LogisticsTODAY

Warehousing & Distribution

**at a glance**

This article looks at how the U.K.'s post office improved its distribution process with yard management technology.

# Moving Her Majesty's mail


*At Daventry, Royal Mail tractors wait for their trailers to be loaded.*

## Royal Mail steps up its efficiency even as volumes increase thanks to better yard management

**by Roger Morton**

The stakes for managing asset movement in the distribution center (DC) yard rose significantly for the U.K.'s *Royal Mail* (www.royalmail.com) on January 1, 2006. That's the day that full liberalization of the entire country's mail market began and Royal Mail faced full competition.

Under terms of the country's **Postal Services Act** of 2000, Royal Mail became wholly owned by the U.K. Government in March 2001. Between the time its strategic relationship with the government changed and the day on which other companies would be allowed to collect and deliver commercial mail, Royal Mail's most pressing need was to increase efficiency.

"We are restricted by the price we can charge," explains John Szwec, Royal Mail's technology director. "A regulator indicates what prices we can charge using a formula that reflects the retail price index minus 'x' percent. The only way we are going to survive is by driving costs within the organization. That's one of the reasons we went through a huge reorganization — to get more efficiency and reliability and to drive costs out of the network."

The postal service provides delivery to each of the 27 million addresses in the U.K. at a uniform price, no matter the distance traveled. Daily mail volume is 82 million items, and that volume continues to grow.

Faced with the challenge of increasing its efficiency in the face of such volumes, Royal Mail changed its operational paradigm. Previously it relied on a combination of trains, planes and trucks to move the mail. Over the recent past, train service and reliability has been deteriorating. Now the postal service puts trucks at the center of its mail distribution activities.

"We still use planes because of the nature of our contract as a universal service obligation," explains Szwec. "The service will pick up its First Class mail as late as 7:00 pm and deliver the next morning before 9:00 am. The geography of the U.K. indicates it's impossible to deliver from the very south to the very north without using planes."

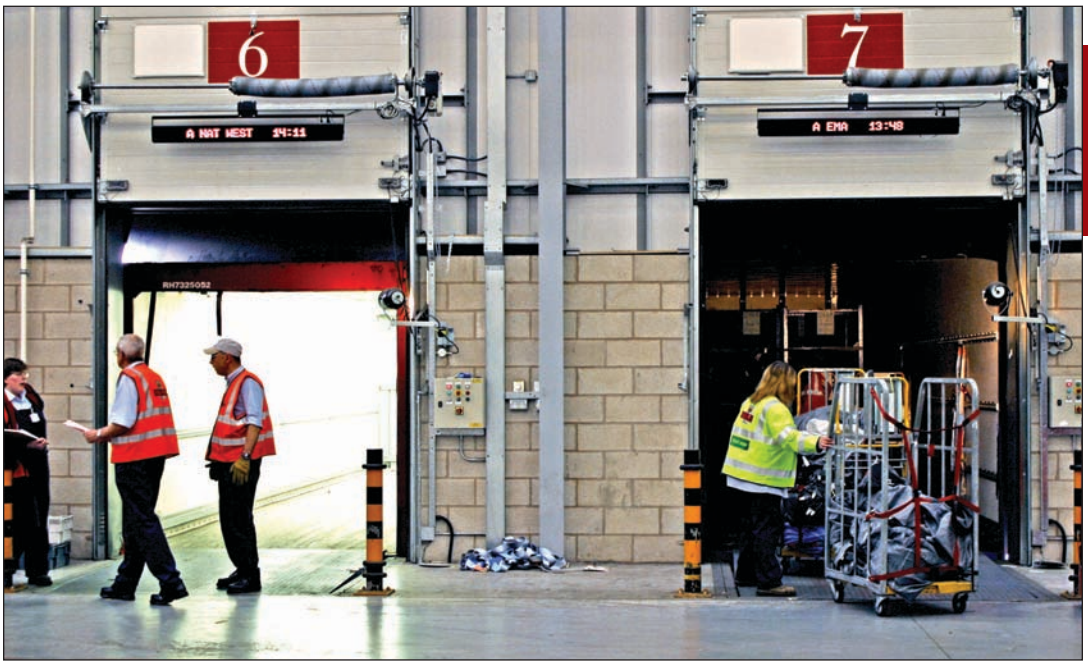
Not only did mail handling move more to truck, but also a hub-and-spoke system was put in place in a strategically located facility. The new DC is located in the middle of the country at Daventry.

