Voltri Terminals, Genoa, Italy

Continuous development is a key characteristic of today's business, especially for ports around the world. New terminals are being built and existing terminals are being modified to meet the future challenges of growth and efficiency. New terminal projects often involve large investments that need to be considered as thoroughly as possible. Kalmar Terminal Development® offers consultancy and simulation services to evaluate these needs. "The aim is to help customers find the best solution and to test their plans in advance," says Jari Pirhonen, Kalmar Terminal Development® General Manager.

Planning the future

"We are trying to imitate the real operations as much as possible. Of course, simulation is never 100 percent reality, but it can be fairly close," comments Pirhonen. "We can find at least the big problems – such as bottlenecks. It's important that operators recognize the possible problem areas before the final implementation, because it makes the elimination of the problems easier.

Simulation is often used for testing a new handling system, either for new or existing terminals, but it could as well be used for testing a new feature, such as tandem lift concept for ship-to-shore cranes. Compared to the testing with the actual equipment it offers a cost-attractive option."

Know what you want

Terminals use Kalmar's simulation service mainly to measure vessel and crane productivity, yard equipment productivity and utilization and landside service levels, which are also commonly used for evaluating a terminal's performance. "It makes it easier if the customer knows what they are looking for and what they need to verify with the help of simulation. Otherwise, they might end up with lots of data which is not essential for them," says Pirhonen.

Kalmar assists VTE with its terminal conversion

Voltri Terminals (VTE), located in Genoa, Italy and also a division of PSA, operates with ten ship-to-shore cranes to realise a volume expected to reach 1 million TEUs by the end of this year. The terminal operates with a mix of RTGs and reach stackers. VTE is planning to convert to a full RTG operation and increase its nominal capacity up to 2 million TEUs.

To help facilitate the conversion, the company opted for Kalmar's Port Optimizer®, a software program used for simulations. This tool provides a platform that can be utilised for building simulation scenes according to each customer's unique requirements.

"At the beginning of the simulation we had three main goals for the project," says Giulio Bessone, VTE's Project Manager for the simulation project. "We needed to define the maximum capacity of the terminal, plan the handling capacity growth according to the volume forecasts, and find an economically efficient way to reach that desired capacity."

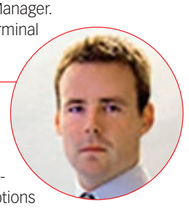
To obtain all of the desired information, the simulation included the rail yard and the empty depot operations. VTE's conversion project will be done in phases so it is an important benefit for VTE to be able to use Port Optimizer® after the simulation project is finished.

Port of Rauma and Rauma Stevedoring finds the best option for their growth

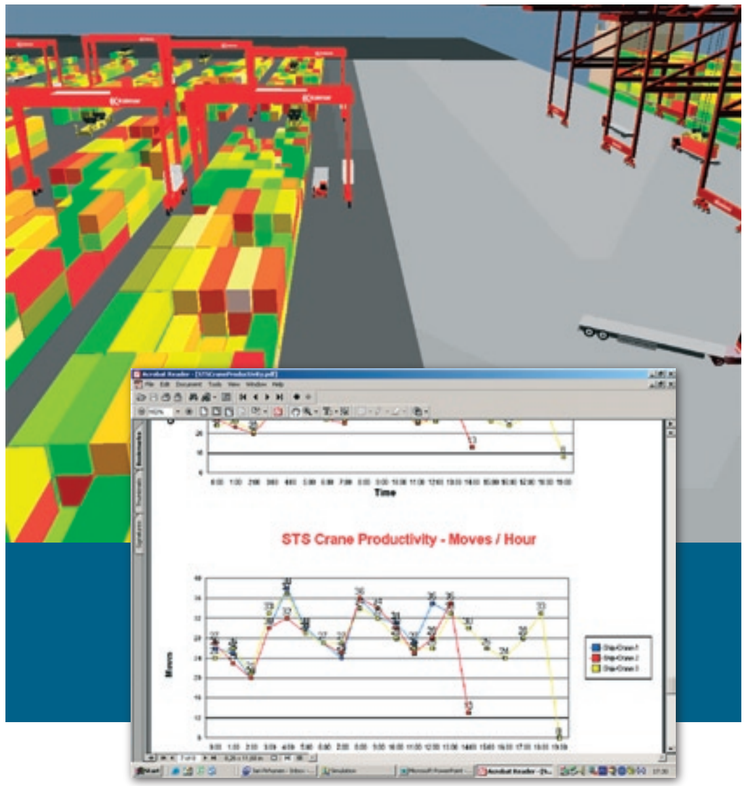
Port of Rauma handled approximately 170,000 TEUs in 2006 with one ship-to-shore crane and three mobile harbour cranes. Port of Rauma is the largest paper export terminal in Finland, and currently, containers form 25 percent of its annual traffic – an increase of 40 percent from the previous year and a growth that is estimated to continue steadily.

