

## **ABSTRACT**

*Since the launch of 3G technology, the number of mobile data service users has increased. One solution of the problem is to migrate from 3G technology to 4G (LTE) technology with LTE specification that is support downlink speed up to 100 Mbps and uplink up to 50 Mbps, can serve customers. In addition LTE can be implemented on the existing 2G / 3G network, because the advantages of LTE technology is able to be implemented simultaneously on the existing 2G and 3G networks so that the implementation of LTE technology is low cost.*

*Surakarta City has developed so rapidly, especially with the existence of several universities that make a lot of people to study in Surakarta. LTE technology planning is in each other to taking into account technically both in coverage and capacity, also presents an economic analysis to explain the feasibility of deploying LTE technology. This research will discuss starting from eNodeB planning in coverage and capacity, blocking network element core probability and economic analysis using cashflow method. Based on the calculation and simulation using Atoll software got average coverage of RSRP is -86,93 dBm include into normal category, average of SINR is -2,18 dB include into bad category, and the average accessed throughput is 3.85 Mbps. Then the services successfully simulated are Video Phone and VoIP services with each total Max throughput Video Phone is 126.96 Mbps and VoIP is 297.23 Mbps. For Network Element Core projection results, the blocking probability in the planning is 0 with the percentage rate success is 100% then from the result there is no blocking probability. While from the economic aspect, the deployment of LTE technology in Surakarta City is not feasible to be held with IRR is -15,4% which is smaller than its interest rate that is 21,26%. And the value of NPV obtained is -Rp 21.743.142.946 which means the value of NPV <0 and payback period is undefined because the deployment is not feasible..*

**Key Words :** *LTE, RSRP, SINR, Througghput, Atoll, Techno-Economic's*