

The OR Society OR59 Annual Conference

12-14 September 2017

Loughborough University, Loughborough, Leicestershire. LE11 3TU

Airport Operations Management
Organiser: Ammar Al Bazi

12/09/2017 : 15:00 : Room 7 - JF D.0.02 (x56)

Code: OR59A3087

The Airport's Noise: Modelling a Fair Distribution of Flyover

Mr Paul Chatelain (*Université Catholique de Louvain*)

While air transport generates social and economic benefits, it also generates negative environmental externalities among which noise pollution is one of the most cited. Few global propositions to control this externality have been proposed. According to several studies, the noise generated by this flyover can increase the risk of serious damage for the health and is also uncomfortable on a daily basis. This noise disturbance leads to many complaints from local residents. While many politicians have studied the problem each new plan generates tensions and protests among the citizen associations. Although an airport is a source of noise, it is also a vector of economic development (taxes, employment, city attractiveness ...) and brings some satisfaction for the users. Welfare, health and fairness are of peculiar importance in our modern societies. Thousands of people suffer from the lack of solution relative to this environmental problem. Moreover, such topics – how to deal with environmental issue? , have gained major interested in society those last decades. The aim of the project is to develop a model which provides a fair, structured and documented arbitration resource allocation between the different stakeholders (citizens, airports management, airlines companies, airport's employees, political authorities (with different level of power)). The model aims to be efficient in term of social welfare and will integrate ethical question. Specifically, the model should be able to answer the following questions: - What are the relevant aspect of the problem, who are the stakeholders? What are their hidden expectation? - How to model the problem and solve it? - How to allocate flight on routes according to the ethical criterion selected? - What is the "price" of each ethical criterion regarding the optimal solution? - Sensitivity Analysis: Is it possible to improve situation by developing new routes?

What is the nature of your talk?: A mix

Does your talk require prior knowledge of the subject area?: A little

Is your talk accessible and relevant to Practitioners?: Relevant

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Code: OR59A3089

Airports Efficiency Over Time: 'How has the 2008 Economic Crisis Affected the Efficiency of Spanish Airports? A DEA Analysis'

Miss Ane Elixabete Ripoll-Zarraga (*Universitat Autònoma de Barcelona*), **Prof Cecilio Mar-Molinero** (*Kent Business School*) and **Dr Fabiola Portillo Pérez de Viñaspre** (*Universidad de la Rioja*)

We study DEA efficiencies of 47 Spanish airports over the period 2009-2013 under a variety of input/output specifications. 186 input/output specifications are estimated using DEA. The results are analysed using the tools of multivariate statistical analysis, in particular the Individual Differences Scaling model of Carroll and Chang. This model reveals what has remained invariant over the period, what are the most salient characteristics of airport efficiency, and how these characteristics have changed in importance during the crisis period. Given the large differences in size between the airports we use the Variable Returns to Scale approach. Since it is a characteristic of economic crisis that some capacity remains idle, we use the output oriented form of DEA. The results reveal an important drop in efficiency between 2009 and 2010, followed by a period of slow recovery.

What is the nature of your talk?: Practical

Does your talk require prior knowledge of the subject area?: Some

Is your talk accessible and relevant to Practitioners?: Relevant

12/09/2017 : 16:30 : Room 7 - JF D.0.02 (x56)

Code: OR59A3106

Multi-Agent Based Optimisation System for Resource Allocation, Scheduling and Routing in Aircraft Ground Handling Operations

Miss Hayat El Asri (*Coventry University*) and **Dr Ammar Al Bazi** (*Coventry University*)