II TECMUN
en línea

Committee on the Peaceful Uses of Outer Space

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Session Schedule

Jueves 15 de abril	
Ceremonia de Inauguración	8:00 – 9:00 h
Receso	9:00 – 9:30 h.
Primera Sesión	9:30 – 11:00 h.
Receso	11:00 – 11:30 h.
Segunda Sesión	11:30 – 13:00 h.
Comida	13:00 – 14:00 h.
Tercera Sesión	14:00 – 15:30 h.
Receso	15:30 - 16:00 h.
Cuarta Sesión	16:00 - 18:00 h.
Viernes 16 de abril	
Quinta Sesión	8:00 – 9:30 h.
Receso	9:30 – 10:00 h.
Sexta Sesión	10:00 – 12:00 h.
Receso	12:00 – 12:30 h.
Séptima Sesión	12:30 – 14:30 h.
Comida	14:30 – 15:30 h.
Octava Sesión	15:30 – 17:30 h.
Receso	17:30 - 18:00 h.
Ceremonia de Clausura	18:00 - 19:00 h.

Secretary General: Nuria Vidal Castillo

GENERAL ASSEMBLY

Subsecretary General: Aiko Valeria Aguilar Jiménez

Reunión de Alto Nivel para la Asamblea General

President: Vanessa Arroyo Jerez

A) Estrategias para contrarrestar la expansión territorial del Ejército de Liberación Nacional en la República Bolivariana de Venezuela
B) Medidas para poner un fin al bloqueo económico, comercial y financiero impuesto por los Estados Unidos de América a la República de Cuba

Asamblea de las Naciones Unidas para el Medio Ambiente

President: Daniela Mejía Salgado

A) Estrategias para contrarrestar la pérdida de biodiversidad a causa del tráfico ilegal de especies con énfasis en el Sudeste Asiático
B) Medidas para reducir y revertir la desertificación y la degradación de las tierras en América Latina y el Caribe

Sexta Comisión Jurídica de la Asamblea General

President: Samaria Sánchez Ramírez

A) Derechos de los pueblos indígenas en la Unión Europea: cuestión territorial y la propiedad de la tierra
B) Medidas para prevenir violaciones al derecho internacional en respuesta a la anexión ilegal de Crimea y las intervenciones militares rusas sobre el Estrecho de Kerch y el Mar de Azov

Alto Comisionado de las Naciones Unidas para los Refugiados

President: Rebeca Ávila Delgado

A) Medidas para hacer frente a las migraciones masivas de Centroamérica a los Estados Unidos Mexicanos y a los Estados Unidos de América
B) Medidas para hacer frente al desplazamiento masivo de Yemén como resultado de la crisis humanitaria

United Nations Committee on the Peaceful Uses of Outer Space

President: José Mateo González Almanza

A) Continued threat posed by falling space debris from developing space programs and further action to prevent civilian danger
B) Elimination of the digital divide between developed and developing countries regarding internet access through the use of satellite constellations, focusing on Latin America and the Caribbean

Banco Mundial

President: Elías Dávila Martínez

A) Estrategias para evitar repercusiones económicas dentro de la economía venezolana a causa de la implementación de su criptomoneda: El Petro
B) Estrategias para la reconstrucción económica en Latinoamérica tras el cierre económico a causa de la pandemia de COVID-19, enfocado en la República de Argentina y la República de Brasil

Historical Trusteeship Council

President: Andrea Michelle Martínez Lozano

A) Strategies to avoid the conflict between Argentina and the United Kingdom caused by the sovereignty of the territory of the Falkland Islands (1982)
B) Division and territorial changes after World War II, focusing on Europe and Africa (1945)

ECONOMIC AND SOCIAL COUNCIL

Subsecretary General: Armando Daniel Navarro Sánchez

Fondo de las Naciones Unidas para la Infancia

President: Manuel Alejandro Rosales Portillo

A) Medidas para prevenir el involucramiento de infantes con el crimen organizado en América Latina y el Caribe
B) Acciones para garantizar la protección y el bienestar de niños huérfanos de madres y padres víctimas de homicidio y feminicidio con enfoque en América Latina y el Caribe

Entidad de las Naciones Unidas para la Igualdad de Género y el Empoderamiento de las Mujeres

President: Paola González Zapata

A) Estrategias para combatir la menstruación como un obstáculo para el desarrollo integral de niñas y adolescentes en las zonas rurales de Sudamérica

B) Medidas para erradicar las violaciones a los derechos humanos de trabajadoras domésticas en Asia y el Pacífico

United Nations Interregional Crime and Justice Research Institute

President: Germán Osvaldo Núñez Benítez

A) Measures to counter the use of children by extremist groups in the Republic of Iraq and the Syrian Arab Republic, focused on protection, and rehabilitation, and the standard-setting of procedures to protect victims
B) Measures to combat the distribution of child pornography in the Republic of India, focused on the enhancement of standards for the investigation of producers, distributors, and possessors of illicit electronic material

Organization for the Prohibition of Chemical Weapons

President: María Fernanda Anaya López

A) Measures to eliminate and prevent the spread of Novichok agents in the European Union
B) Strategies to develop arrangements for the fulfillment of the Chemical Weapons Convention in countries with recent breaches with emphasis in the Syrian Arab Republic

Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura

President: Mariana Cortés Gallardo

A) Estrategias para recuperar las industrias culturales y creativas afectadas por la pandemia de COVID-19 en Europa
B) Medidas contra las afectaciones sociales provocadas por la falta de inversión en el desarrollo científico y de nuevas tecnologías en América Latina

Conseil de l'Europe

President:Lianny Hernández Pérez

A) La menace de la traite des êtres humains et l'évolution des mesures de lutte contre ce phénomène en la Roumanie, la République de Bulgarie et au le Royaume d'Espagne
B) Élaboration de propositions pour l'éradication des "zones libres de toute idéologie LGBT" en la République de Pologne et la prévention de la propagation de ces pratiques à d'autres pays européens

SPECIALIZED AGENCIES AND REGIONAL ORGANIZATIONS

Subsecretary General: Montserrat Olivas Ramos

United Nations Human Rights Council

President: María Fernanda Casillas Monrroy

A) Preventive mechanisms towards the enforced disappearance of Nigerian citizens caused by the extremist group Boko-Haram
B) Measures to prevent discrimination against Muslims under the new policy of the Indian Citizenship Amendment Bill

League of Arab States
President: Sofía Victoria Solís Uribe

A) Measures to ensure State and territorial protection to the State of Palestine to combat the humanitarian crisis as a result of extremists attacks by the Israeli army with special emphasis on violent military interventions in West Bank and the Strip of Gaza
B) Strategies for the Arab League to reinforce the partnership to help promote and support the flourishing of democracy of the the Republic of Tunisia and the State of Libya's governments

Comité Internacional de la Cruz Roja
President: Javier Márquez Saucedo

A) Medidas para mejorar la calidad de vida de los desplazados y prisioneros de guerra en Sudán del Sur a causa de la reciente crisis humanitaria del conflicto entre las etnias Dinka y Nuer con énfasis en la reconstrucción de lazos familiares y sociales
B) Medidas para extender el impacto de la metodología "Acceso Más Seguro" en territorio brasileño, con enfoque en las medidas ISO 31000

Security Council
President: Alejandra Bañuelos González

A) Strategies to address the violence and insecurity in the Central African Republic, focused on rebel coalitions' attacks towards the government and the possible restoration of State authority
B) Measures to prevent current Ethiopia's Tigray conflict from becoming a threat to international peace and security

Corte Interamericana de Derechos Humanos
President: Fernanda Valentina Martínez Reyes

A) Masacre de la Aldea Los Josefinos vs. República de Guatemala (2019)
B) Mujeres Víctimas de Tortura Sexual en Atenco vs. Estados Unidos Mexicanos (2016)

International Court of Justice
President: Carolina Elizabeth Vásquez Regalado

A) Opposition on territorial claims under the Exclusive Economic Zone and Continental Shelf Act (Vietnam, Philippines, Malaysia, Indonesia, and Brunei v. People's Republic of China)

B) Application of the International Convention for the Suppression of the Financing of Terrorism and of the International Convention on the Elimination of All Forms of Racial Discrimination (Ukraine v. Russian Federation)

"Vision without action is just a dream, action without vision just passes the time, and vision with action can change the world".

-Joel Arthur Barker.

Participante,

En nuestras manos está el destino de la humanidad, es cierto. Suena como una tarea grande, pero no lo es para el gran grupo de jóvenes que somos. Te darás cuenta de eso en estos tres días. El cambio nunca se logra gracias a un individuo, se necesita a un colectivo con individuos con distintos talentos, oportunidades y capacidades inspiradxs por hacer un cambio real, y eso es lo que somos: personas inspiradas por otras personas motivadas a realizar cambios en el mundo. Lo único que te quiero pedir en este modelo es que esa chispa no se quede en este foro y en estos tres días; te pido que no acabe en un premio, un diploma, o una experiencia. Te pido que salgas y hagas un cambio por ti y por todxs nosotrxs.

Esta no va a ser una carta positiva, ni una carta que te diga que todo estará bien y que des lo mejor de ti, porque eso ya lo deberías de saber. Lo que quiero que saques de este texto es un incentivo para cambiar las cosas, porque el mundo está muy mal. Tan solo ponte a leer algunos de los tópicos que existen en este modelo y trata de abrir tu mente y ser empáticx con las personas que están pasando por esas situaciones tan complicadas. Ahora pregúntate ¿Qué querría que hicieran por mi si estuviera en sus zapatos? ¿Ya? Muy bien, aplícalo. Aplícalo dentro y fuera del Modelo, predica con el ejemplo. Sé extraordinario. Cambia el mundo y ve un paso más allá.

Deja de postergar las cosas, de ver todo tan lejano. Mientras tú lloras y piensas acostadx en tu cama que el mundo está muriendo y que nadie está haciendo nada para detenerlo, hay gente haciendo vacunas, campañas, limpiando las calles y los océanos, haciendo máquinas de energía renovable o bañándose en menos de 5 minutos. Levántate y haz algo, no esperes resultados distintos si sigues haciendo las cosas exactamente igual todos los días. Este modelo representa una mínima parte de tu potencial, úsalo como una prueba contra ti mismo, supérate aquí y ahora. Finalmente, participante, te pido que nunca te conformes, que nunca dejes de tomar pasitos hacia hacer un mejor tú, un mejor nosotros. Y gracias, porque tú que estas leyendo esto, aunque aún no tenga el placer de conocerte en persona, ya cambiaste mi vida.

