ABSTRACT

Along with the rapid development of cellular telecommunications technology, cellular users' need for data traffic is also high. Thus, 5G technology is expected to be a solution that can provide data speeds. The bandwidth required for this technology is at least 100 MHz to 1 GHz. At the same time, the best frequency for mobile communication is below 6 GHz, especially for high range and mobility. However, the <6 GHz frequency is already filled, so it will not be easy to farm again. This phenomenon makes it difficult to provide a minimum bandwidth of 100 MHz for 5G technology. Therefore, spectrum sharing is something that needs to be realized.

Spectrum sharing is needed because Indonesia is preparing to deploy 5G services the community and industry need. The government also needs 5G services to support national digital transformation. Meanwhile, there is no wide (100 MHz) and sequential (contiguous) frequency spectrum.

This study examines the feasibility of three aspects, namely technology, economy, and regulation, of applying the Multi-Operator Core Network (MOCN) in two types of areas, namely densely populated urban areas and suburbs. There is a capacity analysis and a coverage analysis on the technical aspects. The capacity analysis compares the traffic capacity currently required and the capacity achieved by 5G technology. In comparison, the coverage analysis aims to calculate and predict the coverage of 5G technology sites. The economic study seeks to test the feasibility of the Multi-Operator Core Network (MOCN) business from the Mobile Network Operator (MNO) point of view. The regulatory analysis describes the latest regulations on spectrum sharing in Indonesia and the benchmarks for deploying Multi-Operator Core Network (MOCN) worldwide.

The results show that implementing Multi-Operator Core Network (MOCN) can reduce CAPEX and OPEX costs. The most feasible condition is capacity planning in Sumedang Regency with the sharing scenario of three MNOs.

Keywords: *Multi-Operator Core Network, 5G New Radio, network planning*