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MOONLIGHT: A PARADIGM SHIFT FOR FUTURE COMMUNICATION AND NAVIGATION SERVICES AROUND THE MOON

Abstract

Moon exploration is emerging as the next global strategic priority in space exploration with highly ambitious governmental and commercial missions over the coming decades for a permanent return of mankind to the Moon. Market analysts have recorded over 400 planned missions to the Moon over the next decade. A dedicated satellite infrastructure around the Moon, providing communication and navigation services, will unlock the potential for future Lunar missions, enabling high-rate and low latency communications, even when on the Moon far side, safer and precise landing and surface navigation capabilities, with less on-board complexity. This will allow more science per mission as well as create opportunities for missions with smaller budgets. Telespazio has led a consortium composed by Hispasat and other major European Aerospace industries to study with ESA the feasibility of lunar communication and navigation services around the Moon. It is now the time to explore the full capabilities and the impact that such type of infrastructure development can bring as boost to the Lunar Economy. The paper is focused in providing a high-level overview of the services that can be provided to anchor customers and commercial users to support the growth of the Lunar exploration.