its use for resources, a Mars colony would be an apt fallback plan in case of a significant catastrophe on Earth. If calamities like nuclear wars, global pandemics, or environmental disasters should arise, the survival and longevity of the human race could depend on an off-world colony to act as the alternative Earth. Furthermore, possessing an outer space colony could provide a country with second-strike capabilities to aid it in times of war. Second-strike capabilities are deterrence measures based on the idea that an attacked country has the means to go on the offensive using an offshore source, like a submarine. On an interplanetary scale, a country with an off-world colony would deter any attacker because once attacked on Earth, the colony could retaliate, and the attacker would lack further means of response.

#### RELEVANT EXISTING REGULATIONS

The many reasons for outer space exploration and colonization have led to a need to develop a robust regulatory framework for it. These efforts came to a head in 1967, with the adoption of the *Outer Space Treaty* (formally the *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies*) by the General Assembly. This treaty is still regarded as the foundational legal document for outer space today, and it attempts to ensure free space research and exploration. Most importantly for us, it includes

provisions regulating freedom of movement in space, national appropriation of celestial bodies, military uses of space, and liability. These provisions place harsh limitations that render the very concept of space colonization difficult, if not outright unlawful.

Freedom of movement in space, as mandated in the treaty, appears to be very broad:

*"Outer space, including the moon and other celestial bodies, shall be **free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law, and there shall be free access to all areas of celestial bodies.**"* (Outer Space Treaty, Article I)

Notice that this freedom of movement clause does not include any limitations, in stark contrast to freedom of movement on earth, which includes limitations based on national borders. While this makes sense from a space exploration and research point of view, it provides complications when considered from a space colonization point of view, as it seems to disallow for borders to restrict movement between different space colonies.

However, this is not an internal inconsistency in the treaty, since it attempts to outlaw space colonization outright:

*"Outer space, including the moon and other celestial bodies, **is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.**"* (Outer Space Treaty, Article II)

This means that no country can legally assert ownership over outer space or any celestial bodies by any means, whether they formally declare control or ownership over a territory ("claim of sovereignty"), establish a presence or conduct activities in a certain area ("by means of use or occupation"), or any other means. The intention behind this provision is to promote the peaceful exploration and use of outer space for the benefit of all humanity, ensuring that it remains a shared domain rather than becoming a source of territorial conflict. Essentially, it prevents any single nation from monopolizing space resources or territory, encouraging international cooperation and the idea that space should be used for collective benefit rather than individual national gain.

A further limitation on the creation of space colonies regards the use of military in space:

*"States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying **nuclear weapons or any other kinds of weapons of mass destruction,***



*install such weapons on celestial bodies, or station such weapons in outer space in any other manner. The moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden."* (Outer Space Treaty, Article IV)

This outright outlawing of any form of military activity would make it nearly impossible to create a human colony outside of Earth, as every existing country currently has an army for defense purposes; it is difficult to conceive of a human settlement without one.

While these three provisions interest us due to the limitations that they place on colonization, the next provision interests us because of the implications that it has on the colonization efforts of non-state entities (such as corporations):

*"States Parties to the Treaty shall bear international responsibility for national activities in outer space... whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the present Treaty. The activities of non-governmental entities in outer space... shall require authorization and continuing supervision by the appropriate State Party to the Treaty."* (Outer Space Treaty, Article VI)

In short, countries – and not corporations – are the only ones that are held responsible for any damage that is caused by space activity, regardless if that activity was carried out by that state or by a corporation. This means that any corporation who wants to conduct any sort of space activity would need to do so under the willingness of a certain country (presumably, the country in which the corporation resides).

