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Fact-finding mission

How a cross-functional team of Conrail execs turned to GPS technology to incorporate fact-based decision-making into operations planning

BY PAT FORAN, EDITOR

Railroads continue to push the productivity pedal to the metal, and they're getting better at figuring out how and where to cut costs. But productivity isn't just about paring back, particularly if railroads plan to grow—or, if nothing else, become better service providers—in a capacity-challenged environment.

"Our capacity-strained industry faces no greater challenge in the future than the effective inter-weaving of operating processes and information technology," says Ron Batory, president and chief operating officer of Conrail, the terminal and switching agent for its owners, CSX Transportation and Norfolk Southern Railway.

The exploration of that inter-weave has prompted many railroads to use Global Positioning Systems (GPS) to monitor locomotive location and health, and track shipments. But since last summer, Conrail has been using the technology to do something more: drill down into the deep pool of data that GPS generates and improve asset utilization; reduce fuel consumption; and monitor crew performance and efficiency.

The aim? Use the data to make informed decisions that ultimately help the railroad create more "service delivery capacity," Batory says.

To that end, a cross-functional group of Conrail managers and other strategic thinkers christened the "GPS Team" spent the first half of 2005 discussing the data report possibilities and devising an implementation strategy. By summer's end, the GPS-generated data was flowing and already beginning to pay dividends.

"In the past, we didn't have the data," says Patrick Rogers, vice president-real estate & tax, and leader of the GPS Team. "Now, we are arming ourselves with facts."

The fact-finding mission began in late 2004 during the railroad's annual budget meeting. But it wasn't as if Conrail hadn't made progress on the productivity front since the former Class I was transformed into a 762-mile switching and terminal operation in 1999, when CSX and NS officially established the Conrail "shared assets" areas.

THE CAPACITY CHALLENGE

Between 2000 and 2004, the railroad—which operates 90 miles in and around Detroit; 200 miles in northern New Jersey; and 250 miles in the Philadelphia and South Jersey area—cut its average crew size 8 percent; slashed average train-and-engine employee overtime per start 45 percent; improved on-time train departures 67 percent; reduced yard dwell hours by 20 percent; and cut cycle times 13 percent.

But the railroad could do, had to do, even better, particularly given today's service and capacity challenges, Batory believed. Couldn't Conrail revisit operating practices? Invest in technology? A little bit of both? Yes, it could. As it turned

The "GPS Team" comprised a collection of Conrail thinkers, including senior staffers (standing, from left) John Scullin, Eric Levin, John Garofolo and Charlie Grey; and (seated, from left) Patrick Rogers and Tony Carlini.
out, Eric Levin, director-motive power/mechanical power, and Larry Davis, assistant VP-information technology (IT) already had been investigating GPS technology.

“We just wanted to see what it was all about,” says Levin, a 13-year Conrail veteran. “We also knew we didn’t want to spend a zillion dollars for useless information. Then we came across the Trimble system.”

At $500 a piece for each of Conrail’s 93 locomotives, the GPS unit developed by Trimble Navigation Ltd. wouldn’t break the bank; the monthly GPS service charge wouldn’t, either. The main question: whether the data GPS generates would enable managers to make better decisions, especially if Conrailers could figure out how to blend the GPS information with other sources in the railroad’s data warehouse.

**DATA AS A MEASURING TOOL**

“One of the things that we came up with was testing GPS to see if it would help us with asset utilization, productivity and fuel consumption,” says Tony Carlini, VP-employee relations and IT. “Before, we did desktop audits — nothing more than generating payroll information, crew information. It was a time-consuming manual effort. You could pull information for one crew, one engine, but not for all of them.”

Which meant that they couldn’t get good aggregate information upon which to develop trend lines and make strategic plan adjustments accordingly. So, Batory and his senior staff decided to move ahead with the

“Conrail Shared Assets Operating Improvement Initiative Project.”

