THE SPACE RACE IN THE POST-SPUTNIK ERA

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INTRODUCTION

The launch of the Sputnik 1 was a watershed moment in the history of mankind. It opened an entirely new avenue for various stakeholders, which included scientists, researchers, engineers, private companies, military establishments and, most importantly, governments. The event of the Sputnik's launch was so huge that it became the primary reason for the establishment of the National Aeronautics and Space Administration (NASA). "On October 4, 1957, the Soviet Union launched the earth's first artificial satellite, Sputnik-1. The successful launch came as a shock to experts and citizens in the United States, who had hoped that the United States would accomplish this scientific advancement first", said the Office of the Historian, State Department, USA.

The primary document on the Administrative History of NASA,[1] 1958-63, reveals, under the heading, "SPUTNIK-The Principal Reason for NASA's establishment": "It (the Sputnik's launch) confirmed Russia's claim of August 1957 that it had an intercontinental ballistic missile capability, and, thus, Soviet rocket technology was a much more immediate threat to US national

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1. "Background for Establishment of NASA", Chapter 1 https://history.nasa.gov/SP-4101.pdf , February, 1966. Accessed on April 4, 2019.

The event of the Sputnik's launch fundamentally changed the way people and nations perceived the world. The world got to know about Russia's competence in the field of science and technology in general and specifically in the field of rocket technology.

security than had generally been thought. The prestige which Russia gained from its spectacular Sputnik success helped magnify its worldwide image. The fact that Russia was first in space tarnished the world image of the United States as a technological leader."

The Sputnik 1 was not only a landmark in the technological domain but a historical landmark of modern history as well. The event of the Sputnik's launch fundamentally changed the way people and nations perceived the world. The world got to know about Russia's competence in the field of science and technology in general and specifically in the field of rocket technology. Questions were raised about the competence of the USA in these fields. It seemed that through the Sputnik 1, the Soviets had managed to mark supremacy over the USA in the field of science and technology in general. Russia gained worldwide prestige which helped it magnify its image as a superpower.[2] It also proved the Soviets claims of having intercontinental ballistic missile capability through which they posed an immediate threat to the national security of the United States.

US SPACE ACTIVITY IN 1957

It is interesting to look at what the United States was doing in the field of outer space when the Sputnik 1 was launched. Around that time, the US did not have an integrated national space programme. NASA attributed this to be one of the primary reasons behind the US not being the first country to orbit an artificial earth satellite. The evolutionary development of an unintegrated space activity in the United States began. Before the launch of the Sputnik-1, the United States, like any other great power at that time, was interested deeply in the military missile programme. The genesis

2. A superpower is a state that possesses both economic and military might which is vastly superior to other states in the international system.

of space programmes across the world provided military edge to countries against their adversaries. Outer space technologies were actually developed to serve military interests and not civilian purposes.[3]

At this point, it becomes critical to understand the difference between a 'missile' and a 'rocket'. While the outer structure of both missiles and rockets looks similar, what differentiates them is what is inside these structures. While missiles have weapons put inside them, rockets carry satellites to outer space. While the former is used for military purposes only, the latter is mostly used for civilian purposes. This explains that the Sputnik 1 was the first ever satellite to be launched into outer space with the help of an R-7 rocket.[4]

At the time when the Sputnik-1 was launched by the Soviets, the US had made two unsuccessful test flights of the Atlas, four unsuccessful test flights out of five of the Thor and two unsuccessful test flights out of four of the Jupiter (NASA, 1966). These were the times before NASA came into existence.

By 1957, most of rocket related activities of the United States were centred around the urgent development of Intercontinental Ballistic Missiles (ICBMs) and Intermediate Range Ballistic Missile (IRBMs). As per NASA's own admission, "These activities were being carried out by the three military services and their respective industrial contractors. The Air Force was developing the Atlas and Titan ICBMs and the Thor IRBM, the Army, the Jupiter IRBM, and the Navy the Polaris IRBM. Big money did not start flowing into missile programs until 1955. By November of that year, the Atlas, Thor and Jupiter programs shared the highest national priority". At the time when the Sputnik-1 was launched by the Soviets, the US had made two unsuccessful test flights of the Atlas, four unsuccessful test flights out of five of the Thor and two unsuccessful test flights out of four of the Jupiter (NASA, 1966). These were the times before NASA came into existence.

