

Integrating Technology

Producers are increasingly turning to computer capabilities to improve productivity.

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Several years ago, Transit Mix Concrete & Materials Co. had delivered 200 yards of concrete to a project in Kingsport, Tenn. A few days after the job had been completed, a problem arose. To keep the customer happy, the sales representative spent the better part of a day analyzing and reconciling the problem.

Today, thanks to the producer's investment in integrated technology and wireless communications, that same problem could be solved in minutes.

"Information is everything," says Ernie Walker, chairman and CEO of the Johnson City, Tenn.-based producer. "The more information I can give my people in the field, the better and quicker they can deal with things. And quicker is cheaper." Walker's acceptance of technology has made Transit Mix more productive—and more competitive.

The Kingsport job is representative of how the producer can work smarter today with new tools. After the pour, which took place on a hot summer day on hot, red clay sub-base, shrinkage cracks began to form. The contractor called the dispatch office to complain. Then, the dispatcher called the sales rep in Bristol, Tenn., who then drove 20-plus miles to the site.



Charles Brooks / Getty Images
Ernie Walker, chairman and CEO of Transit Mix Concrete & Materials Co. in Johnson City, Tenn., is a true believer in the power of technology. "Information is everything," he says.

With a quick look at the concrete's surface, he realized the problem. Sensing a tough discussion, the rep knew he needed data support before answering the contractor. So, he drove 20-plus miles to the Johnson City central-dispatch office to get the delivery details of water additions and time of loading and unloading.

He created a printout of the results and drove back to Kingsport to show the contractor what had happened. The reports showed that the foreman had added too much water, which caused too much shrinkage; the heat accelerated the process. The contractor, seeing the data, understood.

Today, things would be different. First, dispatchers would probably be more aware of the problems occurring on the day of the pour. Transit has equipped its fleet with GPS technology.

The system allows the dispatcher and sales rep to track the exact status of any order in the field. If the pour was going too slowly, the dispatcher could adjust delivery to reduce waiting time and potential concrete temperature gain. Some GPS systems even alert the dispatcher of excessive jobsite water additions as they happen and send a warning to the producer's quality control department.

Capabilities expand

Concrete producers, who long have used some computer programs in their back office and batching areas, are seeing the benefits of adding new programs and integrating their systems. Computer companies, meanwhile, are taking advantage of high-efficiency chips, larger memory capabilities, and wireless



Charles Brooks / Getty Images
Ernie Walker with a small portion of his Transit Mix Concrete & Materials fleet. With GPS, the producer can track when trucks arrive at a jobsite, complete a pour, and wash out.

technology to provide a wider (and cheaper) range of options.

“Everyone is concerned about operational economics,” says Shaun McGough, regional sales manager for Fullerton, Calif.-based Jonel. “An investment in a technology which producers can quantify in savings is going to be popular, especially since the budget limits that used to exist for memory space and costs have been removed. The restraint now is boiling available technology down to the features that producers want, so they can understand the capabilities and use them efficiently.”

Most producers are familiar with at least some technologies now, and most are curious about what additional benefits exist, says John Rabchuk, president of Systech Inc. in Woodridge, Ill. Industry consolidation has spurred that movement, as managers often introduce new technology systems to acquired or merged plants.

But technology isn't only for the multinational producers. It's also spurred local competitors to react. “The big guys have sophisticated operations, but the regional supplier has discovered that technology can be a great equalizer,” Rabchuck says. “It doesn't take much money to give the smaller guys the same tools as the big guys, and they may be more agile than the big guys.”

That was the case for Kitty Hoyle, owner of Wellington Hamrick Inc. in Boiling Springs, N.C. “We're a small company, and we need technology even more than others because we don't have the manpower to allow each person to handle only one job,” she says. “Technology helps us use our resources efficiently—and that's not lost on the customer. He doesn't care how you're handling any truck but his.”

The producer opened a new facility in 2004 and bought a state-of-the-art program. “Technology changes so quickly, that we wanted to be as up to date as possible to start out, or we would fall behind immediately,” says Hoyle.

Charlie Stone, vice president of Sardinia Concrete Corp. in Milford, Ohio, agrees. Sardinia uses a variety of new software programs and is always looking for more. “We're a small, private company, but we keep up with the technology and tools that a larger company can have. We know we have to work easy and work smart, and automation lets us do that.”

Producers' IT managers and owners cite three key areas of computerization: batching systems, back-office administration, and dispatch. Producers have used computers to perform these functions in various forms for some time. But computer suppliers are expanding their options to software providers who, in turn, can now provide additional benefits at cost-effective levels of investment.

Batching systems improve

Batching systems have greatly improved concrete efficiency, says Rusty Shealy, owner of Capital Concrete in Lexington, S.C. “There's no comparison between a computerized batching system and doing it manually today,” he says. “Hitting the right target is far easier.”

Even so, producers who use older computer systems may be giving away margins. Batching inaccuracies alone can cost a producer 30 to 80 cents per yard, not even accounting for maintenance or mixing inefficiencies, notes Systech's Rabchuk. “Too many producers don't monitor their mixtures closely enough,” he says. As a result, they provide 3000-psi concrete when 2500-psi strength was specified. “They watch specialty mixtures closely, but they should be spending time on their bread-and-butter mixtures, which account for 80% of their volume.”

Most new batching programs offer managers a better look at material costs by expanding the information chain. These programs provide real-time alerts to key personnel when batching is out of tolerance, says Monty Newport, of Command Alkon in Birmingham, Ala. “These systems provide producers information at the organizational level so that better control of material usage is a key area that can be improved.”

