Gateway to Ashdod

Israel Ports Company built a sophisticated gate to maximise efficiency and safety. It won the silver plaque in the IAPH IT Awards. *P&H* reports on the project so far

Port of Ashdod's new container terminal gate system takes in information from all the port's players to increase security and efficiency. Israel is a target for armed attacks and has to protect its ports as far as possible. The project has a budget of $25M, of which $5M has been devoted to IT systems. A second gate, at the Port of Haifa, is still at the design stage.

The Ashdod gate carries out checks that can be categorised into three stages (see panel). Stage 1 is the security gate check, which is followed by the pre-check gate and finally the main gate. Much of the data is directed through the MAINSYS network – an IT infrastructure that receives all maritime community information through paperless electronic data interchange (EDI) processes.

According to the IT Award paper the new gate system should yield significant savings in manpower, while speeding up truck operations. Across the three gates and the exit gate – four in total – the number of workers needed per shift with the new system is 16, as opposed to 44 in the previous system. It now takes just five minutes for a truck to transit from the port entrance to exit, whereas previously it took 20 minutes. These speedier truck throughputs are said to save $11M.

Cost savings are not the sole criterion for evaluating the project's success, believes Israel Ports, which cites improved service times for customers and better security for both incoming and outgoing cargoes as highly desirable features. Amiram Heidecker, director, information technology at Israel Ports Company, told P&H that the reduced truck cycle time has cut fuel consumption within the port and consequently lowered air pollution. The safety and security benefits are noteworthy too, added Heidecker, as drivers do need to get out of their trucks. Any problems that arise at the gate can be handled from a distance, "without the need for employees to be physically near the trucks when they pass though the gate". An extra benefit is that drivers no longer need to bring paperwork with them either to collect or to deliver goods.

Main gate inspections

Driver: Recognised by RFID tags, biometric identification and picture
Truck: Recognised by a licence plate recognition reader
Container: Recognised by optical character recognition. The expected weight and actual weight are compared. Closures are inspected. Radioactivity and X-ray examinations are conducted
Seafarers: Recognised by biometric signature, document processing and picture

The security gate automatically identifies the truck, driver and container numbers

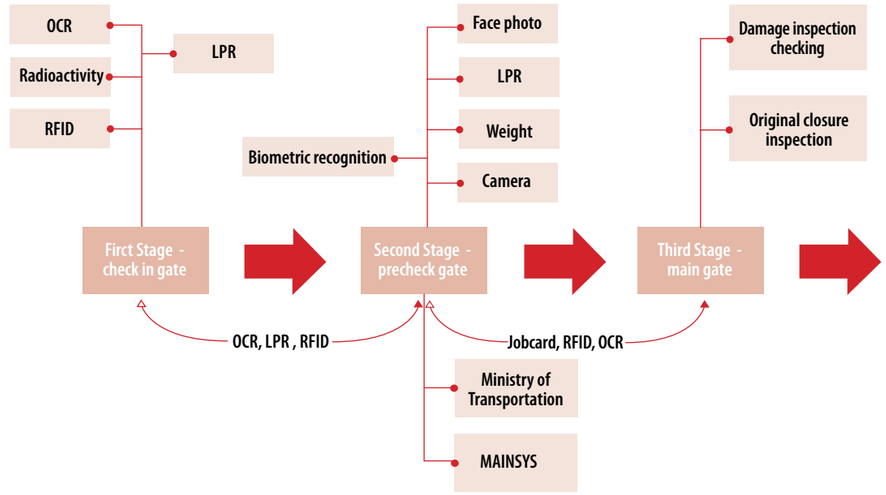
Not all of the planned information systems are fully integrated into the system to date. Israel Ports Company is adding two modules. A container damage control module will automatically take photographs of the container from all directions as it enters and exits, and connect the photographs to the appearance of a container that passes through the gate. "If there is a complaint about damages it is possible to trace the truck and compare [it] to the container photography in the gate," Heidecker explained.

The second module, Totem, is an information system developed in Israel that detects different types of radioactive material and automatically references it to a specific cargo in an existing list. This system avoids false alerts and the associated manual checking of containers, he said.

An interface with the Israeli police is also still to come, but many other interfaces are up and running.

Looking further into the future, the gate has also been designed to allow for quick adaptation to IT technology updates and changes as they arise. Heidecker explained: "Since the physical structure of the gate cannot change as quickly as technology does, the planners of the physical gate had to take into consideration possible future IT changes. Any future change may need new cables to pass through the cement structure. Hidden within the cement and asphalt are hundreds of empty pipes, placed to allow for such possible future changes." The gate will also be expected to accommodate changes to work procedures and comply with new IT and security-related requirements. PH

Passing through the gate



Three-stage security

Stage 1 – Security gate check-in

- The driver's entrance permit is identified by his radio frequency identification (RFID) tag
- A licence plate reader reads the truck's number and compares it to the anticipated number arriving from the exporter through the MAINSYS network
- An optical character reader unit scans the container's picture to extract its number.

Stage 2 – Pre-check gate

- The container's weight is compared to its expected weight by subtracting the full truck weight from its net weight. The data comes from the Ministry of Transportation and from MAINSYS (initially supplied by the exporter)
- Driver RFID tags and biometric ID are compared to the driver data received from the MAINSYS system
- The driver is photographed and the new photo is compared to the one in the database
- A job card is printed automatically and sends the driver to the correct location for loading or offloading.

Stage 3 – Main gate

- Containers are inspected for damage
- Container closure number is checked
- Dangerous material inspection is carried out
- An empty container check is carried out.