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Storage space for cars at the RoRo -Terminal Bremerhaven

DECISION SUPPORT FOR SELECTING
TERMINAL OPERATING SYSTEMS

What are Terminal Operating Systems (TOS)?

A Terminal Operating System (TOS) is primarily used for planning and controlling the flow of goods to, at and from the terminal as well as the storage of these goods. Moreover, it helps to make optimal use of existing resources such as space, personnel and equipment. Nowadays, software solutions are usually designed as modular systems, each module covering a different application area. Some of the most important modules are devoted to In- and Output, Yard Movement, Storage, Administration as well as Management and IT. There is an overview of these functions in figure 1.

What are the challenges involved in selecting a TOS?

The challenge faced by terminal operators is to single out the TOS that best meets the requirements of one's terminal. It must be able to manage, control and digitally map the real world of processes, facilities and equipment. The global market of TOS providers is highly fragmented and offers only little transparency.
Due to high implementation and training costs, the choice of a specific TOS entails a long-term commitment to the manufacturer. Therefore, careful and sustainable considerations of the terminal's unique present and future requirements are in order.
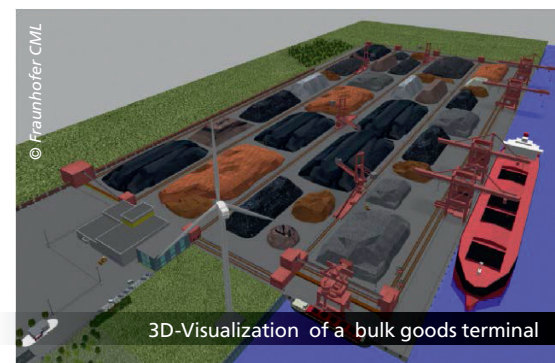
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3D-Visualization of a bulk goods terminal

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Containerterminal Tollerort, Hamburg

Which TOS software meets your requirements?

Several TOS providers on the market offer pre-configured systems that specialize in certain features or client needs. Their products range from individual modular components to cross-functional, integrated software solutions. Of all software systems and modules on offer, only those are suitable for use in your terminal that will optimally support the processes that are central to your present and future success (figure 1).

How does Fraunhofer CML provide support in selecting a TOS?

The support services Fraunhofer CML offers to assist you in selecting the appropriate TOS are based on the **SDS-T** method:

Structured
Decision Support for the
Selection of
Terminal Operating Systems.

In an effort to customize our services to your preferences, the method is designed so that you choose assistance with certain stages of the selection process rather than with the entire process.

How is the SDS-T method struktured?

Our assistance with the selection process is divided into the following stages, as depicted in figure 2:

• Analysis of the Status Quo
Based on the unique current situation of the terminal, we analyze the business processes the new software systems or modules must support. The results are recorded in a process map.

• Determination of Objectives
Taking functional and provider-driven parameters into account, we determine the demands to be met by the TOS and list the resulting criteria.
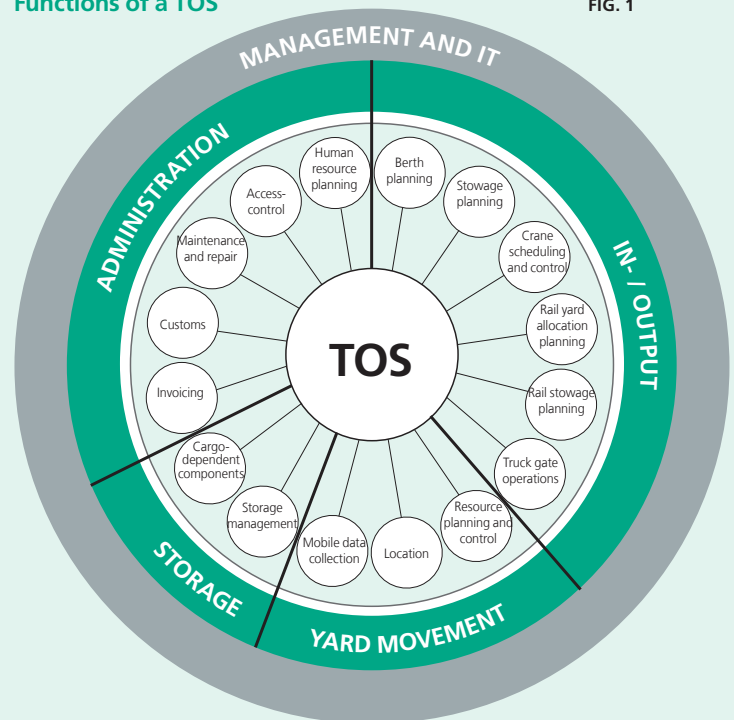
• Market Analysis
Through an analysis of the relevant provider market and by matching it against the listed criteria, we identify appropriate providers of Terminal Operating Systems and their products.

•Selection
We make a shortlist of suitable providers by matching the target concept against the relevant company-specific performance profiles, then further prioritize the list based on individual criteria.

Functions of a TOS FIG. 1

Application of the SDS-T method FIG. 2

PROCESS MAP	ANALYSIS OF THE STATUS QUO
LIST OF CRITERIA	DETERMINATION OF OBJECTIVES
RELEVANT MARKET OVERVIEW	MARKET ANALYSIS
YOUR DECISION	SELECTION

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