

How Technology Helps Railroads Move Freight More Efficiently Than Ever

Each day, nearly 600 freight railroad companies use a shared fleet of 1.6 million freight cars to move goods for thousands of customers spread across North America's vast rail network.

Ensuring that operations run safely and efficiently allows railroads to maintain their competitive edge. By applying advanced software and technologies to operations, railroads move freight more efficiently and cost-effectively than ever before. Since 1980, rail traffic density increased approximately 300% with no significant increase in the size of the railroad network, locomotive productivity rose 93% and average freight carried per train rose 63%.

Improving the rail industry's operational efficiency produces dividends for rail shippers too. Efficiency and productivity improvements help railroads keep prices low. In fact, rail shippers today can move roughly twice the amount of freight for nearly the same price paid in 1980, giving them an edge in an increasingly globalized economy.

At a Glance

- **Improving Network Efficiency**

Advanced dispatch-planning software, similar to air traffic control systems, helps optimize train movement across the network. The software analyzes factors such as system wide train schedules, speed restrictions and crew schedules to help train dispatchers determine the best operating plan for their portion of the rail system. Today, this advanced software can reassess a train management plan every two minutes, giving dispatchers the flexibility to respond in near real-time to changing conditions, such as train delays and unplanned maintenance work.

- **Keeping Equipment in Service**

Smart sensors along tracks alert railroads to the location of a specific car and component in need of evaluation or repair. Analyzing the health of equipment in real-time enables railroads to schedule maintenance at optimal times and places, so shipments stay as close to schedule as possible. Data analysis on failing components also helps improve the design of these components. This further reduces shipment delays and improves the flow of traffic across the rail network.

- **Minimizing Costs**

Thanks in part to investments in technology, railroads are more productive than ever while still keeping rates low. Average rail rates (measured by inflation-adjusted revenue per ton-mile) were 46% lower in 2017 than in 1981. These competitive rates allow businesses to produce affordable goods, so consumers see the benefits, too. They are also the reason many firms located far inland can successfully export the goods they produce to markets around the world.