Nuria Vidal Castillo
Secretary General for the
II TECMUN en línea

"Por la anécdota"

Franco Javier López Escamilla

Esta frase, únicamente cuenta con tres palabras, pero estoy más que segura, que para muchas de nosotras nos ha ayudado a arriesgarnos.

Recuerdo mi primer modelo de naciones como si fuera ayer. Aunque suene sorprendente, no fue en TECMUN, si no en un modelo de mi secundaria, donde me di cuenta, que las palabras aunque suenen muy triviales, son el arma más poderosa que el ser humano tenga. Pero, desde ese entonces, no hay modelo que no recuerde con risas, lágrimas, o estrés. Recuerdo perfectamente donde conocí a una Siria, que por primera vez me explicó qué era exhortar, hasta mi primer modelo en donde hable hasta quedarme sin aire, sin respuestas, sin nada, pero hablé; hasta un modelo, dónde me disfrace de dinosaurio para hacer que la experiencia fuera diferente. Cada uno de ellos, está en mi corazón, porque gracias a ellos he aprendido a ver las cosas desde una perspectiva diferente. Me he dado cuenta de mi privilegio, pero también de los riesgos que corro ante diferentes situaciones; me he dado cuenta de mis virtudes, pero también de mis defectos. Fue hasta prepa que después de todo mi esfuerzo, después de seis o más modelos con estrés y lágrimas, era momento de disfrutarlo.

Me metí a TECMUN por nada más y nada menos que por la anécdota. Sí, así como lo estás leyendo, por la anécdota. ¿Me arrepiento de haberlo hecho? No, absolutamente no. A TECMUN todo mundo lo define como una familia, chiquita, *alternachida*, pero familia. ¿Cómo lo describiría yo? La mejor experiencia que te puede pasar, tanto presencial como remota. Agradezco el haberme metido a ese link que un día mandaron al grupo de mi generación y llenar el formulario, para que días después me hablaran que había entrado al Comité Contra Terrorismo. Desde ese día, he disfrutado a mi máximo cada modelo, cada junta.

Estoy de acuerdo en que en un modelo de naciones unidas, lo principal que se busca es salir de tu zona comfort e impulsarte a ser mejor cada día. Pero por más hojas de resolución, de trabajo, por más argumentos a favor y en contra, eso no es lo que recuerdas; lo que recuerdas es cuando a cierto delegado se le haya caído la botella, cuando la mesa se haya equivocado al moderar o se le haya salido un gallo, inclusive recuerdas más las comidas que tuviste en tus recesos, que todas y cada una de tus soluciones. Estoy de acuerdo, que participes en este tipo de eventos, ya sea por curriculum, por volarte clase, por puntos extras, o por la escuela. Pero, mi consejo aquí es que lo disfrutes a más no poder, lo disfrutes con cada parte de ti, porqua nunca se va a repetir tu primer, segundo, tercero, cuarto o quinto; inclusive tu último TECMUN.

Gracias TECMUN por haberme recibido con los brazos abiertos, gracias por haber formado parte de mi vida y haberme sacado sonrisas cuando más lo necesitaba. Hoy me retiro feliz, contenta y satisfecha de haber aprendido de cada modelo por el que pasé, pero más importante, de haberlos disfrutado. Gracias a todas.

Subsecretary Aiko Valeria Aguilar Jiménez

Subsecretary General for the General Assembly

II TECMUN en línea

Welcome delegates to this the second TECMUN online. The pandemic has ravaged the landscape and stripped us all of the life we knew. It is our time to make a change and prevail in a new way of life. If you are reading this, you are already a step ahead of the rest. It takes guts to stand in front of complete strangers and debate for three straight days about topics that may not seem to be easily solvable. Many will never even try to think of solutions, let alone dedicate night and day to build a network to solve them. The world is a strange place, one full of mystery and deceit. Life may never be the same after this, but at least you can say you tried to solve issues that are bigger than yourself.

Life should be about enjoying and having fun. Passion is the main fuel our spirit uses to make ourselves feel alive. Be passionate, be kind, be the person that stands out because of who they are, but most importantly, be yourself. In this age of uncertainty, on the eve of one of the darkest times in the modern era, people such as yourself stand up and try to make a difference. The youth is the force of change and willingness. Science is not as stable nor a fixed proposition by the people in power. Science is an art, an inquiry, the limit of our ability to understand. There is nothing on this earth that has not been improved by science. In these trying times, knowledge and information can shield people from deceit and mystery. It can help power the judgment of the youth and the old, help the world become a better place through all of us. So help yourself, help others. Be an advocate for change and information, for knowledge and wisdom. But most importantly, never stop having fun and enjoying life to the fullest.

President José Mateo González Almanza

President for the Committee of the Peaceful Uses of Outer Space

II TECMUN en línea

Committee on the Peaceful Uses of Outer Space Background

The Committee on the Peaceful Uses on Outer Space (COPUOS) was created in 1959 by the General Assembly. It has grown since its foundation and now counts with 95 Member States. The Committee is tasked to govern the exploration and the uses of space for the benefit of all humanity. It is the only committee of the General Assembly that deals with international cooperation in the peaceful uses of outer space. It serves as a forum to monitor and discuss developments related to space.

