

An Integrated DANP-PROMETHEE II Approach for Air Traffic Controllers' Workload Stress Problem

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Abstract : The demanding, professional roles that air traffic controllers (ATC) play in air transport operation provided the main motivation of this paper. As the controllers' workload stress becomes more complex due to various stressors, the challenge to overcome these in the pursuit of improving the efficiency of controllers and safety level of aircrafts has been relevant. Therefore, in order to determine the main stressors and surface the best alternative, two widely-known multi-criteria decision-making (MCDM) methods, DANP and PROMETHEE II, are applied. The proposed method is demonstrated in a case study at Mactan Civil Aviation Authority of the Philippines (CAAP). The results showed that the main stressors are high air traffic volume, extraneous traffic, unforeseen events, limitations and reliability of equipment, noise/distracter, micro climate, bad posture, relations with supervisors and colleagues, private life conditions/relationships, and emotional conditions. In the outranking of alternatives, compartmentalization is believed to be the most preferred alternative to overcome controllers' workload stress. This implies that compartmentalization can best be applied to reduce controller workload stress.

Keywords : air traffic controller, DANP, MCDM, PROMETHEE II, workload stress

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