

# TECHNOLOGY INNOVATION

Exel deploys RFID technology to drive down yard management costs and transportation delays, improve product security

## Challenge

Site congestion, shipping delays and costly penalties

Time-consuming, inefficient, inaccurate tracking

Lack of visibility and actionable information

## Solution

Cost-effective RFID asset locator system

Web-based application that limits on-site technology

24/7 automated monitoring of site

## Results



Doubled gate throughput



Eliminated penalties due to delays



Reduced administrative workload by one-third



Reduced wait time for drivers

When it comes to emerging technologies, Exel continuously experiments, pilots and adopts new applications that benefit its customers by driving supply chain innovation and flexibility. One such example is at a multi-customer trans-load facility in Southern California. The 300-space facility serves primarily as a deconsolidation center, unloading sea containers and shipping materials for points across North America for a variety of retail customers. Exel applied its technology expertise to the practical challenge of streamlining yard management and ensuring full visibility to the exact location of trailers and containers at the site.

### → The Challenge

Traditional approaches to yard management can be time consuming and labor intensive. The process typically involves an employee walking or driving the yard with a pen and clipboard to find out how many trailers are on site, and where they are located. This cumbersome process can create a variety of challenges, including:

- Site congestion as manual processes slow operations
- Shipment delays and related product shrinkage
- Costly detention and demurrage penalties due to delays
- Lack of actionable information from the paper-based system
- Wasted time and fuel — as well as unnecessary environmental impacts — as staff drive many miles searching for trailers
- Additional staffing required to maintain manual processes

To improve yard management visibility and efficiency at this particular facility, Exel began investigating technology solutions. The company had been experimenting with and piloting radio-frequency identification (RFID) solutions with various consumer-industry customers since the late 1990s, yet it was still considered an emerging technology at the time. Exel decided to collaborate with industry partners and integrate several technologies, with the ultimate goal of significantly improving efficiencies.

### → The Solution

To develop the project for its Southern California trans-load site, Exel partnered with Motorola for the RFID equipment and solutions provider PINC Solutions to develop a Yard Management System (YMS). The team elected to implement a cost-effective solution focused on advanced asset location capabilities using real time location systems (RTLS) rather than utilizing the full capabilities of a more traditional, static YMS.

Implementation of the project took less than four months and required a limited amount of information technology hardware and software to support the operations. Key system elements include:

- A gate management module at the entrance to the facility
- Tracker modules for the yard trucks that move trailers and containers around the site
- A software system for administrative users and Customer Service Representatives (CSRs) that allows for yard visibility, customizable fields and easy configuration
- Use of a web-based software as a service (SaaS), eliminating the need for on-site servers





Retail

## Technology Innovation

**“At Exel, we are constantly looking for technological solutions to streamline operations and reduce costs to benefit our customers. While RFID technology can be costly and complex, we worked with our partners to develop a practical, cost-effective application that supports efficient operations for our customers on a daily basis.”**

- Tony Hollis,  
Exel’s director  
of innovation  
and emerging  
technologies

RTLS determines the location of assets on a constant and recurrent basis. It is a system comprised of RFID tags attached to trailers and associated computing software that determines the position of an RFID device (tag) on a trailer. The system is capable of reporting the position of the RFID tag within seconds.

Trailers from various shippers arrive at the facility, and upon arrival, each receives a temporary RFID asset tag. The fleet trailer and shipment information (i.e., SCAC code and trailer number) are associated with that specific RFID tag. The trailer is then moved directly to the assigned parking spot or zone, or to a dock door. Yard trucks equipped with RFID readers and GPS receivers serve as the tracker module, and maintain and detect the location of yard assets and shipments, driver details, arrival and exit times, and more. When trailers exit the facility, tags are removed. In addition to being cost effective, the application was especially unique because the RFID readers were mobile on the yard trucks rather than stationary, as is typical in most passive RFID applications. It also relied on converging technologies utilizing WiFi (802.11x), RFID and GPS systems to communicate.

The system performs yard counts on an ongoing basis and provides email notification of events. All documentation is digitally stored and searchable. CSRs have quick and easy access to high-level information, an appointment scheduling capability that reduces data entry during check-in, and highly accurate trailer location data.

Business continuity is ensured through redundant Internet connectivity and automatic data backup. The application offers round-the-clock remote access.

### → The Results

Through the program, Exel presented a cost effective and attainable emerging technology solution to its customers served by the trans-load facility. By harnessing wireless technology and leveraging YMS, customers and the team benefit from increased productivity, visibility and better process control in the yard.

The system has doubled gate throughput while eliminating manual yard checks and most paper-based documentation. The improved operational control and tracking of assets has led to improved productivity among CSRs. Penalties such as detention and demurrage charges associated with yard delays have been completely eliminated. Administrative demands declined by one-third, leading to reduced headcount. Drivers spend less time waiting and more time driving, thereby improving productivity and reducing emissions. Improved data accuracy and communications have enabled fact-based decision-making and issue resolution.

This project was among the emerging technology successes that ultimately served as a platform for Exel’s participation in establishing global RFID standards. The supply chain community, including customers, suppliers and third-party logistics providers, collaborated with GS1 EPCglobal, a member-driven organization that develops industry standards for Electronic Product Code™ (EPC), to shape and establish RFID standards for the global marketplace. An official guideline document regarding the tracking of transportation assets with RFID was recently released can be found on the [EPCglobal web site](#).



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