“Ron’s focus was to use GPS as a measuring tool, not to focus on people or individual positions, but on productivity,” Carlini says. “The information can be used in an analytical manner.”

**AT CROSS-FUNCTIONAL PURPOSES**

And like many Conrail projects over the years, a cross-functional team would guide the effort.

“At Big Conrail, we always found value in what other people thought, and that carried over after the split,” says Carlini, who joined the railroad in 1988. “In this case, it just made sense. You had to have buy-in from the user community.”

To keep the GPS Team on track, Batory tabbed Rogers, who’s been with Conrail since 1996, to serve as team leader, and Carlini to assist him.

In all, the team comprised dozens of managers and employees from a cross section of departments: transportation, mechanical, operations support/service planning, IT, human resources and real estate. The team met weekly between January 2005 and April 2005 to kick around the essence questions regarding productivity and GPS-generated data:

- How can we use asset utilization data to manage the fleet better, and to make smarter operating plan adjustments?
- What will the newly generated fuel-consumption data tell us that we don’t already know?
- How can crew-productivity data help us work smarter (i.e., more efficiently and safely) than we already are?

“It’s Management 101: If we can’t measure it, we can’t control it,” Carlini says. “We hoped GPS would give us that tool so we could do a better job of measuring.”

During last spring and summer, Conrail IT planners developed the software applications to generate five tactical reports (daily crew mobility, fuel conservation, locomotive utilization, locomotive situation and offline locomotive reports) and three management reports (summary crew, fuel conservation and locomotive utilization reports).

For example, a daily crew mobility report provides line supervisors with information — from on-duty to off-duty time — to evaluate workload, efficiency and customer service. Meanwhile, managers can generate a summary crew report by yard, district or system.

Also, managers can access real-time locomotive asset information (utilized time to total availability) in text or visual map display format; the report identifies stops and starts, as well as location. Meanwhile, a fuel conservation report calculates shut-down times, fuel (and money) saved — and lost. It also generates shut-down opportunities “taken” and “missed.”

**SHutting Down (In A Good Way)**

To make sure their colleagues were in the loop Conrail-wide, Team Leader Rogers announced the GPS venture in the employee newsletter, which was issued during first-quarter 2005: “GPS technology will revolutionize how Conrail tracks and manages its locomotive fleet,” Rogers wrote.

And in addition to the boost in security and safety that would come with the ability to pinpoint train location in the event of an accident or incident, the GPS-generated reports would enable the railroad to “improve customer service and efficiency by monitoring equipment use and crew utilization,” Rogers wrote.

The GPS units would be installed on the New Jersey fleet by February 2005’s end and on Detroit power by April 15, 2005. Rogers told them. And all 40 field support supervisors were told they’d be
equipped with laptops by May’s end to access data from the field or office.

“As soon as the GPS units got installed, we could access information through the Trimble Web site,” Carlini says. “And we started seeing a lot of things we typically wouldn’t have seen without GPS.”

Witness the first fuel conservation report, which was issued in late spring 2005.

“We had a shut-down policy — when the ambient temperature was 45 F and the locomotive would be stopped for 30 minutes or more, you’d shut it down — but we really didn’t know how well it was being complied with,” says Superintendent-Service Delivery John Scullin, whose rail career began with the erstwhile Penn Central (and Conrail predecessor) in 1972.

The GPS system told managers when power was off line, and what the temperature was during the shut-down period.

“At first, I was a little offended — I mean, we know how to shut down engines,” says Superintendent-Operations West Charlie Grey, who has spent his entire 29-year rail career with Conrail. “But then you actually saw the data showing that they didn’t always get shut down.”

The good news: Grey, Superintendent-Operations East Joe Garofolo and their respective direct reports obtained data they knew they could act on.

“When people you manage see it, in black and white, they can understand it,” says Garofolo, a 26-year Conrail veteran.