3. E. S. Waldrop, "Weaponization of Outer Space: US Policy'', *High Frontier Journal,* 1(3), 2005, pp. 34-45.
4. "R-7 Missile and Launch Vehicle", https://www.britannica.com/technology/R-7. Accessed on April 20, 2019.

THE ORIGINS OF NASA

NASA came into existence with "an Act to provide for research into the problems of flight within and outside the Earth's atmosphere, and for other purposes. With this simple preamble, the Congress and the president of the United States created the National Aeronautics and Space Administration (NASA) on October 1, 1958. NASA's birth was directly related to the pressures of national defense".[5] There was immense pressure on the US leadership at that time to bridge the gap in outer space technology which was widened with the Sputnik's launch in October 1957 by the Soviets. Outer space in the decade of the 1950s emerged both as an area of 'interest' as well as 'contest' between the two superpowers.

As per NASA's own admission, the Sputnik 1 launch had a "Pearl Harbour" effect on the American public opinion regarding the capabilities of the United States. It seemed that the Soviet Union had taken a giant leap in the outer space field in particular and as a superpower state in general. So, when the Space Act, 1958, came into being, the objectives outlined in Section 102 of the Act defined the purpose behind the birth of NASA. The objectives were as follows.

- Expanding human knowledge about the phenomenon of atmosphere and space.
- Improving the usefulness, performance, speed, safety, and efficiency of aeronautical and space vehicles.
- Developing and operationalizing the vehicles capable of carrying instruments, equipment, supplies, and living organisms through space.
- Establishing long-range studies of the potential benefits to be gained from, the opportunities for, and the problems involved in, the utilization of aeronautical and space activities for peaceful and scientific purposes.
- Preserving the role of the United States as a leader in aeronautical and space science and technology and in the application thereof to the conduct of peaceful activities within and outside the atmosphere.

5. "A Brief History of NASA", https://history.nasa.gov/factsheet.htm. Accessed on April 21, 2019.

- The making available to agencies directly concerned with national defense of discoveries that have military value or significance, and the furnishing by such agencies, to the civilian agency established to direct and control nonmilitary aeronautical and space activities, of information as to discoveries which have value or significance to that agency.
- Cooperation by the United States with other nations and groups of nations in work done pursuant to this Act and in the peaceful application of the results thereof.
- The most effective utilization of the scientific and engineering resources of the United States, with close cooperation among all interested agencies of the United States in order to avoid unnecessary duplication of effort, facilities and equipment.

The "Sputnik crisis",[6] as it was often called by US space historians and the then administrators involved in US space activities, paved the way for the National Advisory Committee for Aeronautics (NACA) to be completely absorbed by NASA. This included its 8,000 staff members, its entire annual budget of $100 million, its three major research laboratories and two smaller test facilities. NACA came into existence much earlier in 1915, during the time of World War I. The intent behind the creation of such a body was to make an advisory committee that would coordinate research activities. However, it soon turned into a leading research organisation in aeronautics.

NACA[7] ceased to exist as a body once NASA came into being. Though the legal transition from NACA to NASA took place rapidly, the actual transition at the ground level took a long time. Between the Sputnik's launch and the birth of NASA was approximately a gap of one whole year. The period from October 1957-October to 1958 was a very critical one in the US' space history. During this time, the developments vis-à-vis space related activities fell into two categories. Firstly, reexamining the condition of the existing

6. "The Sputnik Crisis and America's Response", https://stars.library.ucf.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1578&context=etd. Accessed on April 25, 2019.
7. "Before NASA, There was NACA", https://www.nasa.gov/multimedia/imagegallery/image_feature_277.html, March 24, 2008. Accessed on April 25, 2019.

In the space race post-Sputnik, getting ahead became a matter of national prestige and honour for both superpowers. It was more so for the US because in the early part of the space race, the US was lagging behind the Soviets. There was great public pressure from the American public for the US to bridge the technological gap between itself and the Soviets.

space capabilities of the US to make sure that the progress (with respect to space related activities) was on the right track. Secondly, debating about the nature, scope and organisation of the United States' long range space programme.

Those were the years of the Eisenhower Administration. He was responsible for bringing James R. Killian to the president's scientific advisory committee. Killian was the president of the renowned Massachusetts Institute of Technology when he joined as the special assistant to the president for science and technology. This position was specially created for him. His appointment was a significant addition to the White House as he was assigned by President Eisenhower to come up with a definite plan[8] regarding the organisation of America's space efforts in response to the Soviets. The idea was now to align the future space activities with the national objectives. The two were seen in tandem with one another.

