Flinders Ports Adelaide Container Terminal installs RFID vehicle tracking system from RAMP RFID

One of the many time-consuming and labour-intensive tasks carried out by marine container terminal operators is the management of truck movements in and out of terminals. For Adelaide Container Terminal, one of the world's largest 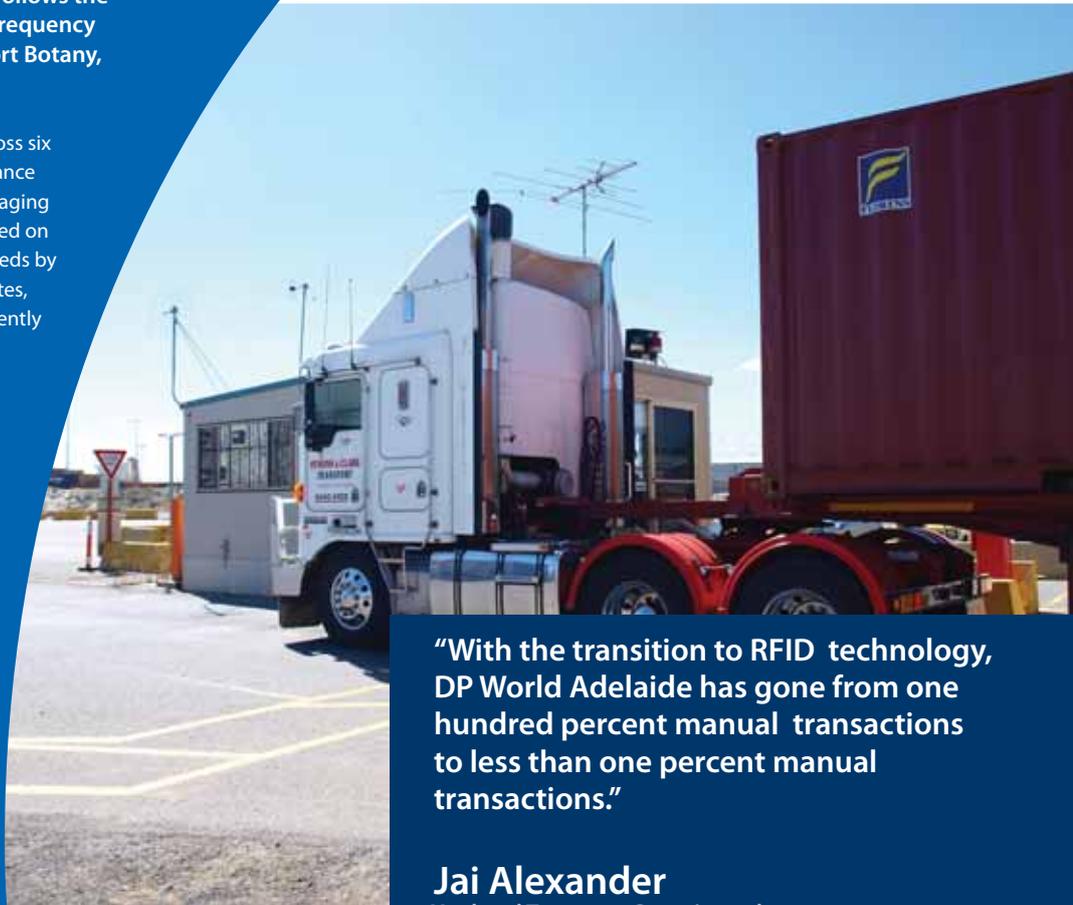marine container terminal companies, significant improvements in vehicle tracking efficiency and productivity have been achieved through the implementation of a vehicle tracking system based on RFID technology from Ramp RFID.

The Adelaide Container Terminal installation follows the successful deployment of Ramp RFID's radio frequency identification technology at Flinders Ports' Port Botany, Fremantle and Brisbane terminals.

With more than 60 marine terminals in operation across six continents, Adelaide Container Terminal aims to enhance customers' supply chain efficiency by effectively managing container, bulk and other cargo. The terminal is focused on providing customised solutions to meet customer needs by consistently achieving high container productivity rates, rapid container delivery and timely information. Currently Adelaide is the only container terminal operator servicing South Australia.