Faculties

The regulatory framework of the committee encourages delegates to utilize and enjoy these faculties to their full extent. The committee is tasked with ensuring and creating legislation towards the common usability and fairness of outer space.

- Reviewing the peaceful uses of outer space.
- Studying space-related activities.
- Studying legal problems that arise because of outer space exploration.
- Encouraging space research programs.
- Suggesting modifications to international space law.

Topic A

Continued threat posed by falling space debris from developing space programs and further action to prevent civilian danger.

By: Kenya Damaris Ruiz Arellano
José Antonio Salazar Garibay
José Mateo González Almanza

Introduction

The historical development of rockets stems from the closely related intercontinental ballistic missiles, which for many years were the main means of striking a target from afar[1]. These vehicles have evolved allowing humanity to reach beyond our blue planet. Thanks to these advances, international cooperation has flourished and the possibility of an interconnected world has arisen. The current machines that can complete trips to orbit are controlled by a very small group of nations, and there are only 26 with plans or active vehicles.

Since the beginning of spaceflight, there have been physical limitations to the thrust and mobility capabilities of the vehicles. As their reliability cannot be compromised, these take their protocols to the limit. With ground vehicles, the main problems that have been encountered may not always result in fatal injury, due to the nature of the movement and the speed. With flying or space fairing devices, the speed required to lift a body or the acceleration and force needed to overcome gravity pose a great risk to those who board the ships. This further reinforces the need for reliable aerial transport and the protection of the crew, but most importantly those who are only bystanders[2].

There are dedicated agencies and organisms to ensure reliable safety standards for the aviation and space industry. Out of these, measures have been taken in order to provide a strict regulatory framework. The main problem with these is that they mostly only apply to private companies and international law is mostly non-coercive[3]. When states embark on the scientific and engineering task of developing machinery, some turn to private companies. Out of these, some may be state-owned and thus not required to provide and abide by regulatory organs.

Due to the gravitational and strategic need of launching a spacecraft, most air bases from which they part are located near the equator and near the sea or barren land. Some

[1] **Afar:** as seen from a great distance (Oxford Dictionary, n.d.).
[2] **Bystander:** one who is not taking part but stands present to a situation or event (Oxford Dictionary, n.d.).
[3] **Non-coercive:** not using threats or force to achieve compliance (Oxford Dictionary, n.d).

agencies have opted for the latter as their massive extents of land provide a clean space to dispose of any potentially dangerous materials. Most bases are located near water as it is the easiest way of safely disposing of rockets. The Chinese government built several bases ignoring these accommodations. With this, their rocket parts have fallen near human settlements endangering the lives of many civilians. As the technological age progresses and more nations are open to developing space programs, there needs to be a regulatory framework that establishes the safety of all people based on the ground.

History of artificial satellites and disused rockets in orbit

Since the United States of America sent the first Vanguardin in 1958, different nations are still sending different artificial satellites and space missions, which are provoking space debris accumulation. Three years later, in 1961, the American army implemented the communications experiment that implemented sending millions of copper needles, nowadays those candles are still in orbit. Also, different nations, like the Russian Federation, sent a lot of artificial spy satellites. Most, if not all rocket stages are disposed of in specific orbits or thrown back to earth. These control burns serve to passivate and dispose of the vehicle. For the few that survive re-entry to earth's atmosphere, there is an uninhabited place in the Pacific Ocean, Point Nemo. This spot is furthest from any land or coast, making it an ideal place to dispose of debris. There is also a specific orbit designated to collecting trash, this being above a geosynchronous standard one to safely get rid of vehicles that have exceeded their lifespan or operating boundaries. With new constellations, there have been talks and agreements to create a disposing plan for satellite constellations in low earth orbit, this to use the atmosphere as a means of accurate and reliable disposal.

Types of rockets currently reaching orbit

Due to physical impairments from the size of rockets, segmentation must take place. This means that a rocket is not a single unit of propelling force, thus there are several engines and

tanks. An analogy could be a Russian doll, where each layer covers a smaller layer, and the pattern repeats until it is no longer possible to maintain one from the small size. The weight of an empty tank must be propelled in a single stage or phase rocket, if it were to be separated, thrust would be more efficiently utilized. There is also a limitation that requires the integrity of the combustion from the differences inside the Earth's atmosphere and the vacuum of space.

There is no current rocket that can successfully deliver a payload in a single stage, although there have been many attempts to create such a vehicle. This is why all rockets currently in use must get rid of their stages at some point. Although most of them have a planned route to prevent civilian damage, some space faring nations do not take as much caution endangering the lives of many people. The main example at the moment, the Chinese space program, has no regard for the whereabouts of their stages. These are harmful in two main ways, their propellant and the infrastructure itself. This is why stages that get to obit are passivated, meaning that they are stripped of reactants and thus are only an infrastructure problem.

