

GEOPOLITICS OF THE FUTURE

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Humans are born to explore. Curiosity has led human beings to explore every part of the world, discovering its deepest secrets and understanding how life works on Earth. While becoming more aware of their existence, people started to question themselves about how to improve life on Earth. From this particular point of view, knowledge brings to progress, and progress brings to the development of technology, which has accompanied humans in their evolution since the beginning of the first discoveries and inventions.

After the Second World War, the world equilibrium has been established, supervised and held by the two main global players: the United States of America and the Soviet Union. At first, the challenges that involved them were about geopolitical topics as well as economic ones. They started to move more in a technopolitical way as soon as technology has become always more sophisticated till becoming until our days, to be the most important protagonist for the future progress of each single State, as well as for humanity.

The peak has been reached in 1961 when Jurij Alekseevič Gagarin concluded successfully his mission, becoming the first man who flew into space. Thereon arrived Kennedy's answer, who decided to up the ante, sending in the next decades the first man on the moon.

The more important role acquired by technology and its role implemented in the space exploration has stimulated the interest of other countries which decided to create their own Space Agency - starting in the '70s; by the European Space Agency (ESA) which was born out of the collaboration between nations of the Eurozone such as Italy, Germany, France, Spain, Netherlands, England, Switzerland, Belgium, Sweden and Denmark.

In addition to the USA and Russia, also, China and Iran are becoming dominant actors on the scene. International Relations are facing a new era of how to manifest their national supremacy, based essentially on two factors: technological and military prestige. Space exploration has two important aspects which should be contemplated such as the more tactical aspect, which takes in consideration the strategic use of satellites and its use to observe and exert control from the sky down to the Earth, and, the higher amount of investments inflows strictly connected the innovation in the technological field. In this last case, a more important role is played by private companies, Space X by Elon Munks as well as Jeff Bezos who is working on the development of space rockets, are becoming concurrency for single countries and developing in a more

efficient and faster way the technology used since a few years ago only by government agencies such as NASA, ESA, ISS.

Marcello Spagnuolo, an Italian aeronautic engineer, made a beautiful comparison between aeronauts and Icarus – “if we fly to far we burn our wings” - to underline that we are still not ready and it will take years and years to start colonizing other Planets. Before taking this big step it is important to remind that innovation and progress wouldn't have been possible if just a single nation would have worked on it.

Collaboration has always been important. In the past, the participation of fifteen countries has made possible the realization of the International Space Station (ISS). In the past years, ESA has constantly worked on the further extension of the already existing programs concerning environmental problems (they can be monitored through satellites) and on avoiding the threat of asteroids. Sticking together will gain even more importance in the future to fight emerging crimes, such as cybercrimes and the injustice use of AI.

Geopolitics will see its future in outer space and International Relations will rely on different equilibriums. Strategic points on Earth will be replaced by Lagrange points, commercial routes by cosmic ones and ships will be substituted with satellites. Unfortunately, Earth won't follow the same path undergoing effects produced by the decisions made by governments in the technological-space field.

The collapse of Germany at the end of the Second World War has signed the prestigious future of the United States of America. It was destiny that the so-known " Team Rocket", a group of German scientists, that have worked for the Nazi- Regime, accepted to trade their knowledge in the technological and scientific field, against their freedom. Especially Wernher von Braun has been a key resource for America. Since his young age, his dream was to reach the Outerspace and he never stopped drawing and calculating every detail that was necessary to develop a missile, the future Explorer 1, that could reach his goal and so subsequently victoriously contribute to America's race against the Soviet Union.

Too many wars have been fought on Earth, escalating in the First-and Second World War. The ground for the Cold War was too small and primarily too fragile to sustain another conflict. The balance was already established and the risk to destroy it, too high. The two Giants that gloriously survived one of the darkest periods of humankind knew exactly what was holding them back: the era of nuclear deterrence had already started. The technological race strictly related to the progress in the military field starts exactly at this point.

Missiles were firstly thought only for the long-distance transportation of nuclear weapons.