A number of further treaties and regulations were adopted in the following years, all on the basis of the *Outer Space Treaty*; of particular interest to us is the *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, which reverberates the peaceful and non-military nature of space exploration, and further states that resources in space cannot be claimed by a country, and that the extraction of these resources must be conducted under the auspices of an international regime:



*"Neither the surface nor the subsurface of the moon [or any other celestial body], nor any part thereof or natural resources in place, shall become property of any State, international intergovernmental or non-governmental organization, national organization or non-governmental entity or of any natural person... States Parties to this Agreement hereby undertake to **establish an international regime, including appropriate procedures, to govern the exploitation of the natural resources** of the moon [or any other celestial body] as such exploitation is about to become feasible"* (Moon Agreement, Article XXI)

## CURRENT SITUATION

### EXISTING COMMITMENTS FOR HUMAN MISSIONS TO MARS

Today, colonizing Mars is a destination shared by national space agencies and corporations worldwide. These stakeholders contribute different resources, expertise, and strategies toward advancing human missions to Mars. National space agencies play a vital role in advancing space exploration on behalf of their countries by representing national interests, scientific goals, and other capabilities.

That being said, there have been very few commitments for colonization missions to Mars. The only major commitments that have been made up to date were made by SpaceX through its CEO, Elon Musk, which has vowed to build a habitable city on Mars within the next 20 years.

Moreover, there are little to no statements of agencies who are planning to extract and exploit resources from Mars for the benefit of the Earth. However, many Agencies and countries have been participating in or plan to participate in ISRU (In-Situ Resource Utilization) to utilize Mars' resources at mission destinations or colonies. Examples include SpaceX – which is planning to use Martian resources to produce fuel, oxygen, and other necessities to sustain a colony – and NASA, which has created the MOXIE initiative (Mars Oxygen ISRU Experiment) where NASA extracted oxygen from the Martian atmosphere. And still, the MOXIE initiative is mostly used for research, and thus, isn't a classic example of resource exploitation.

This leaves exploration as the main area of interest today regarding Mars; unsurprisingly, most of the commitments by countries and corporations alike are related to exploration. These research programs mainly revolve around unmanned missions (e.g., via the usage of robots), while preparing for manned missions in the near future. NASA has announced the "Journey to Mars" initiative in which it is planning to send humans to Mars in the late 2030s, mostly for geologic and other research purposes. In 2013, the US government released a document detailing their





next steps in human exploration to Mars and beyond. This document created an attempt at preparing the US for a future manned mission to Mars, similar to the historic Apollo missions. The European Space Agency (ESA) wants to continue robotic exploration missions, in a similar fashion to the existing ExoMars program. Furthermore, the ESA and NASA are interested in Mars exploration missions that include bringing back material samples by sending research rovers as a part of the “Mars Sample Return Campaign”. The China National Space Administration (CNSA) is planning to launch the Tianwen-3 Mission around 2028, in which they will attempt to collect samples of Martian soil. Many other national and private space agencies, such as ISRO, Roscosmos, and JAXA, have made commitments for general exploration and research of Mars, with the most ambitious ones committing to manned missions in the next 20 years.

### PROBLEMS WITH CORPORATE COLONIZATION

The recent involvement of certain non-governmental corporations in the discussion of Mars' colonization (such as SpaceX) raises the possibility that a space colony would be established and governed by a private company. While this would have seemed to be unthinkable in years past, we should take note of the issues and problems that are related to the establishment of a privatized colony.

First, privately-owned (as well as publically-owned) corporations are for-profit corporations, meaning that they are primarily interested in increasing revenues, and more importantly, profits. This means that decisions that affect all residents of the colony would be made based on the on their overall impact on profit, and not on the effect that they have on the well-being of the residents. This is in sharp contrast to the way in which decisions are made in state governments: education, health care, social safety nets (such as unemployment pay or financial aid to struggling citizens), infrastructure, and defense and security are provided by the state in order to improve the well-being of its citizens, and not because they are likely to increase the profits of the state (while some of them might do so in the long run, most are not) – and so, they will probably be under-funded by the corporation which controls the colony.

