UDC 519.816

# AHP/ANP STABILITY MEASUREMENT AND ITS APPLICATIONS

Vitaliy Tsyganok
National Academy of Sciences of Ukraine
The Institute for Information Recording
Kyiv, Ukraine
E-mail: vitaliy.tsyganok@gmail.com

**ABSTRACT**

AHP/ANP stability measurement methods are described. In this paper we define the method's stability as the measure of its results dependence on the expert's errors, made during pair comparisons. Ranking Stability (order preservation in alternative ranking under natural expert's errors, made during expert estimation) and Estimating Stability (maintaining alternative weights within the specified maximal relative inaccuracy range) are considered. Targeted Genetic Algorithm search procedure is used for possible stability violation detection. Then division-in-half (dichotomy) method is applied to calculate stability metric of a given criteria hierarchy.

Keywords: AHP/ANP stability measurement, Ranking/Estimate stability, Genetic Algorithm