dade da metodologia reduziram em mais de 10% o valor de obsoletos identificados.

■ **Wed.1.4**, *Wednesday, June 28, 16:50-18:30, Room 4*

Data Analysis and Artificial Inteligence

Session chair: *Helena Alvelos*

1. The two-dimensional strip packing problem: what matters?

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Keywords: Strip packing problem; Cutting and packing problem; Principal component analysis; Knowledge discovery

In this paper, an exploratory approach is conducted to deeper understand the most significant characteristics of the two-dimensional strip packing problem. A number of variables are defined to represent the main problem characteristics, segregated into four groups, established through qualitative knowledge about the context of the problem and considering reference parameters used to develop each variable. At the same time, a linear correlation is used as a quantitative measure to validate the assignment of variables to groups. In a second moment, principal component analysis (PCA) is used to reduce the dimensions of each group, revealing the relationship between each variable and the components generated by the PCA. Our analysis indicates that the problem can be reduced to ten characteristics, retaining most part of the total variance explained by the sampling. These components can be used to fit parametric or non-parametric regression models to estimate the strip height necessary to position all items inside the strip.

2. The reverse logistics of unsold medications in pharmacies in Campania, Italy

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Keywords: Reverse Logistics, Expired date medications, Pharmacies, Region of Campania-Italy, Factor Analysis

This paper is a study in Reverse Logistics (RL) that aims to analyse the reverse flow of medications with expired dates, in the pharmacies of the Campania region in Italy. The main objective is to analyse the final destination of medications that are not sold and are collected in pharmacies. The analysis of how the company responsible for the collection of the medicines works was made using semistructured interviews, and a subsequent factor analysis of the collected data. The pharmacies of the main cities of this region were investigated, in order to understand their importance in this process, as well as to understand their main difficulties and challenges. A statistical analysis of the data allowed us to verify how pharmacies are accustomed to the current legislation and are aware of the importance of their role in the RL of the medications that are not sold with the expiration date. It was observed that pharmacies are very satisfied with the company responsible for the collection and referral of medicines and their materials to an adequate final destination. Both of them work in tune, respond well to current legislation and respect the environment.

3. Optimization of short-term storage of containers in empty container terminals

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Keywords: Space allocation, empty container terminals, heuristics, uncertainty modelling

Small scale empty container terminals are subject to severe space and operational constraints. The need to stack containers belonging to different clients and bookings in the same stack comes at the expense of higher operational costs and lower service level. The decision on where to store a newly arrived container has thus a major