

## ABSTRACT

For the operator offering cellular telecommunication service, in order to be the first in quality and service type is a continuous effort that has to do by having full of calculation, innovation and creativity. Carefulness in seeing opportunities will make connected cellular telecommunication service operator become the best in free competition around operators in order to catch customer's heart. One of interesting choices being suggestion for PT TELKOM via *telkomflexi* product in order to develop new innovative service is business communication service such as promotion and advertisement. Big company or small company needs media to promote, meanwhile the current media type is still limited. So that, in this way PT TELKOM is able to earn new revenues. By using Geographic Information System (GIS), which contributes to manage good data, whether spatial or attribute, user can operate it in an integrated system.

In designing advertisement service based on location through SMS technology using GIS as a facilitator, it needs network activity data, architecture of network data, network data, order data, existing geographic coverage, Bandung map, land use data, PDRB; activity of economic; characteristic of customer data, cluster, and revenue data in order to supply information such amount of cellular customer database being SIG which affects in designing the advertisement service tool based in location.

Designing GIS software for service based on location has an aim to get potential location in supplying service information based in location using SMS technology. Determining this location is depending on consumer's need (in this way is corporation or certain organization) by giving attention in MS *telkomflexi* user mobilization area. So, generally GIS is designed for accessing, processing, visualization, and fast and good data availability about MS *telkomflexi* user mobilization in a certain area for supplying information via service based on location. Determination of position Mobile Station pursuant to geographic have been known in Data Base of *Telkomflexi* network with principal of Forward Link Time Difference of Arrival (TDoA) dan Angle of Arrival (AoA).

For supporting this implementation in sphere, it is calculated a feasibility study in test result and financial aspect towards the advertisement service application based on location. The analysis result in financial aspect are IRR : 38 %, NPV: Rp.43.559.550, PBP : 1.70, BCR: 1.61 on condition average of message 290.000 SMS and tariff Rp.1400. So that, by seeing the result of feasibility analysis above, application implementation in sphere is a feasible invest.

Keywords : GIS, SMS, feasibility analysis

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