With more than 100 transport industry customers, Adelaide Container Terminal has approximately 500 container-loaded trucks moving through the terminal's access gates each day. Previously, truck movements and container drop-offs and pick-ups were managed via a manual system that required truck drivers to exchange paperwork with a clerk upon arrival at the facility. The clerk would then manually enter the job into the terminal's operating system to organise the appropriate machinery to unload the truck's containers and arrange container pick-up. Although recognised as an inefficient system susceptible to inaccuracies, a viable alternative was not available until the advent of RFID technology. For the rollout of its RFID-based vehicle tracking system, Adelaide Container Terminal provided over 1,000 active RFID tags to the truck owner/operators that use the terminal. With an RFID tag attached to the rear bumper of each truck and read zones installed at all truck entry and exit points, the terminal is able to automatically process trucks resulting in reduced truck queuing time, reduced congestion around gates and an overall increase in productivity and accuracy.

The RFID tags supplied by Ramp RFID were Identec Solutions' Intelligent Long Range beacon tags.The terminal's capture points use Identec's iPort Reader and iMark position markers with IQ Beacon middleware to capture and output the data to the terminal's operating system. Position marker technology with in-road ground loop antennas were installed at each truck lane to provide discrete lane visibility, allowing Adelaide Container Terminal to know which particular lane a truck is occupying.

Flinders Ports

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Yard and Transport Superintendant
Flinders Ports Adelaide Container Terminal

The tracking of vehicles begins with the transport company which books a time-slot for the expected arrival of a truck. The details of the booking, including which containers are to be dropped off and picked up, are lodged with the vehicle booking system. This interrogates the internal operating system, confirms that all the data is correct and that any containers to be picked up are available. When the truck arrives at the terminal, the system interrogates the RFID tag. This read data is sent to the Terminal Operating System (TOS) which confirms its authorisation for entry and its container requirements. The details of the job are transmitted to an equipment controller who automatically assigns the machinery required to carry out the unloading and loading of containers. As the truck exits the terminal the RFID vehicle tracking system provides a gate receipt for the transaction. With the transition to RFID technology, Adelaide Container Terminal has gone from one hundred percent manual transactions to less than one percent manual transactions.

As well as providing a faster and more accurate means of processing truck movements, DP World Adelaide's RFID solution is lightening the burden of the terminal's human resources.

"With virtually no operator intervention or action required, our RFID-based vehicle tracking system has, amongst other benefits, enabled us to make better use of our clerical personnel", said Jai Alexander, Yard & Transport Superintendant, Adelaide Container Terminal. "Previously we had three clerksmanning the deliveries and receivables windows for both the day shift and the afternoon shift and two clerks manning the midnight shift. Now we have just one person manning each shift. The staff that are no longer required at our terminal entry points now occupy other positions within the terminal where their experience can be usefully applied to the company's benefit. In terms of overall headcount this has the added benefit of eliminating the need to bring in new personnel to fill those positions, thereby keeping our labour costs down to a minimum."

Improved allocation of container-handling equipment is another benefit Adelaide Container Terminal has experienced from its RFID installation.

"Our RFID technology has enabled us to have a better idea of container volume for the forthcoming day so we can better allocate machinery", said Jai. "Under the new RFID system transport companies first have to book their jobs in so we are now aware of the container volumes we can expect for the following day. When we operating under a manual system we simply didn't have that capability."

To ensure the successful rollout of the new RFID-based vehicle tracking system, Adelaide Container Terminal needed to train its staff on the new system and gain the support and co-operation of its transport industry customers.

"The conversion to RFID represented a major shift in the way things are done at our terminal", said Jai. "Throughout the changeover process we engaged our workforce and transport industry customers by demonstrating the benefits of the new system through seminars, workshops and written materials. While there was a little reluctance at first in some quarters it wasn't long before we had everyone on board. In the end all parties adapted very well to the new way of operating, making for a very smooth and seamless transition."