

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Moon Exploration – Part 1 (2A)

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ISRO'S LUNAR MISSIONS AND THE FUTURE IMPACT OF CHANDRAYAAN-3 ON THE INDIAN
SPACE INDUSTRY**Abstract**

The Moon has fascinated mankind since the early ages. This has led to many lunar missions involving rovers, orbiters and probes being launched to study its environment and surface. The Indian Space Research Organization initiated 'The Chandrayaan Programme' in 2003. This mission incorporates a lunar orbiter, soft lander, rover spacecraft and impactor. Chandrayaan-1's success in 2008 led to ISRO initiating a follow-up mission called the Chandrayaan-2. These missions have been significant milestones in India's space exploration journey. The failure of the Vikram lander incited ISRO to re-attempt the Lunar Polar Exploration Mission. Chandrayaan-3 is a lunar lander mission planned to be launched in June, 2023 with a mission of demonstrating end-to-end capability in safe landing and roving on the lunar surface. The Chandrayaan initiative has made massive impact on the Indian space sector and has prompted the private agencies to launch spacecrafts to the Moon for furthering the purpose of Chandrayaan-1. The successful operation of these expeditions have not only influenced the functioning of the Indian space sector but also ignited the need for research and development of lunar missions in foreign space agencies. The success of Chandrayaan-3 will be a game-changer to the space industry and the privatisation of space in India. The country whose space industry has been government powered since the establishment of ISRO, has expanded its horizons to the foundation of various space-based startups in the past decade. This paper aims to elaborate the objectives of the Chandrayaan programme throughout its life cycle and analyze the impact of the upcoming Chandrayaan-3 mission. This paper will comprise the technological achievements of the previous lunar missions of ISRO and focus on the future scope of Moon missions in India and the influence they are bound to have on the scientific capabilities of a nation, as well as its socio-economic impact. The paper will also highlight the potential benefits and challenges of ISRO's lunar missions, and the role of government policies and initiatives in shaping the development of the Indian space sector. This paper aims to conclusively determine the role of these missions in the overall development of an up and coming space power such as India.