Second, these corporations would have an increased incentive to exploit the resources of the celestial body, and not use it to enhance the living quality on the colony itself. Similarly to other major colonization projects (such as the European colonization of Africa in the 1800s), the corporation could mine the resources of the celestial body in order to sell them back on Earth, instead of using them for development projects in the colony. They could theoretically exploit their "citizens" for arduous labor – for instance, a company could offer a no-return ticket to Mars



and in their contract state that the citizen is obligated to work for the colony in mines or factories or serve the colony's military. These are not citizens, these are subjects.

This leads to the third and most problematic point, that these corporations would have the ability to control all aspects of government – from the legislative, through the judiciary, to the executive (including the police and the military). They would be able to make the rules, enforce the rules, and persecute anyone who opposes them. A privately-owned police force that can act at the will of the company is particularly harrowing. These issues all compound when we consider that the head-of-state of such a colony is likely to be the CEO of the corporation – an unelected official, with very broad powers invested in them – and that they are in Mars, millions of miles away from anybody who can help them. That one person has the ultimate right to decide what should be invested in and what should not, or which citizens pose a threat to the colony, should be of concern even to the most ardent supporters of corporation-lead colonies.

### CREATING A REGULATORY FRAMEWORK FOR THE COLONIZATION OF MARS

Thus, in order to usher-in the age of Mars' colonization, we have tasked you, the delegates, with solving these key issues. You must alter the current existing regulatory framework, fixing as many problems with it as you can. As we have seen, the existing regulatory framework comes up short on several topics, most notably regarding corporate colonization of Mars. The *Outer Space Treaty*, for instance, places limits only on state-colonization, and remains completely silent on corporate colonization. This means that it is up to you to create the guidelines for corporate colonization, whether to equate it to governmental colonization, place further limits on it, or to outright ban it.

Furthermore, changes to the existing regulatory framework must be made if you wish to allow for the establishment of borders between colonies, and for the establishment of military and/or other armed forces. Certain regulations on the right to become a citizen of a colony (e.g., whether you must pay for the right to become a citizen of a colony, whether certain people may be refused entry to Mars due to health risks/criminal background) would also have to be put in place.

Very few have had the opportunity to change the future; even fewer have had the luxury to change the fortune of the entire human race. Take this chance with both hands – the entire human race depends on you.

May luck forever be in your favor.

### *QUESTIONS TO CONSIDER*

1. Are you representing a country/government agency or a for-profit corporation?

2. What is the end-goal of Mars' colonization for you country/corporation?
3. Is your end-goal substantially different from corporations in your country/your country of origin?
4. What is your stance on corporate colonization?
5. What should be the main areas of discussion in the committee?
6. What are the most important articles to change in the *Outer Space Treaty*?

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## TOPIC B – SPACE TOURISM & ORBITAL RESORTS

### *BACKGROUND TO THE ISSUE*

#### INTRODUCTION TO SPACE TOURISM

Space Tourism is defined as the activity of sending private individuals, referred to often times as space tourists, into space for leisure, recreational, or adventure purposes. Unlike traditional space missions organized by government agencies, space tourism is usually conducted by private corporations, offering experiences such as suborbital flights, orbital trips, or even stays on space stations. Participants of space tourism may experience the unique opportunity to view Earth from space while exploring a section of the universe that remains a partial mystery to our civilization. Space tourism represents a new frontier in travel, combining advanced space technology with consumer demand for distinctive and extreme experiences.

There are two main types of space tourism – suborbital and orbital space travel. Suborbital travel is the act of a spacecraft entering the edge of space where passengers can experience weightlessness for a short amount of time without orbiting the earth. On the other hand, orbital travel is a spaceflight where a spacecraft orbits the earth allowing passengers to view the earth from afar

There has been growing interest in space tourism, as it appeals to tourists and individuals for recreational, leisure, or business purposes. Moreover, space tourism provides tourists with the opportunity to become 'astronauts' for a short while, without undertaking the responsibilities and arduous training of astronauts. Additionally, space tourism as of today is a highly luxurious notion available only to a limited crowd due to its high costs. The development of space tourism also increases its appeal to corporations and governments, as it offers them a chance to increase their revenues since it is poised to become a significant and transformative sector within the global travel industry, promising new jobs, economic growth and a new branch of commercialization.

