REPOSITORIO DIGITAL UNIVERSITARIO (RDU-UNC)

Gestión de residuos peligrosos: selección de oferentes con un método de soporte a la decisión multicriterio grupal

José Luis Zanazzi, Nadia Ayelen Luczywo, José Francisco Zanazzi, Daniel Alberto Pontelli, José María Conforte

R. Viana

ABSTRACT. This article presents a computational tool that can be applied to minimize costs in the distribution of products or services with transport. An application of the Vehicle Routing Problem was used to optimize the routing process of deliveries of products or services. In the literature, this problem has an association with the Traveling Salesman Problem (TSP). Also in this study, the TSP is approached through a Georeferenced Routing Environment (GRE) designed by the development, implementation and testing of hybrid heuristics, built specifically for the problem. Computational experiments were performed with instances of the literature. It was possible to measure the good performance of these techniques. Heuristics are also attached and executed within the GRE, modeled with road networks maps, where it is possible create and analyze the solutions of the problem with graphic monitoring.

Hub location problems with multiple threshold-based discounts

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ABSTRACT. The accurate modeling of economies of scale in hub and spoke networks has been recently under revision. It concerns the cost structures used in hub location problems. We formulate hub location problems where the cost charged is flow-dependent, with multiple thresholds. This cost structure could be applied when leased vehicles are used to transport people or goods in hub and spoke networks. We develop efficient solution techniques and perform extensive computational experiments. Our approach is able to model economies of scale, is consistent with flow consolidation in transportation networks, and can be easily extended to other cost structures. Results show the appropriateness of our approach.

17F: RED- M: MCDA Methodologies

Auditorio 6, 11:45-13:15
Session Chair: Adiel Teixeira De Almeida

Gestión de residuos peligrosos: Selección de oferentes con un método de soporte a la decisión multicriterio grupal.

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ABSTRACT. Este trabajo aborda el problema de seleccionar un proveedor externo para la gestión de resid-uos patógenos en una entidad universitaria. Se propone aquí el uso de una método multicriterio grupal (Procesos DRV), desarrollado para sustentar decisiones, estimular la generación de consenso y reducir el efecto de la presión grupal, a la vez que considera las perturbaciones sobre la información disponible (incertidumbre, imprecisión, datos confusos o inexistentes). Se propicia de esta manera la construcción de conocimiento compartido y el compromiso posterior con las acciones acordadas. El documento presenta y discute los resultados de una aplicación real. En las conclusiones se resalta el potencial de este enfoque metodológico para el estudio de problemas complejos de toma de decisiones.

Towards a robustness metrics in ranking multicriteria problems, based on a flexibility framework

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ABSTRACT. A robustness metrics is proposed for ranking solutions in multiple criteria problems, which involves different decision makers participating in the decision process. This metrics can be understood as a flexibility measure where robustness is defined as a fitness criterion, grounded on a distance between a solution and the expected solutions representing the decision makers' preferences. Therefore, the more a solution is compatible with the decision makers' expectations, the more robust. The usage of this metrics is illustrated by the application of a multicriteria decision analysis method in an example problem.

Multicriteria decision-making under uncertainty: a behavioural experiment with experienced participants in supply chain management

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ABSTRACT. The bullwhip-effect is an undesired upstream increasing of production variability in a supply chain, related to demand variability at the retail stage. It has extensively studied in literature. However, most of analysis use a single criterion framework. In this article, an exploratory study is developed to analyze behaviour of participants in a fictitious three-stage supply chain. The aim is to detect if they use mono-criterion or multi-criterion strategies to define the order level and control the bullwhip effect. Only trained people is considered, but two treatments (pull method and unspecific strategy) are included in the experiment. Results show that trained people fail to identify a right strategy to damp down the