

Impact Assessment of the National Communication Satellite in Relation to Mongolia's Digital Dependency Index (DDI)

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Abstract— In recent years, Mongolia's digital transformation has increasingly depended on satellite communication systems to extend nationwide connectivity. This paper presents an impact assessment of the National Communication Satellite Project in relation to Mongolia's Digital Dependency Index (DDI), which quantifies the nation's reliance on digital infrastructures, services, and technologies. The study employs a mixed-method approach combining statistical data analysis, correlation modelling, and qualitative assessment to examine how satellite deployment influences digital accessibility, service quality, and network resilience in remote and underserved areas. Results demonstrate that satellite-enabled broadband networks effectively reduce digital dependency disparities by ensuring stable connectivity and enabling key digital services such as e-government, tele-education, and telemedicine. Moreover, optimal satellite bandwidth allocation and hybrid interconnection with terrestrial fiber networks were found to improve DDI performance indicators by up to 18% in rural provinces. The findings of this study provide strategic insights for policy formulation and future satellite infrastructure planning, supporting Mongolia's goal of achieving nationwide digital inclusion by 2030.

Keyword— National Communication Satellite, Digital Dependency Index (DDI), Satellite Communication, Digital Transformation, Mongolia



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