The US Congress was very proactive in drafting the new space legislation. This showed how eager the political class was in getting the US ahead in the outer space domain. This proactiveness of the political class echoed the general sentiment among the American public. Right from the end of World War II, there was intense competition between the US and USSR in every field. The space race just intensified this ongoing competition and turned it into rivalry. America's progress in outer space activities post Sputnik should not just be seen as a story of great technological advancement. That would be an injustice to the many other stakeholders in the process who either wanted, or contributed in enabling, the US to take such great strides in space.

8. "US Civilian Space Policy Priorities: Reflections 50 years after Sputnik", https://fas.org/sgp/crs/space/RL34263.pdf, February 2, 2009. Accessed on April 26, 2019.

This was because in the space race post-Sputnik, getting ahead became a matter of national prestige and honour for both superpowers. It was more so for the US because in the early part of the space race, the US was lagging behind the Soviets. There was great public pressure from the American public for the US to bridge the technological gap between itself and the Soviets who were advancing really fast under the leadership of Sergei Korolev,[9] the founder of the Soviet space programme. It was in this context that NASA came into being.

The United States responded with the Explorer 1 which was its first artificial satellite. It was launched on January 31, 1958. This marked the formal entry of the US into the space race.

THE BIRTH OF NASA: EARLY YEARS OF THE US SPACE PROGRAMME

The early years of NASA were also about giving serious thought to the possibility of human survival in space, apart from gearing up to the Soviet challenge. These years provided a solid ground to the foundation of an organisation which has become the best space research organisation on the planet. Under the leadership of pioneers like Wernher von Braun, the engineers and scientists in NASA were eager to make their mark in outer space.

The 'Sputnik crisis' proved to be a catalyst for the US to speed up its proposed space missions. This was because after the Sputnik 1, the Soviets followed with the Sputnik 2 in the same year. Laika, the dog, became the first living being to enter space under this Soviet mission. Despite the death of this 'space dog', the mission was considered to be successful and the pressure on the US to deliver successfully increased.

The United States responded with the Explorer 1 which was its first artificial satellite. It was launched on January 31, 1958. This marked the formal entry of the US into the space race, although the competition started

9. "Sergei Korolev: Father of Soviet Union's Success in Space", https://www.esa.int/About_Us/Welcome_to_ESA/ESA_history/50_years_of_humans_in_space/Sergei_Korolev_Father_of_the_Soviet_Union_s_success_in_space. Accessed on April 28 2019.

before the International Geo-Physical Year (IGY) itself. The IGY was a period of nearly 18 months, from July 1957 to December 1958, when around 67 countries of the world participated in a series of coordinated observations of various geo-physical phenomena. Both the US and USSR wanted to be the first to place the first artificial satellite into the earth's orbit. Ultimately, the Soviets beat the US in the early part of the space race when they launched the Sputnik 1, although both superpowers did put satellites within the IGY, as intended earlier.

The IGY[10] coincided with the start of the Cold War space race between the two superpowers. Hence, it is one of the important landmarks in the timeline of the early phase of the "Space Age". Around this time, when the US launched the Explorer 1 (the first US satellite), it showed concrete results. The satellite showed the presence of radiation zones that encircled the earth. These radiation zones were later known as the Van Allen Radiation belt. This showed the usefulness of artificial satellites in discovering new things about our planet as well as the universe at large. After the success of the Explorer 1, the US launched two more satellites. One was the Vanguard 1, which was the world's first solar powered satellite; the other was Project Score, which was the world's first communications satellite.

The year 1958 was a successful one for NASA in terms of three successful launches. The US was fast bridging the gap between its success in outer space and the Soviets who were still the pioneers of the arena and were leading the space race. The next year, 1959, was even more special for NASA because it conducted four satellite launches. The year started with the launch of the Vanguard-2, which was the first weather satellite. It was designed to give information about the density of the atmosphere and cloud cover distribution. Next in line were satellites like the Discoverer 1, Discoverer 4 and Explorer 6 which were successfully launched one after the other.