Dangers of dropping debris

Space is polluted by debris also known as space junk, which refers to any man-made object that no longer serves a purpose. Ever since the Space Age began with the Soviet Union launching the first satellite into orbit, the Sputnik 1 in 1957, debris has built up. There are currently tens of thousands of pieces of useless space junk including chunks of satellites and rockets, obsolete spacecraft, momentum flywheels, nuclear reactor cores, and fragments of rockets that have broken up or collided with other objects in low Earth orbit. A report provided by the European Union points out that about 20 % of the estimated 200 to 600 annual orbital re-entries involve debris large enough to drop some fragments onto our planet. Some amount is created every time rockets are launched when certain stages of the rockets

separate from the main vessel, the big pieces that fall off might burn up in the atmosphere and do not become debris, but tiny fragments that don't burn up, like flakes of paint, end up as junk. Sizes of space debris range from microscopic particles to obsolete spacecraft and rocket bodies, fragments as small as a single centimeter have the potential to destroy whole satellites because of the speed in which they travel. An article by Aerospace affirms that the low Earth orbit has an average impact velocity of 21,600 mph, which means that even tiny particles can be dangerous, and what is worse is that it is almost impossible to see this debris coming; space debris moves 10 times faster than a bullet. Although debris is smaller than 1mm in size, it can still damage optics and solar arrays. In addition, new satellites will constantly be launched to replace the old ones. If the old satellites remain in orbit, they become debris and add up to the piles of junk.

Space debris is a witness of how much of Earth's surface is the sea, and how sparsely populated the remainder remains, that according to an article provided by The Economist, the only recorded victims of this artificial hailstorm are five sailors aboard a Japanese vessel in 1969 and a woman in Oklahoma who was grazed by a piece of a falling rocket in 1997. Modern spacecraft present the use of highly volatile and toxic components. Hypergolic fuels[4] present a major threat as they are a very popular igniter and fuel for rockets, their presence is vital, and thus their elimination unable to proceed. The jettison of rocket stages is integral to their proper functioning, that is why protective measures and plans to establish falling routes need to be established.

Current space-faring nations

These days, a lot of the countries have space agencies, however, some of them are participating and are investing frequently in space projects. For example, the United States of America alongside the National Aeronautics and Space Administration (NASA), the Russian

[4] **Hypergolic fuel:** fuel whose components spontaneously combust (Oxford Dictionary, n.d.).

Federation with the Russian Space Agency (ROSCOSMOS), the Dominion of Canada with Canadian Space Agency (CSA), and the European Union with European Space Agency (ESA) are planning travel to the moon, with the Artemis program; it has the objective to investigate more about lunar territory through the land of the first woman and the next man in 2024. Also, the Artemis program helps with the development of Mars objectives, the Artemis program can prove some technologies that agencies need before sending astronauts on Mars missions.

Also, it's important to have in mind some consequences of future space projects. Taking into account that different space agencies remove their rocket thrusters in space and undo them in the Geostationary Orbit (GEO) and Low Earth Orbit (LEO) for 23 to 35 years. After that period, the objects that remained in orbit land on the Earth, and in that territory the different agencies can trace the remains of their rockets. On the other hand, the State of Japan and the Japan Aerospace Exploration Agency (JAXA) is planning for 2024 the Martian Moons Exploration (MMX). That mission consists of satellites Phobos and Deimos exploration to bring some samples of that territory in 2029. With Phobos and Deimos soil samples it can be possible to know more of Mars territory and investigate if the martian moons are captured asteroids or fragments that are the result of a collision with Mars and know what is the evolution process of this celestial body. Also, the MMX mission has the purpose to clarify the mechanism controlling the surface of Mars and moons evolutions.

Involvement of Private Companies on rocket launching nowadays and future projects.

The private sector has had a subsidiary role along the rampant struggle to dominate space since governments were the ones that paid and promoted these efforts. However, nowadays the technological advances are bringing a revolution to the traditional models of space missions. Investments into the space industry are potentially growing, according to a report by BBC News in 2016, the global space economy reached a value of $329.000 million US

dollars in which three-quarters of that sum came from the private sector, not governments. A group of companies pursues cheaper access to the cosmos, through innovations; A good example of this involvement is the SpaceX firm by Elon Musk, that uses their Falcon 9 launchers to send supplies to the International Space Station or Blue Origin by Jeff Bezos, owner of Amazon who is working on the New Shepard and New Glenn rockets. Both companies have developed revolutionary techniques that allow a vertical landing, a very significant step in the creation of reusable rockets.

Currently, the average cost of a launch is about $200 million dollars, for example, last year in the United States, only 22 satellites were launched. Rocket lab's founder Peter Beck states that "once my rocket is up and running, the cost of traveling into space will be $5 million and the frequency of missions could be as high as once a week". (Beck, 2017) The heart of Rocket lab's business strategy is its Electron launcher, specially designed to place small satellites into orbit. The rocket is primarily carbon fiber and its engines are all 3D printed. While it would normally take months to produce an engine, the creator affirmed "we can produce it in 24 hours" (Beck, 2017). Manufacturers need flexible ways to organize trips into space, and this is precisely what Rocket Lab is looking forward to solving.

The great prizes offered in the sector are also driving innovation. The Ansari Xprize encouraged the inventors to develop a reusable manned spacecraft and now the award known as Google Lunar Xprize offers $20 million US dollars to the first team that manages to send to the Moon a robot ship able to travel 500 meters and transmit images. Today, there is a vision of a world in which the space industry will be characterized by low-cost satellites, carried in affordable rockets that are easily launched, all ordered with a click and without the need to wait for the slow process of space missions by governments.

