

Lecture 3	Decision Support at Container Terminals: Scalability Issues Using Decision Analysis
Lecturer	Stefan Voss
Affiliation	University of Hamburg, Germany
Date	March 9, 9:00-10:15

Abstract

Computational Logistics involves the use of information systems and modern information and communication technology (IT) for the design, planning and control of logistics networks as well as the complex tasks within them. As the logistics and supply chain management fields are developing very dynamically, related service networks are seeking for improved decision support. While modern IT systems are vital components in supply chains and logistics, their successful management rests on intelligent and coordinated decision making throughout the logistics network. In this tutorial we are providing comprehensive insights into computational logistics. Issues are exemplified by the intensive discussion of case studies from the area of seaport container terminals.

Increasing containerization and competition among seaport container terminals have become quite remarkable in worldwide international trade. Operations are nowadays unthinkable without effective and efficient IT use and appropriate decision analysis tools and optimization (management science and operations research) methods. We describe and classify the main logistics processes and operations in container terminals and survey selected methods for their optimization. In advanced terminals automation plays a major role. However, one has to strike a proper balance regarding various degrees of automation versus manual operations. Moreover, we extend towards recent challenges going beyond pure operations but considering global competition on various levels.

Keywords: Container Terminals, Automation, Scalability, Operations Research, Shipping Companies, Computational Logistics.