The Soviets responded by launching the 'Luna 1'. This was the first spacecraft to reach the moon, though it missed reaching the intended target, which was landing on the moon. However, it was the first spacecraft

10. "The International Geophysical Year", http://www.nas.edu/history/igy/. Accessed on April 30, 2019.

to leave the geo-centric orbit[11] and enter the helio-centric orbit. The Cold War was intensifying with the space race, as by the end of the decade of the 1950s, both superpowers had successfully shown their ambitions as well as capabilities to become 'space powers'. In this study, the Sputnik 1 has found mention many times due to its significance in the space race. It would be relevant to see the conditions under which the Sputnik 1 was launched by the Soviets.

EARLY YEARS OF SOVIET SPACE PROGRAMME AND SPUTNIK-1

The Soviet space programme is a highly classified one. It started primarily for military purposes and specifically to counter the United States after World War II. The Soviet missile and space programmes were inter-connected with one another. After the US showed the world its capabilities by dropping atom bombs on Hiroshima and Nagasaki towards the end of World War II, and also captured the Nazi V-2 rockets[12] along with the team of missile engineers, including Wernher von Braun, the Soviets started to design their own missile programme.

Under the leadership of Sergei Korolev, who was heading the Soviet space programme, the country tasted success for its pioneering accomplishments in space flight. This started with the launch of the first ICBM (the R-7). The Soviet space programme was also interlinked with their 'five-year plans'. This ensured the constant supply of finances needed for the expansion of the space programme. Unlike NASA, the Soviets did not have a centralised space agency. The space programme had a 'dual character'. On the one hand, things like Soviet space capabilities in the arena of telecommunications and meteorology were publicised, but the other part of the programme which dealt with spying, radar calibration, covert communication, navigation, geodesy and satellite interception were masqueraded as a part of a continuing programme of scientific research.

11. "What is Geo-centric Orbit?", https://www.worldatlas.com/articles/what-is-geocentric-orbit.html. Accessed on May 1, 2019.
12. Richard Hollingham, "V2: The Nazi Rocket that Launched the Space Age", http://www.bbc.com/future/story/20140905-the-nazis-space-age-rocket, September 8, 2014. Accessed on May 2, 2019.

The Soviets never publicised their space missions until they were sure of the mission's success. The idea was to spread a message in the world that the USSR was a leader in science and technology. Publicising failed missions would have dented their image.

Referring to this duality of the Soviet space programme, the Central Intelligence Agency (CIA) observed, "The Soviet space program might be described as something with a dual personality, a Jekyll and Hyde so to speak. That is, it consists of two parts, one of which is highly visible and acceptable to the world public, while the other moves in a sort of shadow land and is cloaked in high secrecy" (CIA website). This high secrecy was part of the political culture of the Soviet Union. The Soviets never publicised their space missions until they were sure of the mission's success. The idea was to spread a message in the world that the USSR was a leader in science and technology. Publicising failed missions would have dented their image. Great powers in general are very image conscious. The USSR was no different; it wanted to portray a strong image to the outside world that its space missions were always successful. This was unlike the US, where both its 'successes' and 'failures' were widely publicised by the media.

Before the launch of the Sputnik 1, Soviet scientists were preparing in the early half of the 1950s to prepare the foundations of their space programme. A lot of experiments were conducted to assess the possibilities of manned space flights in the years to come. For that, they tested many dogs, first, as dummies in the sub-orbital flights, from the year 1951. 'Laika, the dog' that was sent in the orbital flight via the Sputnik 2 was not the first dog to be sent. Before that, there were many 'Soviet space dogs' that were sent to an altitude of around 100 km in the sky to test the adaptability of living creatures in outer space. All this was being done as a part of the preparation to achieve the success that the Soviet Union ultimately achieved in the next decade.

Sergei Korolev was clear right from the start that manned space flights were the future of space technology. He was not only an engineer and a scientist but a great administrator as well as organiser. This is apparent from the fact that a change in the higher leadership did not affect the smooth

progress of the Soviet Space programme to a large extent. When Joseph Stalin died in 1953, Khrushchev took over as the Soviet premier. Korolev got immense support from Khrushchev and his ideas were backed by the Politburo.

The early successes of the Soviet space programme had a lot to do with Korolev's dedication and hard work. He never shied away from experimenting and risk-taking, even if it involved failures. The failures allowed him and his team to learn a lot about the nuances of rocketry. Secondly, being in a closed political culture, the public scrutiny of these failures was next to non-existent.