Orbital Resorts provide the pinnacle of space tourism. This is a branch of space tourism that offers passengers a more permanent stay in outer space while also providing them with a unique opportunity to witness extraordinary views of the Earth from orbit. These resorts represent a new frontier of luxury travel with a combination of exclusivity and extraordinary views. The Orbital Assembly Corporation is currently developing the very first orbital resort, announced as a 'space-based business park' set to open in 2025 named the Pioneer Station. Orbital Assembly has

also announced another orbital resort called the Voyager Station which is set to welcome guests by the end of the decade.

## EVOLUTION OF SPACE TOURISM

### *The Cold War and the Space Race*

The Cold War marked a major moment in the development of space exploration and tourism through the competition of the two rivals: the USSR & the USA to achieve supremacy in a few different fields including space exploration. The competition between the two world powers regarding space exploration and development was called the “Space Race”. The Space Race grew out of the Cold War which started right after the end of World War II for a half-century, the two superpowers competed to be the first nation to put a man in space and therefore prove their intellectual and technological superiority. The competition began with the race to launch satellites into outer space (Sputnik 1), continued with the race to send the first human into space (Yuri Gagarin), and ended when the United States was able to send the first man to the moon with the flight of Apollo 11 in July 1969 and is considered as the conclusion of the Space Race.

### *Technological Advancements Enabling Space Tourism*

Several technological advancements enabled the growth and feasibility of space tourism:

Reusable Rockets: Companies like SpaceX and Blue Origin have developed reusable rocket technology, significantly reducing the cost of accessing space. SpaceX’s Falcon 9 and Falcon Heavy rockets and Blue Origin’s New Shepard are prime examples.

Private Spacecraft: The development of private spacecraft designed for tourism is crucial. SpaceX’s Crew Dragon, Blue Origin’s New Shepard, and Virgin Galactic’s SpaceShipTwo are designed for suborbital and orbital flights.

Advanced Propulsion Systems: Innovations in propulsion, such as more efficient rocket engines and potential future technologies like ion propulsion, improve the feasibility and efficiency of space travel.

Life Support Systems: Improvements in life support systems, including oxygen generation, waste management, and radiation protection, are essential for ensuring safety and comfort for tourists.

Miniaturization of Technology: Smaller and more efficient technology, including communication and navigation systems, reduces the size and weight of spacecraft components, making them more cost-effective.



Materials and Engineering: Advances in materials science and engineering contribute to stronger, lighter, and more heat-resistant spacecraft, improving safety and performance.

### *UN Past Decisions and Stance on Topic*

During the United Nations General Assembly on September 21st, 2021, the secretary general criticized the growing advancements of space tourism during his speech, and said that “billionaires joyriding to space” is one of the reasons for the mistrust towards governments. When it comes to International Space law, the Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space (1963) states that “No one nation may claim ownership of outer space or any celestial body. Activities carried out in space must abide by the international law and the nations undergoing these said activities must accept responsibility for the governmental or non-governmental agency involved”. However, when it comes to Space Tourism specifically, there are no specific regulations that preclude outer space from international law as of today.

### *Milestones in Space Tourism History*

Sputnik (October 4<sup>th</sup>, 1957): Sputnik was the very first artificial earth satellite to go into space, marking a massive milestone in the evolution of space tourism and space exploration as a whole.

Yuri Gagarin (April 12<sup>th</sup>, 1961): Although not space tourism, Yuri Gagarin's journey was a crucial step toward human space travel, setting the stage for future commercial endeavours.

