

ABSTRACT

Satellite telecommunication infrastructure plays crucial role for Indonesia as an archipelagic country where the terrestrial telecommunication infrastructure become uneconomical to cover thousands of islands far from the urban population. The first Indonesian geostationary satellite was launched in 1976 and currently has more than 6 geostationary satellite. Recent development in satellite technology, namely High Throughput Satellite (HTS), changed the economy for satellite operator which Indonesia first geostationary HTS satellite has been recently adopted. Furthermore, only in about one year later, Indonesia has also been issuing a license to foreign satellite operator using non-geostationary satellite constellation, namely Starlink. Although it has been theoretically discussed and reported previously, there has been very little empirical head-to-head comparison between Ka-Band HTS GSO network and Ku-Band HTS non-GSO system for a specific country. Such comparisons will provide more insight on the technical and economic values between the two systems, both advantages and disadvantages that gives an objective and useful regulatory feedback for a large country like Indonesia. This research aims to establish an understanding both technical and economic performances of Satria-1 GSO Satellite Network (“Satria-1”) and Starlink gen 1.5 Satellite Systems (Starlink) in Indonesia. This research will then utilize a techno-economic comparison by utilizing technical and economic parameter associated with the implementation of these satellites, as a foundation for the strategic recommendations that potential can be used as regulatory provisions for Indonesia government when formulating the non-GSO regulatory frameworks. The findings of this research found that the use of Starlink adds another 333-467 Gbps for government communications, and the total costs were more cost-effective for the combined use of Satria-1 and Starlink, achieving 7.3% - 8.1% less cost than the use of Satria-1 independently.

Keywords: Government, Indonesia, Satria-1, Starlink, Techno-Economic