When in 1957 the Russian Sputnik, crossed the line between Earth and Space, International- and Geopolitical relationships, were officially brought into Space. Eisenhower, the President of the United States, decided to close the triangle between science-power-dominance, ensuring the American domain in the Outerspace, by creating National Aeronautics and Space Administration (NASA), a governmental agency, responsible for the civil aims in Space. When John Fritz Kennedy, later on, took charge of the situation, he initiated the "Apollo Mission" striving for a pungent revenge after the humiliation submitted by the Soviet Union who sent the first man into the Cosmos.

Space projects, cannot stand alone, without an efficient Governmental organization behind it, that is why between the '50s and '60s, the American Executive, decided to operate a separation within the Department of Defense (DoD), dividing the civil aims from the military ones. A great example that marks the strict interconnection and cooperation between the two sectors, is given by the invention of the Global Positioning System (GPS).

The birth of the GPS can be associated with the launch of Sputnik. Maybe if the Soviet Union had not started having an extra gear, America would not be the mother of this strategical tool. That day, the United States was left in the dark; was the missile carrying a nuclear weapon or not? It was necessary to detect the exact position of the rocket, but how?

While following the trajectory, the transmitter, placed on the flying object, emit radio signals on precisely two frequencies that were essential to discover; thereon Doctor Frank McClure proposed as a possible solution to use Doppler measures.

Having the right device that allows to identify in an accurate way the location of the enemies, is a great investment to carry on and gives the Country an enormous advantage when it comes to strained situations.

This innovation has been improved and developed in a more sophisticated way, especially during the '70s, when a satellite constellation so-called "Transit"- was launched into space, by the APL-Space Department, to facilitate military response when necessary. One decade later, the Pentagon decided to develop a more advanced version of the GPS technology, to reunify the projects "621B" of the Air Force and "Timation" of the Naval Research Laboratory. They consecutively landed under the Pentagon project "NAVSTAR" which has been inaugurated during the war in Kuwait in 1991.

The government soon realised how useful the GPS would be for the entire American population and its protection. President Reagan started to open the military markets to the civil population, ending with the full liberalization of the GPS market with President Clinton.

While America was pursuing its glorious battle against the Soviet Union, and presently against Russia, we can not forget that the decision taken by Kennedy to send the first man on the Moon, was because Russian were the pioneers of this new era.

Differently from the American Government who put lots of its efforts trying to gain more enthusiasm and support from its citizens, Russian people were not even aware of what was going on, in fact, the same day when the Sputnik was launched the Russian press organ "Pravda" released/reserved only a few rows in the journal.

The Soviet Volk is not only remembered to have sent the first man, Yuri Gagarin, into space but several years later the space mission "Voskhod 2" was launched and Lenov was the first man who had become the opportunity to observe the Earth from the Cosmos while floating in open space. The Space Program was firstly slowed down and afterwards abandoned and the newborn Russia lost part of its control on the military arsenal, included space missiles - Proton, Soyuz and Zenit.

Who came into possession of the left space technology, where States like China, India and Brasil. To avoid that the ballistic armoury landed in the wrong hands, and before Russia could take action to take back control on its military machinery, American and French commercial companies - Lockheed Martin (USA), Boeing (USA) and Arianespace (France)-,created ensemble agreements to exert control on the weapon sales.

When Putin came to power, he immediately set back as a priority, the objective of his Government to take back the Country to the majesty, supremacy and reputation of the old Russian Empire. Seeing the space as a battleground ready to be conquered, the President is also conscious of the vulnerability, economic primarily, that afflicts and limits the ex-Soviet Union and therefore is ready to respect the " Outer Space Treaty" established in 1967 that strictly prohibits the use of nuclear weapons beyond the Earth boundaries.

To maintain the status as a respectable power, the Russian Government took the first step in 2015, putting under a single roof the Air Force and the Aerospace Defense Force, creating the Aerospace Forces. Organization and efficiency are fundamental pillars for the organization, in this sense the State has reunited all the space industry under his domain, to prevent shortcomings.

