ON THE APPLICABILITY OF THE ANALYTIC NETWORK PROCESS TO RURAL TELECOMMUNICATIONS INFRASTRUCTURE TECHNOLOGY SELECTION

Yousef Gasiea*
School of Mechanical, Aerospace and Civil Engineering
The University of Manchester
Manchester, UK
E-mail: yousef.gasiea@postgrad.manchester.ac.uk

Margaret Emsley
School of Mechanical, Aerospace and Civil Engineering
The University of Manchester
Manchester, UK
E-mail: margaret.emsley@manchester.ac.uk

Ludmil Mikhailov
Manchester Business School
The University of Manchester
Manchester, UK
E-mail: ludi.mikhailov@manchester.ac.uk

ABSTRACT

The decisions involved in rural settings are of complex nature, with some aspects compounded by the presence of intangible criteria. Hence, a suitable approach is needed that can produce effective solutions. This paper describes the applicability of a multi-criteria decision-making method, specifically the Analytic Network Process (ANP), to model the selection of an appropriate telecommunications infrastructure technology, capable of deploying e-services in rural areas of developing countries. It aims to raise awareness among telecommunication planners about the availability of ANP, and to demonstrate its suitability to enhance the selection process. It focuses on the ANP main stages, namely: the structuring of the problem and constructing the model, assessment of the importance of the related factors and finally the synthesis of results. The proposed model is constructed based on concerned experts' views of relevant selection criteria and potential technology alternatives. Its network structure caters for all possible dependencies and interactions among criteria and alternatives.

Keywords: *Analytic Network Process, Rural Telecommunications, Technology Selection.*

* Corresponding author