Referring to his experience with Korolev, Andrei Sakharov in his memoirs wrote,

> *Not too long after Stalin's death, Korolyov came to the Politburo meeting to report on his work. I don't want to exaggerate, but I'd say we gawked at what he showed us as if we were a bunch of sheep seeing a new gate for the first time. When he showed us one of his rockets, we thought it looked like nothing but a huge cigar-shaped tube, and we didn't believe it could fly. Korolyov took us on a tour of the launching pad and tried to explain to us how the rocket worked. We were like peasants in a marketplace. We walked around and around the rocket, touching it, tapping it to see if it was sturdy enough—we did everything but lick it to see how it tasted.*

Speaking of the new ICBM proposal, Khrushchev had unending praise for Korolev:

> *We had absolute confidence in Comrade Korolyov. We believed him when he told us that his rocket would not fly, but that it would travel 7,000 kilometers. When he expounded or defended ideas, you could see passion burning in his eyes. His reports were always models of clarity. He had unlimited energy and determination, and he was a brilliant organizer.*[13]

13. Asif Siddiqui, "Challenge to Apollo: The Soviet Union and the Space Race, 1945-1974", https://ia800501.us.archive.org/5/items/nasa_techdoc_20000088626/20000088626.pdf. Accessed on May 4, 2019.

The early successes of the Soviet space programme had a lot to do with Korolev's dedication and hard work. He never shied away from experimenting and risk-taking, even if it involved failures. The failures allowed him and his team to learn a lot about the nuances of rocketry. Secondly, being in a closed political culture, the public scrutiny of these failures was next to non-existent. This further allowed Korolev and his team to stay focussed on their aim. The goal was to launch a satellite before the United States did.

The United States, until then seemed to have an upper hand in the Cold War. One thing which is noteworthy is that the space race was only a part of the Cold War rivalry between the two superpowers. Until the early 1950s, both nations were already involved in a 'weapons race', 'nuclear arms race' 'technological race', etc.; the 'space race' was yet to start. In all these earlier races, the US seemed to have an edge over the Soviet Union. The US was the first country to declare itself a nuclear power, it also detonated the first thermo-nuclear bomb in 1952. The Soviets were watching the American progress closely and they took it as a challenge to do something of greater significance and become the first country to do so. Till Stalin's death, the US was always ahead in creating benchmarks in the field of science and technology, and becoming the pioneer in many fields.

Much of this could be attributed to the fact that the US didn't lose much in either of the two World Wars that were fought. On the other hand, the Soviet Union had incurred huge losses of life, money, property and the human potential at large. The Soviet Union as a state was so huge that it had the ability to absorb much of the traumas of war. But it wouldn't be wrong to say that the Soviets didn't have the luxury like the US to invest heavily and freely early in scientific progress during and post World War II. But the Soviet Union didn't lag far behind the US for long. It worked quietly and discreetly so that the outside world didn't know about its 'real potential' and 'progress'. This was a well thought out tactic on the part of the USSR to keep America guessing about its potential.

It was true that even when lagging behind in the 'race for superiority', the Soviets were still the second best internationally. But, being second-best had its own ramifications. When all this was happening, great changes were

occurring globally. The 'international order' was changing, decolonisation was happening, anti-imperialism and third-worldism was on the rise and the newly independent countries were coming into the league of 'nation states'. All these newly independent countries were looking at the Cold War rivalry with great interest. They wanted to be allied with the more powerful superpower. The superpowers, in turn, wanted more allies with them to increase their own power. Therefore, it was the 'self-interest' of both the US and the Soviets to show the world which was the most dominant power in the international system.

The Soviets saw an opportunity when the US announced its Project Vanguard[14] under which it intended to place "small earth circling satellites" in the International Geo-physical Year (IGY). The Soviets wanted to surprise the world by launching the first ever satellite which they ultimately did when the Sputnik 1 was launched. Before that, Khrushchev decided to combine all missile industry supervision units under a single government entity called the Military Industrial Commission (VPK). This body was given the charge to manage the Soviet military industrial complex.

The idea was to coordinate the efforts of the missile programme in a smoother way and create an entity that superseded ministerial jurisdiction. In the years to come, VPK as an entity flourished during the Cold War. The launch of the Sputnik 1 was a result of the well-coordinated efforts of the Soviet space programme. By the end of the decade of the 1950s, the race started for manned space flights. The prestige that the Soviet Union gained through its success in launching satellites made a huge dent in the perception about the capabilities of the United States. The decade of the 1960s had much to offer as it saw the pinnacle of the Cold War space race which turned into space rivalry.