Information superiority plays an important role when it comes to national security- in this sense, Putin's Government, has put lots of efforts in becoming independent from the American GPS, developing its own "GLONASS" and surveillance network composed by telescopes, radar and sensors, who play the main role up in the orbit- becoming Russias eyes to surveil the enemy, to fix any malfunction and first of all for its safety and defence.

The abandoned space programs have been energetically resumed, while continuously improved also in prevision of the future where the Moon and deep space explorations will be a fundamental resource for the economy of the States.

Nonetheless, it's important to underline that space still remains a sort of anarchy field, where everybody can play his game and conquer what reflects its power. Because of this scenario, Russia won't give up to invest in its defence and intelligence and has developed laser weapons system pursuing exercises in the Anti-Satellite Missile Mission field (ASAT).

In this playing field, is another player that should be mentioned and places itself between the two historical colossi.

Ready to defy the American power, the People's Republic of China (PRC) has entered the competition with the right combination of political- and economic tactic. Exchanging financial favours in return of political influence, the Giant has acquired more and more allies to exert influence on and which are ready to start a collaboration. According to the Defense Intelligence Agency in 2018, China has concluded 21 civil space cooperation agreements with 37 countries and four of them with International Organizations.

The fact that China does not really have limits to respect, whether political or economical ones, is intimidating other Countries, especially the United States, who are aware that their domain is being challenged.

The Asian Tiger not only produces its military technology in its national borders but takes distances from every American support to avoid any sort of dependence, developing also an own location system, the so-called " BeiDou".

Exporting satellite technology and location support, the Chinese logistics can be considered a remarkable competitor on the international markets.

Sticking to the advantages of the Space, from the resources to the national security, China pursues in a determined way the idea of becoming a leader in this sector.

Leaving aside China's ability to detect enemies thanks to the advanced technology and offensive use of cyberspace competences, America is losing

ground because of the last Chinese installation on the covered part of the Moon, specifically, in a Lagrangian point.

In simple words, it is like playing hide-and-seek where the seeker has his eyes everywhere and can see everything, while the other players are partially blind.

The citation that best explains the geopolitics of the future, is from Everett Dolmann, Professor at the U.S Air Force College and author of the book "Astropolitik". He perfectly explains "Who controls low-earth orbit controls near-Earth space. Who controls near-Earth space dominates Terra. Who dominates Terra, determines the destiny of humankind."

The United States of America can be considered as the central motor of an entire mechanism that maintains a peaceful order, especially in the West.

In the American doctrine, ideology has always played a central role, primarily, for the definition of their Mission: let export and triumph democratic and liberal values; secondly, having a political faith, facilitates the coordination between the military attack and national response - providing a major support from all the population.

To impose means to detain the power. Who detains the power, detains the control over the economic system. Capitalism goes arm in arm with globalisation, and this last one creates close ties between nations, who become strictly dependent on each other. According to Norman Angell, winner of Nobel Peace Prize, this mechanism avoids the creation of conflicts between countries and guarantees high benefits for the population worldwide. Not surprisingly this argument conducts us to the United States of America, leaders in the liberal system.

Since humans have discovered the benefits, military firstly and economic secondly, the race concerns principally to gather as many information possible. Inflows of information permits a more rapid scientific progress and allows Nation to be strategically one step forward.

When in 2018 Trump mentioned the idea of creating a national Space Force, was because he was aware that America needed to protect his domain, especially what concerned the scientific achievements and information inflows. The vulnerability consists mainly of the possibility to submit a jamming attack or to see a national satellite, being destroyed through the ASAT technology. Either the Russian as well as the Chinese intelligence, is aware of the strong reliance of America on technology, making it its Achille's heel.

Thereon President administration proposed to create a "separate but equal " 6th branch of the armed forces and wanted to divide the space from the Air Force

because this last one was too aeroplane centric. The U.S Space Corps would remain under the supervision of the Department of Air Force.

A similar force was created at the beginning of the '80s where the Government became more aware of the importance of space and its military use- the GPS was introduced as a military tool by this time- and established the Air Force Space Command (AFSPC) that became a major command of the Air Force. The creation was again because the Air Force was too aeroplane centric and so not appropriate for the full exploitation of missiles technology and improvement of launch operations as well as satellite control.

