

Automation insight: Haifa Port, Israel

It was a very stressful day (and night). Haifa Port was about to go live in all its terminals with its new Terminal Operation System – the Navis SPARCS N4. The latest version was only implemented in a select few terminals around the world and its implementation in Israel was a huge leap for the port and the Israeli maritime community. However, there was a small problem: Ashdod Port, the other major port in Israel, was witnessing a severe strike and all of the incoming Israeli cargo was diverted to Haifa. The expert teams at Haifa and Navis had prepared themselves for everything, but never for such a challenging situation.

The stakes were high and the pressure could be felt in each room inside the container operations building. Yet, the preparations and the skilled personnel took the calculated risk and proved themselves in a successful go-live implementation.

This day is why the go-live Navis system became legendary in the Israeli maritime community. The fact that, in spite of all the difficulties, this huge operation was a perfect success remains a proud achievement at the port.

A lot has happened since the TOS implementation. Constant improvements which allowed Haifa Port to maintain its efficiency leadership in Israel have come to pass, the port has also been recognised by the OECD which ranked Haifa fourth for container performance efficiency in a study covering the world's top 100 ports. Yet the biggest recent development has been Haifa Port's competition with Ashdod Port, which increased in intensity in 2005 after Ashdod utilised a new TOS (not a Navis model) and their productivity

dramatically increased. In response to the developments at Ashdod, the executive team at Haifa fought back with a plan that relied on two key elements: the new Carmel Terminal, and the new Navis TOS.

Carmel Terminal

The Carmel Terminal is Israel's largest, most advanced and environmentally friendly container terminal. It is a key part of Haifa's vision in positioning the port on equal footing with the world's most advanced ports and terminals. The modern terminal consists of 950 metres of quays with a 15.8 metre draft and was inaugurated in 2010, becoming fully operational the following year. It now has the potential to handle over one million TEU annually. This capacity increase has allowed the port to provide a rapid, efficient service that has dramatically cut the waiting time for container ships arriving at the port.

Fast container handling speeds are made possible by the 15.8 metre draft which stretches across the terminal's entire length. Therefore, container ships with a width of up to 19 containers across are able to dock at the port. Added to this is the advanced infrastructure and crane equipment, which includes six super-post-Panamax STS gantry cranes. The new gantry cranes, which are capable of lifting two containers simultaneously, have also allowed Haifa Port to significantly increase its output, whilst the storage yard is served by 12 state-of-the-art RMGs.

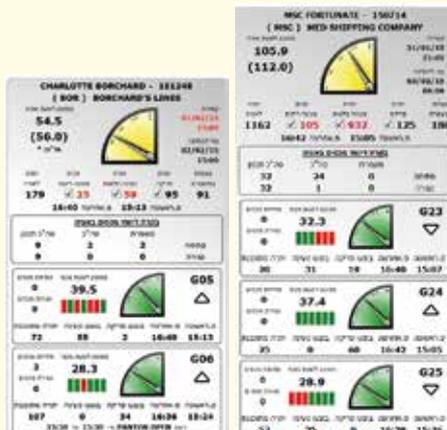
Navis TOS implementation

The Navis TOS project was launched in Q4 of 2009. It is considered a cornerstone of the port's operations as it represented a complete conceptual change regarding customer relations and service. It now stands as a central pillar of the company's business strategy. Prior to SPARCS N4, Haifa Port had a proprietary TOS system that recorded its operational activities. However, this old system included no planning (vessel or yard) or optimisation, and required an additional crane controller working in a booth underneath each crane. Regarding customer service, customers had no access to the system or online operational data, and had to rely on tally companies to monitor quayside operations.

Together with Navis, Haifa Port changed the overall operational concept and made significant changes to its activities by introducing entirely new functionalities and operational roles such as vessel planning, yard planning, new EDI messaging, productivity optimisation and a reduction in the number of direct operational workers. In time, as shipping agents' confidence in the new TOS grew, they stopped utilising tally companies for quayside operation monitoring, and began to rely on SPARCS N4 data, resulting in significant cost savings on their part.

The innovation nation

Since the go-live of the Navis TOS, the productivity at Haifa Port has risen by 18%, and Haifa Port workers have set new records in every aspect of operational efficiency: containers per crane hour, containers per ship hour, containers per





shift and container per crane shift have all improved. Yet, there is still huge potential for further improvements by utilising SPARCS N4 functionalities.

Using the real-time information of the TOS, Haifa Port's software engineers established a startup and developed a set of operational real-time dashboards. The engineers then displayed real-time data on large 50 inch screens in different locations around the port, as well as on the desktop and mobile applications of the port management. This has allowed constant monitoring and instantaneous response to any issue which may arise.

Additional innovative developments carried out since the introduction of SPARCS N4 include:

- Becoming a 'paperless' port; all gate/rail/quayside operations are carried out automatically
- Connection of approximately 200 customers to the N4, enabling them to query and monitor real-time activities at the port
- Automated text messaging to ship agents, truck drivers and many other alerts for the members of the supply chain
- Self-connecting truck OCR/LPR data

from the radiation detection portals to N4 gate screens, permitting faster transit through the gate

- Dashboards that enable port management to analyse historical operational and commercial data, comparing actual results to periodical targets and budgets

The innovation has only just started. Haifa Port is already working hard on the next big port developments. 'Make it simple, make it available and make it efficient' is our motto in our quest to become the leading port in the innovation nation.