"There are several overlays," Szwec notes, "but the logistics network comprises one large DC at Daventry and ten quite large facilities distributed around the U.K. that feed mail centers. Shipments go from mail centers — of which we have about 66 — to one of the regional DCs and then typically, depending on the nature of the mail, a great deal of it ends up getting trucked down to Daventry."

Daventry is a pure cross-dock operation with mail pre-sorted when it reaches the facility. There are some 1,600 gate transactions each day, with arrivals spaced every 26 seconds at peak. Within the Daventry yard, in addition to trucks coming and going, there are 20 shunting vehicles, 110 docks and 200 parking slots. A single delayed trailer can cause the quality of service to slip at as many as 40 mail centers.

Royal Mail understood the need for a yard management system because of service pressures, time scales and the sheer number of vehicles using the DC. Too, the supplier that won the job, Montreal-based *C3 Solutions Inc.* (www.C3solutions.com), did so through a unique product demonstration.

Szwec explains that previous to hiring C3, the mail center conducted its yard management with what it




*LED screens display information at each door. The line displayed over Door 6 indicates there is an arrival (A) coming from NAT (origin code) scheduled for 14:11.*

called "a penny exercise." In a huge room was a map of the Daventry yard. To simulate arrivals and departures, penny coins were used to identify vehicles coming in and out. The aim was to simulate where points of congestion were going to occur and other traffic issues might come up. To complete the entire cycle of activities took almost a week.

After narrowing the list of potential suppliers to three, Royal Mail showed its penny exercise to each. C3 wondered why the staff was going to such lengths. The supplier suggested it could get its software, Yard Smart, to simulate the process. "We gave them our schedules," says Szwec, "and they entered them into their software and got it to simulate our yard. They did in ten minutes what had been taking us a week."

Using the C3 Simulator it was possible to identify and eliminate congestion areas in the yard. Some congestion points were located at doors close to the gate, and through different scenarios it was determined that by changing the location of originally planned inbound and outbound locations, the problems would be solved.

With congestion relived, by analyzing Royal Mail's service contracts it was possible to rearrange some runs and not affect service levels. The software was able to determine that reducing the number of drops and increasing the number of live operations would help site flow.

The change from old delivery systems to the new happened on January 1, 2004. Instead of gradual movement, it all took place with one Big Bang. "For the Christmas before we were running to various regional hubs and doing some cross-docking there," explains Szwec. "Then on the first week of January, everyone was told not to go to their local hubs, and to drive instead to a new place called Daventry. Some drivers couldn't even find Daventry."

From the moment C3 was given the go-ahead for the yard management implementation until the Big Bang was just two months. Deployment went smoothly and other elements of the yard management solution have been incorporated to operations.

People are part of the smooth running of the Daventry yard. As trucks arrive at the gate, they pass a gatehouse keeper, who records the name of the duty and the trailer number. The gate-in process takes about 30 seconds or so. Szwec foresees greater future efficiency as Royal Mail integrates global positioning system (GPS) vehicle-tracking technology so that logging will happen automatically.

Nearly a dozen people sit in Daventry's control room. They have a complete overview of the yard, including what vehicles are in and at which docks. "The software then does some very clever things, but what it can't do is tell you when the vehicle is on an in-bound door," notes Szwec. "For that we use yard marshals with hand-held devices, who indicate that a vehicle is now on at a door. When the vehicle moves off, there are dock controllers who inform the control room about the status change. So we have people indoors and outdoors, reporting status changes. It's important because we don't want an empty vehicle sitting on a door for an extra two or three minutes during peak time, since that could cause us to miss connections."

As experience grew, Royal Mail began connecting C3 systems to LED boards positioned across the top of each of the doors. The displays provide all information on trailers at the doors, including content, route, destination, and status of incoming trailers.

Next inbound and outbound "agents" — part of the program — were turned on. These agents automate some tasks previously handled by control room personnel. "The inbound agent can prioritize vehicle movement by schedule requirements, who should be parked further off, and how far from a door for greatest efficiencies in the yard," Szwec notes. "There is an outbound agent with the same intelligence, but for the final outbound leg."

Royal Mail achieved its return on investment in less than a year. There have been some further benefits. There has been a 53% reduction in the number of shunting vehicles needed. DC control room personnel requirements have dropped. Initial planning called for 20 people on an around-the-clock basis. Only 11 are needed with the yard management system in place. There has also been a 5% reduction in fleet size.

"Yard management may be pretty bland to talk about, but it's an additional way of driving efficiency in the supply chain," concludes Szwec. "It might not be as sexy as some other programs, but people need to start looking at it." **LT**

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