

ABSTRACT

In 2023, digital transformation in Indonesia is advancing swiftly, with 69.21% of the population having accessed the internet. The 700 MHz frequency spectrum, accessible post Analog Switch-Off (ASO), presents a potential to enhance 5G coverage in Indonesia, particularly within the Jakarta Metropolitan Area. This study evaluates the techno-economic viability of 5G networks utilizing the 700 MHz spectrum across the Jakarta Metropolitan Area, focusing on both network performance and economic feasibility. The analysis includes simulations using Forsk Atoll software to assess signal coverage (SS-RSRP and SS-SINR), alongside economic evaluations encompassing CAPEX, OPEX, NPV, IRR, PBP and PI. The findings of this research are expected to serve as a reference for relevant stakeholders in planning and implementing 5G networks in the Jakarta Metropolitan Area from both technical and economic perspectives. Therefore, the 700 MHz frequency band deserves strong consideration for the deployment of 5G networks in metropolitan areas such as Jakarta.

Keywords: 5G, 700 MHz, techno-economic analysis, Metropolitan Area, Jakarta.