The improvement was evident from the get-go. Based on GPS data, the railroad seized 90.7 percent of the potential locomotive shut-down opportunities in September 2005, netting savings of about 175,000 gallons of diesel. The railroad did even better the following month, saving nearly 190,000 gallons. Meanwhile, a late-2005 change to the shut-down policy — managers now shut down units when the ambient temperature is 40 F — also has helped the road cut back on fuel.

“We’re also telling crews to check with the local supervisor if it’s 30 F — if there’s a chance that we can shut down for a couple of hours, we will,” Scullin says.

Taking better advantage of shut-down opportunities helped save 400,000 gallons of fuel in 2005, Conrail execs estimate. And although there were fewer opportunities to shut down locomotives between November and March, Conrail execs know they reduced fuel use during that period compared with previous winters because under the previous policy, they would have kept the units running straight through March. “The goal in the warmer months is to take advantage of shut-down opportunities 98-99 percent of the time,” Carlini says. “In April, I’d be surprised if it’s less than 95 percent.”

NO SNAP JUDGMENTS

Other GPS-generated reports are yielding similarly positive results. Conrail started 2006 with 93 locomotives; by early April, Scullin expected to whittle the fleet to 90 — “the number we need, given the service plan and volume levels,” he says.

The data also is giving managers a clearer crew productivity picture. The daily crew report represented a “snapshot of a day’s work, which was something we never had before,” Carlini says.

The key, though, is interpreting the data properly. Managers must ensure they don’t make any snap judgments about that snapshot. Identify trends? Yes. Use the data as a “training aid,” as Garofolo puts it?
“We don’t use GPS as a club.”

— Conrail’s Joe Garofolo

Sure. But use it to say, “I gotcha”? No. “We don’t use this as a club,” Garofolo says.

Adds Grey: “One thing we’ve prided ourselves on is the open communication with employees. When you can show them the data — the morning [crew] report, in my case — you can be open with them and say, ‘Does it make sense to have two crewmen when we could have one?”

Sometimes, it does; other times, it doesn’t. Bottom line: The data gives trainmasters a better shot at making the best decision, Conrail execs believe.

“We know it takes a period of time for a crew to get moving at the beginning of the day and to sign off — and we all had our ideas on how long that was,” Garofolo says. “With the data, we could measure it so we could manage it. That’s helped everyone get a realistic view, and helped us get more productive.”

For example, the data helped Conrail reduce train-and-engine overtime costs last year by more than 10 percent compared with 2004’s OT costs.

“The data makes us all better-informed managers,” Levin says.

It’s also data that helped Scullin and his service-design colleagues recently determine that it made sense to add a three-days-a-week shuttle service in the Port Richmond, Pa., area.

“There used to be one crew that was always late getting to customers,” he says. “By creating this service and having a local crew, we’ll be able to improve service and reduce overtime.”

PARENTAL SUPPORT

This year, Scullin’s team is exploring crew combinations along other service routes to generate efficiencies.

“We’re not talking about cutting service, but if a couple of crews are working less than eight hours, we’ll see if they can be consolidated into one crew,” Scullin says.

And more fact-based decision-making is on the way. This year, Conrail plans to GPS-equip its 350-vehicle rubber-tired fleet, which includes track- and car-inspection vehicles. “What this GPS initiative has done is remind me how effective the development of new technology can be, and how it can make us all better managers,” says Carlini.

Conrail’s parents have noticed.

“It’s been extremely beneficial to have two parent companies that had a lot of faith in us — that, and the support and buy-in we received from the Conrail board,” says Rogers, adding that Conrailers presented the initiative to a CSXT-NS group last summer and received positive reviews.

The GPS venture also has prompted inquiries from switching roads The Belt Railway Company of Chicago and Indiana Harbor Belt Railroad Co., which have board members common to Conrail’s.

The GPS Team clearly enjoys sharing its success story, even though it remains a work in progress. It’s a pretty simple story, really — and therein lies the beauty of it. As Batory neatly puts it: “Without data, it is just another opinion.”

Email comments or questions to pat.foran@tradepress.com

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