China's history dropping rockets and future plans

On the 3rd of January 2019, People's Republic of China became the First Nation to ever successfully land a spacecraft on the far side of the moon, with the most amount of annual launches and the capability of launching humans into orbit; China is now regarded as one of the most powerful space programs in the world. Among the successes, there is a dark side related to the extremely relaxed safety standards, since rockets are frequently launched over habited areas, sometimes crashing into populated towns and villages since many of China's launches take place from their XiChang launch site in which there are around 14 villages in the path, such as Luguzhen, Li Jixiang and Hongmuxiang.

In the midst of the Cold War, the United States of America and the Soviet Union were constantly demonstrating their advancements in nuclear weapons and missile technology. In 1957, the Soviet Union launched the first-ever satellite into orbit and China realized it needed to create its own space program to keep up. Over the course of two decades, China built 3 main launch sites, capable of launching missiles and satellites into orbit that were built thousands of kilometers inland to make them less exposed to enemy attacks. But this came at a cost since rockets had to be launched directly overpopulated areas. Launch sites are typically located on the coast where falling rocket parts can safely fall into the ocean, but China went inland and further north with the pressure of the Cold War, and as a consequence safety standards became less of a priority.

In 1996, China launched its largest rocket ever built, the Long March 3B, and as soon as it left the launchpad it started veering and after 20 seconds it landed on Mayelin Village. This disaster killed 6 people, however many reports coming from outside the country, estimate that the death toll was in the hundreds; indeed a report from The Washington Post affirms that 100 people died as a result of the crash. Although it was an unexpected fault in the rocket, the People's Republic of China didn't stop launching overpopulated areas. Over the last 10 years, there have been many reports of rocket debris falling into people's homes.

As a consequence, China's use of space has led many other countries to lose trust in them, for instance, China is banned from the International Space Station (ISS).

A new launch site has been built on the Island of Hainan, which will allow China to launch rockets overseas, which means safety measures will be demonstrated. China has also been working on its infrastructure by expanding activities that reflect its growing ambitions in exploration, remote sensing, commercial constellations, and new areas including low-Earth orbit satellite internet access. The China Aerospace Science and Technology Corporation's major goal is the one to include completing the Beidou navigation satellite system, launching missions to Mars and a lunar sample return, and test launches of three new launch vehicles. Other activities will include the launch of the Apstar-6D communication satellite based on a new DFH-4E bus, low-orbit internet satellites, remote sensing and weather satellites, and commercial payloads.

Legal limitations regarding falling debris.

International space law does not indicate any measures to reduce or to remove space debris. Although there have been attempts by regional mechanisms to decrease the amount of rubble, such as the International Standards Organization's (ISO) space standards or the European Space Agency's (ESA) protocols on space handling. These only have clauses regarding the generation and the management once in orbit, there is no consideration to the life of said objects before reaching orbit. These parts are a liability until orbit is reached, as their life is most likely to be ended as re-entry to the atmosphere is experienced.

There have been no recorded deaths from uncontrolled or un-passivated[5] falling rocket debris, although there is speculation from the data provided by Chinese authorities. There have been a number of deaths related to rocket malfunctions, but there has only been one instance where death happened above the Karman line. Of the ones below, three have

[5] **Un-passivated:** structure or part that has not been disarmed or striped of dangerous chemicals (Oxford dictionary, n.d.).

been in the United States of America and one from the former Soviet Union. Although there have been some incidents, there has not been any civilian danger from these as precautionary measures were taken to avoid any major danger.

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Topic B

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Elimination of the digital divide between developed and developing countries regarding internet access through the use of satellite constellations, focusing on Latin America and the Caribbean.

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Introduction

The digital era is the period after the digital revolution characterized by the transition from analog devices to digital means of communication and processing. Analog technology refers to the processing of data with physical qualities and quantities that do not need much interpretation. A great example of this can be the difference between vinyl records and modern compact discs. Pieces of vinyl store audio data in grooves made by the original sound and thus when the needle contacts this rugged area it reproduces a sound that is very closely related to the original. Compact disks on the other hand rely on microscopic indentations that represent a one or a zero. Binary [6]information is stored and when a laser is pointed the reflection creates a pattern picked up by a sensor and interpreted as an audio file. Not only do the grooves require more space but are more prone to issues like pollution whereas the indentations due to the size and technology only need to be visible to the red or blue wavelength.

Digital technologies have taken over the world. The need to open up more efficient and quicker lines of communication has accelerated the demand for newer technologies. With the rise of digital computation, the internet came to be. This global web of interconnected computers has grown to encompass almost all aspects of human life. The access to limitless information has the capability of granting the most marginalized sectors of the society higher education at a distance.

Satellite Constellations

Over the decades, since the space exploration journey began in 1957 with the launch of the first-ever satellite by the Soviet Union, considerable efforts have been made into designing, building, and developing satellites for many different approaches. A satellite constellation is a system of single satellites that work together to pursue the same purpose, in some cases, a

[6] **Binary**: expressign in a system of numerical notation that has 2 as its base (Oxford Dictionary, n.d.).

single satellite can achieve the goal by itself, however, when there is constant contact with a specific point on the globe or immediate global communication is demanded, a network of satellites is needed to avoid any communication barriers such as latency or general faults in the transmission. To make sure that a satellite is in contact efficiently, more satellites are required in orbit.

