

IAF SPACE SYSTEMS SYMPOSIUM (D1)  
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DIGITAL TWIN TECHNOLOGY AS A NEW APPROACH FOR INFRASTRUCTURE  
MANAGEMENT

**Abstract**

Digital twin technology has emerged as a promising new approach for infrastructure management, allowing for a virtual replica of physical assets to be created and monitored in real-time. By leveraging IoT sensors, data analytics, and machine learning algorithms, digital twins can provide valuable insights into the performance, maintenance needs, and operational efficiency of complex systems. This technology has applications in a wide range of industries, including transportation, energy, manufacturing, and municipal infrastructure management. With its ability to predict maintenance needs, optimize operations, and improve safety, the digital twin is poised to become an essential tool for municipalities in managing and maintaining critical infrastructure. The technology can help municipalities with city planning, monitoring water and wastewater systems, improving transportation systems, and optimizing energy usage. By using digital twins, municipalities can better understand the impact of infrastructure changes and make data-driven decisions to improve their communities.