

Lecture Series of the Research Institute for Supply Chain Management

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Building TC, Room TC 2.03,
Welthandelsplatz 1,
1020 Vienna

**JENS KÄRCHER,
HERBERT MEYR (PRESENTER)**

A MACHINE LEARNING APPROACH FOR IDENTIFYING THE BEST SOLUTION HEURISTIC FOR A LARGE SCALED CAPACITATED LOTSIZING PROBLEM:

For some difficult lot-sizing problems, many different solution heuristics exist, but they have different solution qualities and computation times depending on the characteristics of the problem instance. The computation times of the individual solution heuristics increase significantly with the problem size so that testing all available solution heuristics for very large problem instances requires extensive time. Therefore, it is necessary to develop a method that allows predicting the best solution heuristic for the respective instance without testing all available solution heuristics. Five different forecasting methods will be presented and compared, one of them being a neural network. It is trained on small instances, but nevertheless able to predict the best solution heuristic also for large instances with a high reliability.

Herbert Meyr worked as doctoral and postdoctoral scientific assistant at the Department of Production and Logistics at the University of Augsburg from 1994-2003. After finishing his doctoral thesis on simultaneous lot-sizing and scheduling, he changed his research interests to modelling and coordination aspects of supply chain planning. He was professor for transportation and logistics (2003-2006) and head of the Research Institute for Supply Chain Management (2005-2006) at the Vienna University of Economics and Business before he became a professor for production and supply chain management at the Technical University of Darmstadt. Since 2011 he holds a chair for supply chain management at the University of Hohenheim, Stuttgart.

For further information, please contact sekretariat.itl@wu.ac.at