Transit Mix's Walker is a believer. Transit installed hydronic probes at all three of its plants, at a cost of about \$7000 per set of two. “It was worth every penny,” he says. “It lets us control our water content much closer. The better your mixture, the less time the driver spends at the slump rack.” That minimizes truck time, which creates more productivity. He estimates the



Charles Brooks / Getty Images
Transit Mix Concrete & Materials' dispatch office. The producer monitors the time it takes trucks to load, tracking productivity.

system saves about 2½ trucks' worth of time each year. "We can do more with less, and that drops to the bottom line," he says.

Nevada Ready-Mix in Las Vegas recently added a slump monitoring program to its batching controls. "Our goal is to add the capability to batch high-strength concrete for projects that require 10,000-psi strength, and produce 400 to 600 yards per hour," explains Ron Reed, concrete operations manager for the producer, a division of Mitsubishi. Nevada premixes its sand and water for better efficiency and is working toward its volume goal since the program went live in summer 2007.



Charles Brooks / Getty Images
Transit Mix's Ernie Walker (right) with plant manager
Larry Mitchell.

Office systems reduce errors

The lower cost of computing technology is causing producers to look inside for improvements. Modern back-office software and hardware updates add efficiencies and facilitating integration with other operating systems.

Geiger Ready Mix in Kansas City, Mo., recently added a new system to replace one that had been accruing since the late 1970s. "We'd focused on automating our production side rather than the business side," says president Steve McDonald. "The new system provides us with enhancements for reporting information and handling accounts receivables and other systems."

The programs take in orders and create tickets with all necessary data, which then can be downloaded to billing. "Integrated reporting is a key benefit," he says. "Before, we had islands of information that couldn't be used by different people. Now, reporting mechanisms are integrated and easier to access."

Geiger's key reason for adding the systems is to prepare for future e-commerce capabilities. Online access will allow customers to place orders and review their accounts at any hour. "We want to make the business simpler and easier for our customers," McDonald says. "The pressure comes from ourselves, not from our competition. We want to stay ahead and continuously improve."

Sardinia's Stone also sees productivity gains in the administrative side. "Our new system helps gather information and make good decisions,"

he says. "We need fewer people to work on a project, so they can use their time better." A multi-million dollar project used to take 30 to 40 hours to prepare. Today, that total has been cut in half.

"These new accounting systems help producers get cash in quicker, which is the goal," says Command Alkon's Newport. Contractors also like the responsiveness, as it lets them gather expenses quicker for their next draw.

"A staff member can stay busy just looking for paperwork, copies of a ticket, or an invoice," adds Systech's Rabchuck. "These systems free people to provide better customer service."

The systems also allow producers to better measure their effectiveness with each customer. "They are realizing that they have a gold mine in their databases," Rabchuk says. The systems can evaluate which customers require the most high-maintenance (and high-cost) service.

Sardinia combines all material for a project into one file, which can be accessed from any site. All contracts, bid sheets, specs, and other paperwork is scanned and uploaded to the file. "We used to have to fax or e-mail information as it was requested, but now it's all in one centralized place that everyone can use," says Stone. "We can work easier and smarter."

Dispatch integrates with system

Back-office systems also can integrate with batching and dispatch, creating a seamless system from order to delivery. "It's a cradle-to-grave system, with one customer ID on everything," says Capital's Shealy. "You gain better quality control and efficiencies in loading trucks, and then you gain better utilization of your fleet."

Transit Mix's system can monitor the time trucks take to load, tracking productivity. "If it takes 30 minutes to load after the order has been ticketed, somebody isn't paying attention," says Walker. Recently, when a delivery report showed him that one truck took longer to load than others, he alerted preventive maintenance. A mechanic discovered the mixer's hydraulic motor and pump had slowed.

The system allows the first truck at the site to set up a "geo-fence" with its GPS system. As each subsequent truck breaks the fence, its time of arrival is logged. The trucks' sensors also indicate when the drum begins to rotate reverses. Thus, the producer can track when trucks arrive and pour and when they wash out. Wireless systems allow Walker or sales reps to check deliveries from any location.

Challenges still exist

To be sure, challenges to achieving high productivity still exist. Training is required, although because most employees are by now familiar with basic software, it's mostly a matter of learning the incremental differences. Producers also must stay current with updates to gain the most efficiencies and integration. Service, training, and updates are key factors in determining which system works best.

But efficiencies can provide fast pay-backs, making the cost of new systems easier to justify. And computer companies are not done providing enhancements. "Plants soon will be more dynamic, monitoring production in real time and adjusting to conditions all day long to account for humidity changes and other alterations," says Systech's Rabchuk.

Software will offer more optimization and decision-making capabilities. "The systems will gather the data and make recommendations on the best way to utilize the fleet and plant, taking into account traffic congestion and other problems," says Command Alkon's Newport. "It will make new recommendations all the time, and be capable of making the decisions to adjust. It will take a giant leap to give that kind of decision-making capability to the systems, but it will help producers make better decisions and free them for other tasks."



Charles Brooks / Getty Images

Each truck in the Nevada Ready Mix fleet has a screen that gives the driver all of the information for the delivery, including the sales ticket and directions.

Those efficiencies will be gained regardless of company size. "Pouring concrete is an event, and your customer needs confidence that you will perform reliably," says Hoyle of Wellington Hamrick. "Technology ensures there is a place for smaller companies in the industry."

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