

Improve productivity through better planning

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Over the last decade we have seen huge amounts of money invested into the Middle East transport industry, and the region is quickly becoming one of the world's most important logistics hubs. As such, terminals in the area have to cope with unprecedented container volumes and increasing demands from shipping lines, meaning that operations are now more complex than ever before.

This increased pressure means that improving terminal operations efficiency is essential, and at this year's TOC Container Supply Chain: Middle East conference in Dubai, I will be hosting a presentation about how virtual terminals can help ease the strain on the region's container supply chain.

Serving today's mega-vessels with the appropriate productivity is not possible without aligning processes across the entire terminal. It goes without saying that to synchronize different types of equipment, complex strategies are required. However, over the years, relatively little attention has been directed to the use of operations research methods and techniques to optimize operations.

Terminal operators and controllers have to plan their next steps like chess players. There are long-term strategies to control the terminal, but it is essential that they are able to react to what happens on the terminal each shift, or even each hour. To find the best combination for a particular terminal, virtual terminal software can provide a playground to test various scenarios and show how these changes can influence overall productivity.

Virtual terminals allow operators to train their control staff, allowing them to plan for numerous different scenarios. Problems, large and small, can be given to employees and they have to find the best solutions in accordance with performance requirements. This helps staff to improve their performance and react in the best way possible, allowing them to become 'Grandmasters' in terminal operation. The main benefit is that all these scenarios may be played through again and again without disturbing the real operations on the terminal and without consuming equipments' energy. Essentially, new strategies may be tested and their benefits evaluated.

The technology used in virtual terminals (known as simulation, or even more as emulation) has been used for over 10 years, but due to its complexity and the amount of effort needed to ensure proper usage, systems have traditionally only been used in huge projects such as automated greenfield terminals.

For instance, when the Altenwerder terminal in Hamburg opened back in 2002, the whole planning process, as well as the installation and the start-up phase, were supported with simulation. The models built at that time are still in use today, but as IT has developed further, these technologies have been developed for use in other sizes and types of terminals.



Today, technology allows us to couple virtual terminal software with TOSs in a way that will reduce the development time for building the model of a new terminal from months, or even years, to weeks. The main idea of this approach is that terminal operators are not only using the virtual terminal software as a black box, they can now configure it to fit to new demands and changes. Experienced users will also be in the position to build up new terminals from the scratch, whilst external simulation experts can support users if necessary or if they are short of manpower.

At TOC Container Supply Chain: Middle East, Portek and ISL Applications GmbH will discuss in detail the use of virtual terminals to optimize terminal operations. ISL Applications will offer delegates an insight into the new approaches that will allow users to build up virtual terminals themselves, meaning that medium-sized terminals will be able to effectively use these technologies. During my seminar on September 25th, I will present a number of case studies, including how Eurogate Group has implemented virtual terminal software to optimize its current operation, as well as testing and customizing their future operation at the Wilhelmshaven greenfield terminal. I'll also discuss the benefits that Transnet Port and Terminals (South Africa) has received from using the CHESSCON Simulation module for strategic and tactical planning issues.

I am very much looking forward to this year's TOC Container Supply Chain: Middle East as it will be an excellent forum to debate the use of this new technology. The Middle East is booming at the moment, but it must ensure that it has the ability to cope with the demands that will be placed upon it. Virtual terminals will undoubtedly help them plan for the future and put in place excellent strategies to succeed.

ABOUT THE AUTHOR AND THE EVENT



Prof. Dr.-Ing. Holger Schuett has been working in the field of container terminal optimization for more than 20 years. He is CEO of ISL Applications GmbH and since 2003 has been Head of the Competence Center of Optimization and Simulation within the Institute of Shipping Economics and Logistics (ISL). Furthermore he took up a professorship at the University of Applied Science in Bremerhaven

in 2010. Before Holger worked as a project manager at HHLA/Hamburg, his most famous project had been the simulation based consultancy of the new fully automated container terminal Hamburg Altenwerder.

The **TOC Container Supply Chain: Middle East Conference & Exhibition** is co-located with Materials Handling Middle East and will run from 25-27 September 2011 at the Dubai World Trade Centre, Dubai, UAE.