Dennis Tito (April 30<sup>th</sup>, 2001): Dennis Tito is the first ever space tourist, travelling space was the culmination of a dream he had since he was a young man. He paid around 20 million dollars in order to achieve his dream, to fly to the International Space Station (ISS) aboard a Russian Soyuz spacecraft.

SpaceShipOne's Suborbital Flight (June 2004): After winning the Ansari X Prize, Burt Rutan's SpaceShipOne became the first privately funded spaceship to enter space. This experimental accomplishment proved that private businesses could create spacecraft.

The Dragon 1 capsule from SpaceX (2010): The Dragon 1 capsule was the first variant of spacecraft developed by the private company SpaceX. It became the first commercial spaceship to fly to the International Space Station, which was a major milestone in the commercialization of space travel.



Blue Origin's New Shepard spacecraft (2015): Blue Origin's New Shepard was the first fully reusable suborbital launch vehicle intended for suborbital space tourism to launch into space. This was a significant turning point in the creation of reusable spacecraft, and furthermore marked the advancement of private space tourism and exploration.

Blue Origin's First Crewed Flight (2021): In 2021, Jeff Bezos, his brother Mark, and two other people embarked on Blue Origin's first crewed spaceflight. The first space tourism flights began with this.

Inspiration4 mission (2021): The first instance of all-civilian spaceflight. The team demonstrated the viability of private space missions for non-professional astronauts during their three days in orbit above the Earth.

SpaceX's Starship Prototype Tests (2023): The company is currently testing the Starship, a fully reusable spacecraft that might be used for deep space travel as well as possible Moon and Mars visits in the close future.

### BENEFITS AND CHALLENGES OF SPACE TOURISM

Space Tourism offers incredible opportunities for economic growth. Firstly, the space tourism industry opens job opportunities in engineering, hospitality, manufacturing, research and many more areas that may come as space tourism develops. Secondly, space tourism opens new markets for luxury travel, research, and space-related experiences, stimulating economic activity and opening an entire new market for new crowds and economic growth.

Additionally, space tourism encourages technological advancements by encouraging innovation in areas like materials science, propulsion, and life support systems, which can have broader applications on Earth once explored in outer space. Moreover, advancements in reusable rockets and spacecraft could lower costs for other space activities, including satellite deployment and deep-space exploration, which are needed for establishing space tourism. Scientists can also leverage space tourism to conduct experiments in microgravity, contributing to our understanding of physics, biology, and materials science. Furthermore, space tourism can increase public interests in space inspiring future generations of scientists while also promoting STEM education through the excitement surrounding space tourism and orbital travel.

Lastly, space tourism calls for implementing international law, which could potentially foster stronger international relationships, collaborations and partnerships.

On the other hand, space tourism has many downsides and challenges. The most obvious issue with space tourism is the high prices limiting it to a very small crowd of wealthy individuals and organizations. Furthermore, this exclusive nature of space tourism may cause economic inequality, as only the rich can afford to participate initially causing more damage than benefit.

Another risk is safety; there can be many potential problems for individuals travelling to outer space, mainly, the exposure to microgravity, radiation and stress may pose health problems to tourists. Technical failures mark yet another risk in space travel, including potential failures in spacecraft systems, which could lead to accidents and fatalities.

Space travel also produces significant carbon emissions and other pollutants, contributing to environmental degradation. Along with pollution, increased space activity raises the risk of generating space debris, which can pose hazards to satellites, space stations, and other spacecraft in the orbit.

## *CURRENT SITUATION*

### LEADING COMPANIES AND THEIR OFFERINGS

SpaceX: SpaceX was Established in 2002 by Elon Musk, SpaceX has significantly transformed the space industry through its groundbreaking developments. It is known for its Falcon and Starship rockets, which aim to reduce the cost of space travel and make it more sustainable. SpaceX plays a key role in transporting astronauts to the International Space Station (ISS) and is actively pursuing plans for future missions to Mars and therefore expanding space travel.

