

### ***Abstract***

Due to condition of limited network 3G capacity at present and increasing data traffic demand that grow every year, so it is feared could happen overload traffic on 3G networks. Furthermore, service quality enhancement that can support future technology with high speed specification. Therefore, it is needed a technology that capable to handle those problems. LTE (Long Term Evolution) is the one of mobile broadband technology solutions which can fulfill people's demand about reliable and high speed technology access and also it is good opportunity for Indonesia telecommunication business player. Moreover, migration of TV analog to digital planning will gives a good chance for LTE technology to use 700 MHz frequency which has further radius. Therefore, it is need a migration of UMTS to LTE planning which not only capable to handle demand of high speed technology and also profitable.

This planning of UMTS and LTE migration, beside calculate technical demand such as site coverage and capacity, also presents techno economic analysis to assess the feasibility of deploying LTE technology in Jakarta. This research will discuss architecture, coverage calculation with okumura-hatta method, maximum capacity of existing network using uplink pole capacity method and LTE network capacity with using distribution scheme per modulation scheme, market penetration

prediction made using Bass Modeling, data and voice traffic forecasting. The results of the technical calculation are used as a reference of the deployment scheme and to determinate number of devices to be used. Techno-economic analysis using DCF (discounted cash flow) method. By comparing the maximum capacity of the existing network with traffic forecasting results, it can be done deploying UMTS to LTE migration.

Based on calculations result be concluded that the implementation of UMTS to LTE migration feasible to be held with IRR value 16% is bigger than MARR 10,46% and NPV value Rp. 77,968,382,665.66 and Profitable index value 1.09. So, implementation can be held with 2 years payback period.

Key word: LTE, UMTS, Techno-economy