Most satellite constellations are geosynchronous, which means they are positioned in an orbit above the equator at a synchronized altitude with the rotation of the earth. For instance, in 2016 the National Aeronautics and Space Administration (NASA), launched the Cyclone Global Navigation System, a satellite constellation that measures surface winds at the center of cyclones, hurricanes, and typhoons. Other uses for satellite constellations are telecommunications, tracking and location systems, government and military monitoring, and espionage. Some examples include Global Positioning Systems (GPS), Direct Broadcast Satellite (DBS), and the Russian Federation's Global Navigation Satellite System (GLONASS). Over the last decade, satellite constellations have also been used for broadband internet and satellite phone and cellular networks.

According to an article by the International Astronomical Union (IAU), in 2019 the number of satellite launches has been rapidly increasing with plans of deploying ten thousand of them. The IAU is concerned about the impact on astronomical investigations by satellite constellations, they generally embrace the principle of "A dark and radio-quiet sky as not only essential to advancing our understanding of the Universe, but also as a resource that should be protected for all the Earth's inhabitants" (IAU, 2020). Although astronomers are taking the initiative to simulate satellite constellations, it might take time to understand the effect that satellites will have at optical and radio wavelengths. The International Astronomical Union and other organizations such as the American Astronomical Society (AAS) are trying different measures to address the accelerated growth and brightness of these

satellites. One important effort is the one of having discussions with SpaceX regarding the test of spacecraft coatings to try to bring down the brightness of Starlink satellites and the development of software to manage the observatories schedule to reduce the impact of passing satellites.

Worldwide digital context

Digital, mobile and social media have become an indispensable part of today's world since they provide an enormous net of sources of information and content that have the facility of easy and fast access to communicating, expanding, and educating. More than 4.5 billion people used the internet at the beginning of 2020 and nearly 60 % of the world is online, according to the 2020 Global Digital Overview.

The importance that digital access holds nowadays makes higher expectations in the management and overall approach to pursue that everyone around the globe has fair and equal access to connectivity. A good example of the challenges regarding unfairness is the gender gap, which is very present in Southern Asia, where men are three times more likely to use social media than women, which indicates a strong gender unbalance projected by data from a report by We Are Social in 2020.

The popularity of social media has an important impact on digital expansion, as more people use social media, advertisers are increasing their budgets on social ad platforms. According to the Global Digital Overview of 2020, social media users have passed the 3.8 billion mark. The rollout of regulations like the General Data Protection Regulation (GDPR) in the European Union and the California Consumer Privacy Act (CCPA), has influenced marketers worldwide to rethink the different ways to approach their audiences and provide integral experiences. The world is developing and innovating different ways of communicating, one of the biggest transmission channels is digital audio content. Research by a UK-Based media entertainment group found that on average, more than 40 % of

advertising campaigns included digital audio. Podcasts are another popular digital audio medium, Buzzprout reports that the population from the Republic of Chile, Argentine Republic, Republic of Peru, United Mexican States, and the People's Republic of China are the top growing countries in podcasting, while the Republic of Korea takes the first place worldwide with a 58 % of listeners on its population. The rise of streaming platforms contributes to the growth of digital media, it provides more transparency and accuracy for reaching audiences in a more personalized trait in comparison with the general advertisement on television Programmation, Digital TV research reported that in 2018 global interest in personal marketing reached 38 % and generated $68 billion. The digital sphere seems huge and endless, however, there are important efforts to be accomplished to have a net that provides everyone equal access to this tool that these days, the world depends on.

Internet accessibility problem

There is a problem with access to digital technologies, especially in the most marginalized[7] sectors of society. To connect to the internet, one must have a direct line with the existing infrastructure. This could be a literal landline or a wireless connection to a device interfaced with the landline. Establishing a connection requires great amounts of infrastructure and maintenance. That is why most connections only exist in few key locations, mostly in cities. In countries where there are few cities, the average connection suffers and is very limited and susceptible to traffic fluctuations. International underwater fiber-optics have allowed all seafaring [8]nations access to the global connection. Although landlocked countries do not have direct access, landlines can be developed to grant access.

Inland communications towers that can provide cellular coverage allow people to connect to the internet are extremely difficult to build in remote areas as they all have to be connected via physical wires. Marginalized communities do not have access to reliable and

[7] **Marginalized**: treated as insignificant or peripheral (Oxford Dictionary, n.d.).
[8] **Seafaring**: traveling by sea (Oxford Dictionary, n.d.).

fast connection. Some countries, like Mexico, have undergone massive investment to reach very remote areas and provide most of their citizens with access. New technologies can provide reliable and fast coverage to all places. Satellite communications allow for directed and stable connections. There are many problems and drawbacks that come from orbital deployment, but the benefits have the possibility of providing all people with the power of the internet.

Least developed countries in Latin America and the Caribbean

The Least Developed Countries represent the weakest and most delicate part of the international community; according to the United Nations, more than 880 million people are victims of weak human and institutional capacities, low and unequally distributed income, scarcity of domestic financial resources, governance crisis, political instability, and in some cases, internal and external conflicts. The colonial period and the achievement of Independence in Latin America and the Caribbean region came later compared to other developing and developed countries. For instance, a great variety of arguments are presented between both the positive and negative effects of natural resources. On the positive side, the availability of minerals, fertile soil, climate, or geographic location presents a big opportunity to foster economic growth. However, the negative elements are the effect of deterioration due to the infrastructure process, affecting the international trade pattern of a country, and the formation of dual economies.