Rauma Stevedoring's operation is special in the fact that it packs 70 percent of the containers at the terminal before the shipment. Terminal operations are divided between Port of Rauma, which owns and operates the ship-to-shore crane and mobile harbour cranes, and Rauma Stevedoring, which is in charge of all the yard and land side operations including the packing of containers.

"The terminal yard currently operates with reachstackers and terminal tractors, but with the expected growth rate of containers and the yard's space limitations, we now have to carefully analyse how to increase our capacity," says Janne Virta, Rauma Stevedoring Terminal Manager.



Kalmar Terminal Development®'s Miikka Kangas, Project Engineer, assisted in the project in a study comparing the different handling systems and layout options before the detailed simulation. "With the help of different layout options and detailed analyses, we determined how to reach the desired capacity," says Kangas. The main target of the simulation was to demonstrate how much capacity could be increased with a new handling system using the optimum number of equipment.



on the landside. If the main characteristics – for example the layout change dramatically it is possible for them to come back and ask us to do the changes. The additional costs will be minor since the original simulation already exists.

"Our customers can also use the Port Optimizer to market their services to their customers," Jari Pirhonen continues. "They can show the simulation to a shipping line demonstrating how their planned terminal will look and what the estimated productivity would be for the customer's vessel. High level 3-D graphics not only make it easier to demonstrate the planned operation but also make it possible to verify that the simulation is realistic. Simulation can be indeed used both for planning and marketing purposes."

Continuous development with Port Optimizer®

Kalmar's Port Optimizer® is a flexible tool that allows customers to plug in different variables according to the continuous developmental needs of their operations. "Our approach is that our customers get a license to run this software so that they can test different scenarios also in the future. They can test, for example, what happens if they get bigger vessels or bigger peaks

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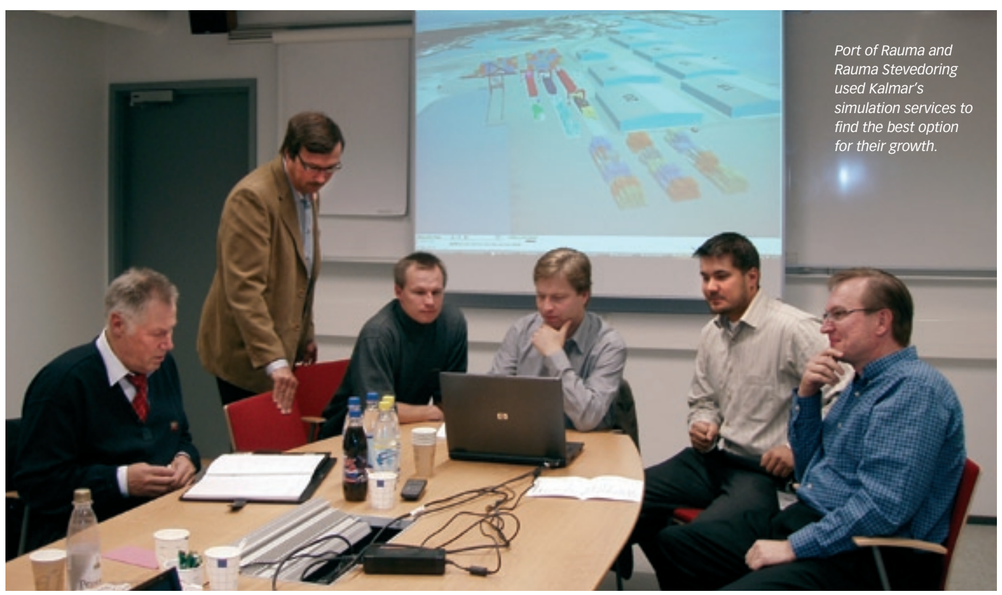

Port of Rauma and Rauma Stevedoring used Kalmar's simulation services to find the best option for their growth.