Blue Origin: Blue Origin was founded by Jeff Bezos in 2000, it is focused on creating reusable rocket technology in order to make space travel more accessible and cost-effective. Blue Origin's long-term vision includes enabling a human presence on the Moon and beyond, through space tourism and travel.

Virgin Galactic: Virgin Galactic was launched by Sir Richard Branson in 2004, Virgin Galactic is a pioneer in space tourism, offering suborbital flights that allow passengers to experience space travel privately. The SpaceShipTwo created by Virgin Galactic was created for these missions, marking a major milestone in the commercialization of space travel.

Axiom Space: Axiom Space was founded in 2016 by Michael Suffredini, a former International Space Station program manager. The company is dedicated to creating the first commercial space station in the world. This station is aimed to serve as a place for research, manufacturing, and



space tourism. Axiom additionally works in managing private missions to the ISS, allowing individuals to live and work in space.

Sierra Space: Sierra Space, founded in 2021 by Eren and Faith Ozmen develops commercial space technology, including the Dream Chaser spaceplane, which is designed to transport cargo to the ISS. The company's broader vision is said to be the creation of a comprehensive space ecosystem which aims to support long-term missions with habitats, transportation, and infrastructure.

Space Adventures: Space Adventures, which was established in 1998, is a private space tourism company offering experiences such as trips to the ISS and even "spacewalks". The company has successfully sent private citizens to space by partnering with organizations like Roscosmos, and it aims to continue to expand the possibilities in the space tourism industry and further develop it.

### FUTURE PROSPECTS

In the near future, it is expected that suborbital tourism along with orbital tourism will see an expansion through increased accessibility, frequent flights and diverse experiences. As companies like Virgin Galactic and Blue Origin scale operations, ticket prices are expected to gradually decrease, making suborbital flights more accessible to a broader audience. To add on to that, the development of reusable vehicles, the frequency of suborbital flights are more likely to increase, allowing more people to experience space travel.

When it comes to Orbital Tourism, the development of commercial space stations from companies like Axiom Station and Orbital Reef, it is expected that they will provide destinations for orbital tourists, offering longer stays and more comfortable accommodations in space. Moreover, more companies are likely to enter the orbital tourism market, driving innovation and potentially lowering costs.

In addition to the existing space tourism developments, more and more companies are starting to consider lunar tourism along with Mars and deep space travel. Companies like SpaceX are planning missions that will take tourists around the Moon and will eventually land them on the lunar surface. These missions could offer the ultimate space tourism experience, with extended views of Earth from the Moon and the possibility of walking on the lunar surface along with the luxury and experience of space travel. Additionally, as research develops the option of Mars missions increasingly becomes more realistic and companies aim to eventually carry tourists to Mars. Future space tourism may also include visits to asteroids, space stations in deep space, or even interplanetary travel as propulsion and life support technologies advance.

As mentioned before, the lack of international framework and laws when it comes to space tourism is extremely noticeable; due to this, it is probable that governments and international bodies will attempt to develop more comprehensive regulations to ensure the safety, security, and sustainability of space tourism, balancing commercial interests with the preservation of space as a shared resource. This may also include creating more specific laws for space tourism and even expand the crowd for space tourists, making it more accessible and common. Lastly, all of these prospects will be impossible without increased research and technological advancements. In order to make space tourism more accessible, future spacecraft will likely be more comfortable, safer, and efficient, with advanced life support systems, better radiation protection, and improved reusability. Furthermore, with the health risks related to long-term space travel, researching and implementing artificial gravity and other basic changes in the infrastructure of space vehicles could hopefully enhance the comfort and health of space tourists, and might even make space the ideal holiday destination of tomorrow.

### *QUESTIONS TO CONSIDER*

1. What is your country's stance on space tourism?
2. Has your country developed in the advancements of space equipment\ research?
3. Does your country's government have policies regarding private companies' ventures to space?
4. Are there any prominent space tourism cooperations in your country?
5. Is your country interested in advancing its space tourism and space exploration?

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