From the Latin American perspective, the natural resources are overwhelmingly in advantage. The Economic Commission for Latin America and the Caribbean stated that the total land per head in 1950 in this region, was two or three times the level in the United States and more than 20 times than South East Asia. Out of the 33 countries that make up Latin America, only the Republic of Chile is considered a developed country, a report provided by the World Bank points out that Chile has been one of Latin America's fastest-growing

economies in recent decades thanks to a solid macroeconomic framework, which enabled the country to cushion [9]the effects of a volatile international context and reduce the population living in poverty (on US$ 5.5 per day) from 30 percent in 2000 to 3.7 percent in 2017 (World Bank, 2020). Even though the Republic of Chile has advanced into a developed country, the rest countries of the region base their economies on agriculture and still have a long way ahead to reach the developed country label. In 2019, a report by the Inter-American Institute for Cooperation on Agriculture showed that the agricultural exports in 17 countries of Latin America and the Caribbean, added 234.7 million dollars of which the heading countries were the Federative Republic of Brazil, United Mexican States, Argentine Republic, and the Republic of Chile. Their agrarian economies are affected by a non-stop cycle of low-productivity and low investment.

These countries depend on the export of few primary commodities as major sources of export and fiscal earnings, which makes them exposed to external trade shocks. Some countries in the region have been able to diversify into the manufacturing sector, such as textiles and clothing, though with a limited range of products. The United Mexican States, the Argentine Republic, and the Federative Republic of Brazil are the leaders in the production of textiles. The Inter-American Development Bank points out that "The rest of our countries still need to go a long way to achieve the level of productivity, efficiency, and innovation necessary to promote the development of the sector in the medium and long term." (BID, 2019). These restrictions are responsible for insufficient domestic resources, low economic management capacity, high debts, and heavy dependence on external financing that keep these countries in a poverty trap. The global context has changed and challenges the region, to keep up with the new globalization patterns.

[9] **Cushion**: soften the effect of an impact on (Oxford Dictionary, n.d.).

Countries in Latin America area with advanced digital technologies and countries in development.

These days, access to digital technologies looks limited by the distribution deficiency. In the Latin American area, are rare the countries that have appropriate digital technology, for example, the Republic of Chile has the first place in Latin America and the 38th place in the world. However, countries like Xaymaca have the 10th place in Latin America and 82nd place in the world. According to the World Economic Forum (FORUM), the ten principal countries that have access to digital technologies in the Latin American area are the next. Republic of Chile, Barbados, Oriental Republic of Uruguay, Republic of Costa Rica, Republic of Panama, Republic of Colombia, United Mexican Estates, Republic of Trinidad and Tobago, Republic of El Salvador, and Xaymaca. However, there are few businesses interested in this area, also the different governments are trying to find a way to reduce the digital technologies divide.

International cooperation to reduce the digital divide.

The digital divide was a problem since 2010 when the technologies started to grow up, and nowadays, the problem has kept increasing. However, different countries are finding a way to reduce the digital divide, in the case of the Argentine Republic, implementing new agreements to reduce the digital divide, which consists of a collaboration between the National Institute of Industrial Technology (INTI) and the Chamber of Software and Information Services Companie (CESSI) by its acronym in Spanish and impulse the development in new and adopt different technologies in the maximum area in Argentina.

The United Nations (UN) proposes the following solutions to reduce the digital divide. The principal solution is the cooperation between governments, which should play the leading role in creating and deployment of accessible e-serves and understandable

information and communications technologies (ICT). This allows for further reduction of the digital divide within each country. With a centralized effort to reduce this problem, time and resources are not devastating problems.

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14.

Preambulatory Phrases

Preambulatory Phrases are used at the beginning of every Resolution Paper in order to give context about the resolutions made for the topic. Preambulatory Phrases must be written in italics followed by a sentence that gives said context. For each Resolution Paper there must be five sentences beginning with a Preambulatory Phrase.

Affirming	Desiring	Noting with deep concern
Alarmed by	Emphasizing	Noting with satisfaction
Approving	Expecting	Noting further
Bearing in mind	Expressing its appreciation	Observing
Believing	Fulfilling	Reaffirming
Confident	Fully aware	Realizing
Contemplating	Further deploring	Recalling
Convinced	Further recalling	Recognizing
Declaring	Guided by	Referring
Deeply concerned	Having adopted	Seeking
Deeply conscious	Having considered	Taking into consideration
Deeply convinced	Having examined	Taking note
Deeply disturbed	Having received	Viewing with appreciation
Deeply regretting	Keeping in mind	Welcoming

Operative Clauses

Operative Clauses are used at the beginning of every resolution within the Resolution Paper on the debated topic. It must be written in italics and bold.

Accepts	Endorses	Notes
Affirms	Draws the attentions	Proclaims
Approves	Emphasizes	Reaffirms
Authorizes	Encourages	Recommends
Calls	Expresses its appreciation	Regrets
Calls upon	Expresses its hope	Reminds
Condemns	Further invites	Requests
Confirms	Further proclaims	Solemnly affirms
Congratulates	Further reminds	Strongly condemns
Considers	Further recommends	Supports
Declares accordingly	Further requests	Takes note of
Deplores	Further resolves	Transmits
Designates	Has resolved	Trusts