The importance to have a command that coordinates and facilitates the work between all military department, especially during wartime, was shown in 1991, during the Persian Gulf War, where the utility of the location system and the use of remote sensing technology to collect weather data, gave the possibility to overcome the obstacles placed by the desert land.

The question to transform the AFSPC in an independent command became slowly more serious, till 2001 where Donald Rumsfeld became in charge to create a special commission to analyse the performance held by the Space Command as well as the examination of the cost-benefits related to its existence. What came out, was that it was necessary to pursue the future goals that were realizable in space, by creating a separate department from the Air Force, but within the Department of Defense. This would avoid levelling air and space operations by putting them on the same height.

Despite the opposition of many leading figures, - one of the most known is from the Secretary of the U.S Air Force Heather Wilson who has argued "This will make it more complex, add more boxes to the organization chart and cost more money. " - the Space Force has gathered an own position between the armed forces when Trump signed the fourth Space Policy Directive, assuring a first \$ 40 million budget through the National Defense Authorization Act 2020.

The 26th of March 2020, the American Space Force has been inaugurated through its first mission, the launch of a military communication satellite, carried by the rocket Atlas V. It belongs to a new category of military tool, advanced in encrypted and jam-proof systems.

Following the line of considering space a new and wild domain, and the increasing importance, that the Space Force will acquire in the future, it may be useful to consider and pay attention to Klein geopolitical construct. "Command of space entails the ability to ensure access and use of celestial lines of communication when needed to support the instruments of national power-

diplomatic, economic, information and military. " He identifies three criteria that need to be fulfilled to exert control on space: presence, coercion and force.

Starting by the first point, presence in space is assured through technological asset in space, who holds a major number of gadgets gains more influence. Coercion is directly connected to the first point, having a significant presence in the cosmos, can be an advantage for the single Nation that has the necessity to exert pressure on others, concerning the potential hold, it is possible to manifest various types of force, from a more diplomatic one to a more aggressive one. The use of force emerges mainly during open declared fights, that originates because of the control over communication lines.

Kleins underlines a fundamental point for the national security of the States. The data that gets collected from satellites are fundamental for the survival of the State, they detect where a secret military base could be located or maybe steal personal information making them vulnerable and object of a physical attack.

Who brings to light another key issue and is correlated with the topic above is Jim Oberg, an American space journalist, who introduces through his theory another fundamental player, that is absolutely and directly involved with the future development of space technology.

Nowadays, a major role is played by the commercial industry who collaborates with the host country, with generously amount of private investments, securing for themselves a wide margin in the space economy. We are talking about Space X from Elon Musk, Jeff Bezos's company and Virgin Galactic, who is determined to become the tourist agency of the future. Oberg has in common with Klein the relation between the power of the Nation and its presence up in the space.

Everything brings us back to the information inflows, vital for the continued existence of the States. What distinguish this author from the last one, is seeing the commercial industry as the holders of this modern key resource, and the difficulty to maintain them inside the national borders because "increasingly internationalized and so available for purchase by everyone".

Who will deter the power in this scenario will be " the Nation with the most significant commercial space industrial base will have the largest presence on orbit and as a result, the greatest degree of space control and space power"

Since decades, the United States of America fulfils those criteria and maintains their endowment as an undefeated force. The dominant position held by the States in the economic and military field, allows the Country to keep everything under its control, guaranteeing benefits and stability to those who decide to support the democratic cause.

Things won't last forever in the same way, and geopolitical rules are valid for every player who wants to participate in this big game.

According to Nayef Al-Rodhan space consists out of global commons that can be considered as a multi-sum security system. He identifies the strong interconnection between Governments and " (..) therefore, global security and the security of any state or culture cannot be achieved without good governance at all levels that guarantee security through justice for all individuals, states and cultures."

We have to keep in mind that space remains something bigger than us, humans remain a small part of it - it's important to remember that a small mistake made in space, could have irreversible consequences on Earth.



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