

# Automation's first port of call

DP World is hoping to stretch out the concept of terminal automation across Europe, writes **Gavin van Marle** in Belgium



Antwerp Gateway will gradually evolve into a fully automated container terminal over a 10-year period

IN THEORY AT least, the container terminal business is ideally suited to the advanced automation techniques that have been developed in other industries. In practice, however, operators have shied away from projects that would involve a combination of high initial capital outlay, and possible labour disquiet.

The construction of the vast Deurganck Dock on the left bank of the river Scheldt in Antwerp looks set to be a major breakthrough. The DP World-led consortium that won the concession to run its eastern half – Antwerp Gateway – has taken the opportunity to launch an ambitious automation project.

Roger Roels, DP World senior VP and MD for Europe and North Africa, sees it as one

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of the most important operational developments for the Dubai-headquartered group.

“This is a test case, not just across the region but across the globe for DP World,” he says.

“In a natural sense it’s a logical starting point because this is a new terminal in a high labour cost area. Probably the next one will be at London Gateway, and following that it is likely to be rolled out to Le Havre. The urgency to do it in other areas of the world is not so great because labour costs aren’t so high.”

The key issue for Antwerp Gateway executives at start-up however, was to set a track record in terms of efficiency.

When it first began operations in September 2005, the yard was a straddle carrier

operation, like the rest of Antwerp’s terminals.

Eric Noterman, DP World’s Antwerp MD, says: “The idea was to start carefully so that we have proven productivity with the carriers, and then gradually pilot the automation programme. We didn’t want to take the risk of going straight to an automated terminal. It’s an eight to 10-year project.”

Some 80% of the current yard area is given over to straddle stacks, with the remaining 20% taken up by two automatic stacking crane (ASC) modules. Each module is operated by two ASCs, and last month it began discharging trucks. Full go-live is imminent. Over time, the straddle stacks will be replaced by ASCs, and straddles will be used exclusively

for transporting boxes between the quay and the yard.

“We get a productivity that is slightly higher than what we could get with a pure straddle operation, but the reason to go for it is the rise in capacity. We have a straddle carrier capacity of 2.4m teu at full build-out, and with ASCs that goes up to 3.5m teu,” Noterman says.

**Unusually for port projects**, it also allows the operator to phase in capacity as it is required, at least approximately, says Roels.

“It is a challenge to build out the terminal in line with the commercial growth. There’s quite a lot of planning that has to be done to try and judge correctly how quickly to bring on

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Antwerp is set to benefit from the congestion faced by rival ports in northern Europe, such as Rotterdam and Hamburg

capacity. In 10-12 years the utilisation of both Deurganck Dock terminals will be quite high in our view.”

Nonetheless, the opening of Deurganck Dock is timely for Antwerp, as other ports in northern Europe struggle to cope with the surge in volumes.

Marc van Peel, chairman of Antwerp Port Authority, says: “Together with Le Havre, Antwerp is the only port in Europe able to offer capacity to its customers. There are congestion problems in Rotterdam and Hamburg, as well as structural problems with infrastructure, and there are problems around the ports.”

The recent addition of Chilean line CSAV as an Antwerp Gateway customer is an example. Last month it switched its IMEX service from Rotterdam to Antwerp.

“They wanted to place these services in Rotterdam, but they had to pull them to here. We think this is how the future will develop. It is hard not to notice that the carriers are nervous about capacity,” says Roels

He adds that the lack of capacity in other ports should

prevent rate wars between terminals, which was a feature of Antwerp’s past.

“We are not going into a rate war. We think the terminal will be filled by a lack of capacity in western Europe rather than getting it from PSA.

“Frankly we don’t think there will be a solution to Rotterdam’s problems until Maasvlakte II is built, and until then Antwerp will be the dominant port.”

However, there have been some service shake-ups.

Until the end of last year it was handling eight weekly services. That has now gone down to seven following the return of the Grand Alliance to PSA’s terminals after P&O Nedlloyd exited the Grand Alliance, following its acquisition by Maersk.

“We knew that the Grand Alliance would return to PSA, so we were prepared for that,” says Noterman.

Additionally the China Shipping-CMA CGM-Evergreen joint service, Victory Bridge, has also gone to PSA, “but that was mainly about repositioning empty boxes,” he says.

In 2006, Antwerp Gateway handled 600,000teu, and while the original target for this year was 800,000teu, that has subsequently been reduced to 700,000teu following the recent changes.

“For a time there was a difficult period because of the ownership changes at the terminal,” says Roels.

“When PSA’s counter-offer for P&O Ports came, after DP World’s offer, for some time discussions with customers stalled because they were unsure of who exactly were going to be our owners. We strongly believe however, that now we are building up the terminal again we will be winning new customers.”

Instead, he and Noterman argue that competition between the port’s terminals will be on the basis of productivity, which in today’s age is the basis for capacity.

“We guarantee carriers 35 moves per hour per crane,” says Noterman. “Overall productivity then depends on the crane split per vessel, and we cannot guarantee the number of cranes.

“We are averaging 37 moves

per crane at the moment, and our goal is to get to 40. We recently did tests with tandem 40ft spreaders, and moved our lifts per hour from 40 to 60.”

