

## ABSTRACT

Fiber To The Home network can be used to meet the increasing bandwidth and access speed requirements brought about by the rapid growth of telecommunications technology. In this instance, there are certain issues related to FTTH development by Internet Service Providers (ISP) in some property area, such as recurring installations on poles, cables, and underground grids that result in a continuous grid, as well as an exclusive business model of the Provider in a particular area that prevents residents from selecting another ISP. In fact, a multi-provider internet service solution available by linking integration many ISPs on a GPON based FTTH sharing infrastructure constructed by real estate developers.

This thesis research analyses the technical, economic, and regulatory aspects of FTTH sharing infrastructure using GPON for multi-provider, focusing on investment by property developers in its-owned property area. It assesses technical aspects of standardization design of FTTH sharing infrastructure using GPON can make interconnection multi-provider. In economic aspects will assesses feasibility business investment analysis of FTTH sharing infrastructure using GPON by real-estate property developers in its-owned property area. This thesis also reviews the latest telecommunication regulatory about sharing infrastructure based on point of view from real-estate property developers.

The result show that FTTH sharing infrastructure using GPON technology can be used for interconnection multi-provider using VLAN with Received Optical Power should be  $<28$  dBm. Economically, investment by real-estate property developers to implement GPON sharing infrastructure are feasible in the 10 years projection, NPV = 40,032, IRR = 15,37%, and payback period = 7 year. The investment will be profitable in the long run, although there is a significant initial cost for CAPEX, the revenue or net income will growth generated is much greater than not investing, the regulatory analysis found some regulatory constraints made real-estate property developers are tough to develop FTTH sharing infrastructure in its-owned property.

**Keywords :** *FTTH, GPON, Sharing Infrastructure, Multi-Provider, VLAN, Property Developers, Techno-Economic Analysis, Regulatory Analysis*