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## Technology: weighing containers

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**Can live operational container weight checking increase operational efficiency in the yard? asks Richard Lambert**

On the 1 December 2010 the World Shipping Council (WSC) urged the International Maritime Organisation to establish an international legal requirement that all loaded containers be weighed at the maritime port facility before they are stowed aboard a vessel for export.

At first glance the weighing of all export containers on a terminal would add significantly to the operational overhead especially if the terminal dealt predominantly with transhipment cargo and needed to weigh these as well. This may well be the case where the original loading terminal may not have all the modern facilities and equipment to reliably determine the weight.

However, long before the WSC's suggestions were brought to press, the forward-looking terminal management at Ignazio Messina's Genoa terminal in Italy had already decided that weighing export containers was the philosophy it wanted to adopt and had embarked on a project to do just this.

The Genoa terminal (pictured above) services various routes in Europe, Africa and the Middle East, and has been working with International Terminal Solutions Ltd (ITS) to provide a solution that integrates fully with its operational strategy and its new terminal operating system (TOS), Jade Master Terminal.

Messina Lines director of operations at the terminal, Captain Adriano Spotti, says: "Data integrity and accuracy is an important part of our terminal operation, we were keen to ensure that when our new TOS software went live the quality of data we used ensured the terminal operates efficiently and the data exchange with the line was correct. In order to do this we realised we needed to integrate various lower level operations such as container weighing.

"For the integration of these type of system we selected ITS as they had experience in similar projects providing a high degree of customisation in their systems. This and their ability to provide solutions that would operate on a Narrowband and/or WIFI backbone made them a good partner for a terminal like ours."

Whilst the terminal already had a weigh bridge at the gate for road-hauled containers, congestion at busy times was a concern, as was the fact that the transhipment and rail containers did not pass any existing weight checkpoint.

Messina decided that in order to avoid congestion and bottle necks at the terminal and entrance they had to ensure that the actual weight and any discrepancy were identified without additional operational moves or delays and as soon as possible in the operational sequence.

To achieve this Messina decided to weigh the containers whilst being lifted by the yard container handling equipment (CHE) as part of the normal operation. This philosophy not only eliminates gate delays and additional moves to weigh the containers, but also ensures further yard shift moves are not required as the container can be planned to the vessel with an accurate weight "right first time".

As part of a wider project ITS was already working with Messina Lines providing the integration of a new radio data network, with intelligent mobile computer terminals. The ITS system provided also included the ITS middleware solution to manage, co-ordinate and route the mobile data to the TOS using an XML interface. Within the interface the TOS and ITS exchange information on theoretical declared weight and actual weight appropriate to the individual containers.

The issue is not weighing containers; that is relatively easy. The issue is to weigh the container in a way that does not impact to any notable degree on the ship or yard operation, and just as importantly do something meaningful and efficient with the weight data once you have it.

ITS has a track record in the integration of these types of processes in container terminals as it has worked with various load cell providers to provide full integration into the terminals operation and the TOS including an RTG operation with dynamic weighing whilst the container was in motion.

The mounted mobile computers are loaded with a version of ITS's G-POS yard reporting software so the integration of real weight data directly from the container handling equipment was relatively easy to achieve.

ITS liaised directly with the local weighing equipment company to implement a simple serial data interface directly between the computer and the weighing equipment mounted on the CHE.

At the appropriate stage in the job step, the ITS system flags to the driver that the container weight is required and the driver simply presses an OK confirmation button on the touch screen.

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The weight data is then automatically captured and routed through the ITS middleware. If the weight is outside the weight band the driver is either alerted to a new planned yard slot or told to wait for further instructions.

The TOS has been implemented with functionality to allow the terminal to decide what type of containers are to be weighed, such as import/export, container type and type of handling equipment. This gave the terminal flexibility to streamline the weighing to harmonise this with the operation and adjust the criteria as the operation progressed.

#### About the Author:

*Richard Lambert is managing director of UK-based International Terminal Solutions Limited. He has over 18 years experience in applying system solutions to terminal operation. Initially joining Morris Automation as a project manager, then leading the Ports and Terminal division of Savoye Logistics as the solutions director. In 2002 Richard lead a group of port automation specialist to set up International Terminal Solutions. The company specialises in turnkey automation projects for container terminals, concentrating specifically on the development and implementation of systems aimed in streamlining and increasing container terminals operational efficiency.*

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