**To achieve that** however, the choice of yard handling equipment, and the design of the operation between quay and yard, is crucial.

Noterman adds: “The absolute key thing is that we keep the high productivity that already have here in Antwerp, and to be able to do that we need the flexibility that straddle carriers give us.

“In looking at alternative automation projects, we simply couldn’t imagine that automatically guided vehicles (AGVs) would be able to give us 40 moves per hour on the quay cranes.”

On average, each quay crane is served by three straddle carriers. One-over-two units operate between the quay and the yard, and one-over-three units are employed purely in the yards.

The terminal operates a mixed fleet of Kalmar and Noell units, echoing the company’s policy – also evident in Southampton and Le Havre – of trying to maintain competition between its suppliers, and it is currently testing a Consens (Konecranes) machine. When the ASCs are fully operational, there will be two straddles per quay crane.

A variety of yard cranes were also considered.

“We thought about RTGs but the manning levels were too high. With this system we need one operator for every four or five ASCs,” Noterman says, and unlike the ongoing programme in Hamburg’s Burchardkai, Antwerp Gateway decided not to go with ASCs that are capable of crossing over.

“We did a simulation and found that the extra idle time that is created by not being able

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to cross over was only a few percent, and when compared with the extra investment costs associated with larger cranes and the extra infrastructure they need, it wasn't worth it."

The fixed block hoists of the Gottwald ASCs also make crossing over impossible.

Noterman also adds that getting the maximum out of the yard operation will depend heavily on the IT that controls it.

"ASCs are proven technology, and if you want real efficiency the challenge is the logistics behind it. As the operator there is a role for us to help develop the new terminal operating system for Gateway.

"We want a bespoke system, and we will need to take a decision very soon on this. Cosmos developed the terminal operating system, we went with them seven years ago for the Delwaide Dock and never had problems. I believe that a lot of this depends on your approach.

"When talking about IT systems, the mistake that operators make is to want all the bells and whistles from day one. But I believe you have to build

the system up."

An OCR system will be chosen once the new TOS is installed, and the terminal will introduce a web-based vehicle booking system (VBS) at the end of this year.

"We don't have a problem with truck congestion at the moment, but with the volumes going up, we are prepared to give them a guarantee of when they can pick the containers up.

"But the truckers are currently hesitating because they see themselves as being in between us and their customers, who require different delivery schedules. As a result we will introduce it in phases," Noterman says.

However, both Roels and Noterman would like to see the overall share of truck traffic decrease, and see a modal shift to rail and inland waterway as an important competitive prong.

"We play an active role in the promotion of both rail and barge traffic to stimulate the modal shift, and we have developed a concept we call Terminal Operator Haulage, which is a unique opportunity,"



The hub operates Kalmar and Noell straddles and is currently testing a Consens unit

Noterman says.

"The point-to-point connection is very important, and as a neutral party we can organise inland transport. We are ready to combine the containers of smaller carriers and consolidate and build block trains out of the terminal. If we are working on the trains six days per week we could 15-16 trains per day.

"There's enough access today to do that, but the problem is there's only tunnel under the Scheldt for rail traffic, and while they have decided to build another, that will obviously take a lot of time.

"There will be opportunities to invest in inland terminals in Belgium, but our strategy is to co-operate with this sort of operation rather than directly build up our own network because then you might find yourself in competition with your customers."

The concept targets the Benelux nations, west Germany and parts of France.

"Antwerp is still dominant in French cargo, but not as much as before. Le Havre is keeping more of its natural volumes but on the other hand, Rotterdam is not keeping up with its growth," Roels says. ■

## Sales raise funds for Gateway investment

While Antwerp Gateway is understandably the focus of DP World's attention in Antwerp, it is also rationalising operations at its other facilities in the port.

"We are selling the sixth Harbour Dock to Sea-Invest. The facility handles about 2.5m tonnes per year and we will consolidate that at the Churchill Dock – otherwise known as the seventh Harbour – where we are planning to upgrade the facilities.

"The facility will handle iron, steel and general cargo, and last week we had approval from head office to go ahead with the 18.8m investment.

"Around 6m of that sum will be invested in equipment, including mobile harbour cranes. And the remainder will go into paving and the construction of warehouses. The investment plan will cover five years and be undertaken in five phases," explains Noterman.



DP World is looking to expand into general cargo handling

Roels argues this is primarily a reaction to the changing face of general cargo shipping: "One of the big challenges facing us is to build a future for general cargo. There will always be general cargo in Antwerp, handled by fewer shipping lines, but more 'solid' lines.

"The days of tramping are over, the

challenge is to modernise the port infrastructure to service the liner concept that is developing in the general cargo business."

DP World is also selling also selling part of its operation at the ninth Harbour Dock – otherwise known as the Delwaide Dock – to MSC, which will be incorporated into the MSC Home terminal.

"This is the culmination of an older deal, which was a precondition for us to get the east side of the Deurganck Dock. This will be handed over to them at the end of this year, and constitutes about 400 metres of quay and an area of around 15ha," explains Noterman.

"Some of the volumes are likely to migrate from the Delwaide to Gateway, but this terminal will always have good volumes. The handling rates are lower than Gateway, so niche players who don't mind going through the locks to reach the terminal are expected to continue to call there," he adds.