

Container port operations planning: New insights for next generation ports

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Abstract

Nowadays, large container terminals can handle more than 30 million containers a year and they constantly aim to deliver high quality, timely, safe, green, collaborative and profitable services using new technologies. These aspects constitute next generation port concept. The productivity of container terminals heavily relies on the efficiency of berths, quay cranes, yard area and transport vehicles. Most of the operational problems, that use such resources in a container terminal, are interconnected.

In this talk, Dr. Cagatay Iris will detail three of these integrated problems and present new insights for next generation ports. 1) Since the handling time of the vessels primarily depends on the number of containers to be handled and the number of cranes deployed, the integrated berth allocation and quay crane assignment problem is addressed. 2) Flexible ship loading problem covers the integration of ship stowage planning, container load sequencing and loading vehicle scheduling problems in a collaborative manner. 3) Next generation ports are expected to be operating in energy efficient way. Dr. Iris will finally present an overview of operational strategies, technologies and energy management systems to enhance energy efficiency in ports.