SPACE RACE IN THE 1960s

When the decade of the 1960s started, the world had already seen many 'firsts' from both the US and USSR in the early stages of the space race.

14. "Vanguard Project", https://www.nrl.navy.mil/accomplishments/rockets/vanguard-project/. Accessed on May 10, 2019.

On April 12, 1961, Yuri Gagarin, who was a Soviet pilot, became the first human being to travel to space. This was an even bigger event than the Sputnik's launch four years earlier, in 1957. The Vostok 1 was the spacecraft which Gagarin boarded for his 108 minute flight. The safe return of Gagarin back to earth made him a worldwide figure and a Soviet hero.

These included the first satellite (1957), first dog in orbit (1957), first US satellite (1958), first solar powered satellite (1958), first communications satellite (1958), first weather satellite (1959), first satellite in Polar orbit (1959), first photograph of earth from orbit (1959), etc.

The world had already seen an entirely new sector open up. Scientists and engineers found 'new interest' in outer space as it was being projected as the future of mankind. The media played a big role in advertising and publicising about the space race. Every small and big news regarding satellite launches was covered widely in the press. Reports, opinions, editorials, etc. were written and widely read by the public. By the start of the 1960s, people all over the world got fascinated by the idea of space travel. Everyone wanted to explore the universe. While other countries were just fascinated about space travel, both the superpowers were actually working hard to send a man into space. Little did one know that soon mankind would take a giant leap into outer space.

The 1960s solidified the foundations of the outer space sector which were laid down in the 1950s. This decade saw many landmark events of modern history and outer space. The international politics of space intensified in those years.

YURI GAGARIN: FIRST MAN IN SPACE

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'safe return' is used because the landing of the Vostok 1 was complicated and Gagarin had to eject himself, using a parachute, to land near the river Volga. The story of Gagarin got publicised to mythical proportions. The Soviet propagandists used Gagarin's feat to showcase the victory of 'Communism' over 'Capitalism'.

If one has to pick an era which signifies the height of the space race, one can point towards 1957-69 being that period: 1957, being the year of the launch of the Sputnik 1 by the USSR, and 1969 being the year when the US sent Neil Armstrong to the moon.

If one looks at the Soviet satellite launches and later space missions, one can discern an emerging pattern. The USSR was always suspicious about the capabilities of the US and whenever they got to know about a deadline of a US satellite launch or space mission, the Soviets started to work really hard to beat that deadline. This happened at the time of the launch of the Sputnik 1 when Korolev, in anticipation of the US launching the first-ever satellite, pre-poned the launch of the Sputnik. The same happened with Gagarin's space travel, as the US Administration had planned to send the first man into space by 1961. The Soviets were not wrong in their estimation as the US did send its first astronaut into space on May 5, 1961, when Alan Shepherd became the second man after Yuri Gagarin to travel into space.

The time gap in the space travel of Gagarin and Shepherd was just three weeks, which is a very small difference. However, because of the magnitude of Yuri Gagarin's success story, Alan Shepherd's trip to space relatively lost a worldwide significance. This was despite the fact that he was the first American to travel into space. Although one noteworthy aspect of Alan Shepherd's mission was that it was the first ever pilot controlled space flight, in public memory, till today, Yuri Gagarin's feat is still remembered. The success story of the Soviet space programme relied on such landmarks and further publicising these success stories widely all over the world.

CONCLUSION

The decade after the Sputnik 1's launch was the height of the space race. If one has to pick an era which signifies the height of the space race, one can point towards 1957-69 being that period: 1957, being the year of the launch of the Sputnik 1 by the USSR, and 1969 being the year when the US sent Neil Armstrong to the moon. It so happens that this period of 1957-69 almost coincides with the middle of the Cold War and the bipolarity after the World War II. Both superpowers invested in, developed and built their space programmes after the Sputnik 1. The decade post 1957 was one of great advancement in outer space, science, technology and engineering. The genius of Sergei Korolev and Wernher von Braun was seen and appreciated by the world in this decade. The 1960s, by any parameter, was the defining decade of the Cold War and the space race. It defined the discourse of the space rivalry between the US and USSR and also made space for cooperation between them in the future. It also generated huge interest among the masses worldwide about outer space travel and made astronauts into super heroes; a 'paradigm shift' had taken place in how space would be viewed in the future.