

22nd IAA SYMPOSIUM ON BUILDING BLOCKS FOR FUTURE SPACE EXPLORATION AND
DEVELOPMENT (D3)

Space Technology and System Management Practices and Tools (3)

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THE TECHNOLOGY MANAGEMENT OF INTEGRATING BLOCKCHAIN IN SPACE SYSTEMS

Abstract

Integrating blockchain technology in space systems offers a significant chance to improve data security, create transparent and unchangeable records, enable decentralized space communication, and simplify secure transactions in the space business. Although blockchain offers potential benefits, its incorporation into space systems is hindered by substantial obstacles and constraints that must be overcome for successful integration. Challenges including scalability, interoperability, and energy consumption hinder the integration of blockchain technology. Furthermore, the increasing popularity of blockchain technology in numerous sectors prompts inquiries on its potential implications for technology management. This study seeks to investigate the incorporation of blockchain technology from a technology management perspective, analyzing the potential, obstacles, and strategy associated with it. This paper investigates the applications of blockchain in technology management processes in space systems, focusing on communication between artificial satellites and ground stations. It covers the technology assessment, selection, acquisition, and transfer as well as technology innovation and governance. The study will explore the advantages of blockchain technology, such as improved security, transparency, and traceability, and its function in enabling decentralized technology management structures. Despite the increasing interest in blockchain technology, there is a shortage of thorough study examining its practical outcomes and techniques for integrating it into technology management procedures. The research results intend to address the existing literature gap by focusing on the integration of blockchain technology in technology management. The study focuses on the barriers of integrating blockchain, including technical limits, regulatory factors, and organizational obstacles. A framework based on theoretical techniques is created to help space organizations efficiently bridge the knowledge gap and facilitate the efficient incorporation of blockchain technology in technology management procedures.