ABSTRACT

In the era of rapid development of telecommunications technology, communication services such as audio, data and video have become primary needs. Fiber To The Home (FTTH) is a technology that can meet these communication needs, providing Triple Play Service in the form of high quality video, voice and internet data. FTTH uses optical fiber as a transmission medium, which has advantages over copper cables in terms of communication speed and effectiveness. However, FTTH faces challenges such as difficult Return of Investment (RoI) and high installation costs. With AirPON which offers throughput of up to 10 Gbps with fewer devices and can reduce the Total Cost of Ownership (TCO). AirPON also enables accelerated construction of fixed networks through Fixed-Mobile Convergence (FMC) reconstruction. To determine the reliability of AirPON technology as a company data service, a comparison was made to compare the techno-economics of AirPON and FTTH at telecommunications operators in Vila Nusa Indah 5 Bogor with areas in West Nusa Tenggara which have the same capacity. The parameters analyzed include attenuation, bandwidth, throughput, as well as economic aspects such as OPEX, CAPEX, and Time to Market. comparison of costs and time for building conventional FTTH networks and AirPON. The main cost components in FTTH construction include surveys, permits, OLT, poles, feeder cables, sub-feeder cables, ODC, FAT, and installation services. AirPON, on the other hand, uses more efficient components, such as pre-connectorized cables and boxes without splicing. Example of actual costs for building an FTTH network at PT. XL Axiata and network development plans in West Nusa Tenggara show that AirPON requires a shorter feeder network, making work and costs more effective with a faster return on investment of around 2 years 8 months compared to conventional FTTH networks with a cumulative revenue ratio ratio over a period of 5 year.

***Keywords**:AirPON, FTTH, Techno Economics, Total Cost of Ownership* (TCO)