THE BEST OF TIMES

Scheduling-optimization software can produce the best schedules for both employees and the business, but be sure to include the human element.

By Eric Krell

When the latest employee scheduling software is working at its best, it combines skills, salaries, individual preferences, regulatory demands, human resource guidelines and other data into a complex algorithm to strike an optimal balance between organizational efficiency and employee satisfaction.

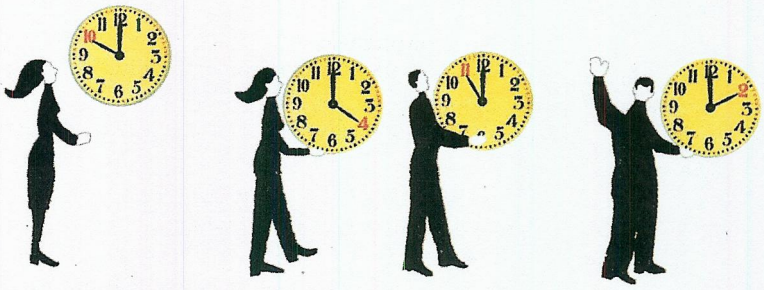
When the software falls short, it's almost always because its users failed to factor the human variable into the equation.

"If you neglect the human element of these systems, you're going to lose" their effectiveness, says Georgian Hernandez, workforce management administrator for USANA Health Sciences, a global health products manufacturer based in Salt Lake City.

Jack Fulbright, vice president of human resources for Northeast Georgia Medical Center and Health System in Gainesville, Ga., credits the scheduling software implemented a year ago with reducing turnover costs, overtime and the use of temporary nurses from outside staffing agencies. The Kronos scheduling software helps in managing 2,500 nurses, respiratory therapists and support staff members at the medical center.

"At a high level, the [scheduling] system helps us make sure that our workforce is being used properly," Fulbright says. "The system helps us achieve efficiencies and quality from an organizational standpoint, and it also helps us deliver what's best for our employees, which helps us strengthen our retention."

Both Hernandez and Fulbright stress that it is critically important to find out employees' scheduling needs and preferences and feed that



information into the software system. That step can be overlooked, as demonstrated by recent media coverage reporting employee backlash to adoption of scheduling-optimization software in some large chains. While these systems are ripe for potential misuse, the fault lies with the user or designer and the data rather than with the software itself.

"It doesn't work in the hands of managers who are looking for an excuse to cut costs," says Darryl Demos, general manager of Witness Enterprise Solutions, a division of workforce performance software company Witness Systems in Roswell, Ga., which specializes in solutions for the financial services sector. "And it doesn't work for managers who don't have the courage to manage their businesses while maintaining an open and transparent relationship with their employees."

Jason Volk, a manager in Deloitte Consulting LLP's human capital practice in Kansas City, Mo., says that scheduling-optimization systems, "if implemented in conjunction with sound decision-making and thoughtful change leadership, can benefit all parties involved." ❯

Hernandez—a call center veteran who previously administered several different scheduling systems for AT&T, American Express and Advanta—believes that human resource managers should be more involved in the selection, design and use of scheduling systems. HR's involvement, according to Hernandez and other experts in scheduling optimization and workforce management, helps ensure that the right number of workers with the right skills are working at the right time in accordance with relevant regulations and business rules.

At USANA, Hernandez uses scheduling software from Witness Systems not only to schedule her call center employees efficiently but also to track the time her employees spend assisting other departments that use the call center as a flexible labor pool during their workload surges. While she hopes to start using that data to bill other departments for their labor "borrowing," Hernandez also believes that the HR department could use the same information to forecast skills needs and to provide rare internal promotion opportunities to call center employees whose skills may be a match for future openings within the company.

"We need HR [to be] more involved," Hernandez says. "We need them to understand the complexities and also the flexibility of these systems."

There are other compelling reasons for greater HR involvement. For starters, scheduling software is moving beyond call centers into other areas such as warehouses and manufacturing plants, and into retail, health care and other sectors. Some companies are considering applying the scheduling technology to corporate departments and functions—what Demos describes as the "white-collar factory."

Consider, for example, the accounting department, where workloads surge before and after the end of a month, a quarter and a fiscal year. "Those cycles lend themselves to scheduling," says Demos, a former certified public accountant. "This is not just a process that applies to the production facilities within an organization."

Additionally, much of the data that fuels scheduling engines either resides in HR or is of great interest to HR. Such data include employee skill sets and salaries; regulatory requirements such as the rules for the Family and Medical Leave Act; stipulations in collective bargaining agreements; and organizational guidelines on benefits, time off and overtime pay.

Finally, more precise scheduling outputs, such as alerts on necessary employee certifications or a labor forecast's impact on budgets, equip corporate HR functions with greater visibility, and more precise and actionable information.

The Black Box and Beyond

Richard Coleman laid out the fundamentals of sound scheduling tactics a dozen years ago in his book *The Twenty-Four Hour Business: Maximizing Productivity Through Round-The-Clock Operations* (AMACOM, 1995). Coleman identified three factors that efficient, effective scheduling systems need to consider: business needs, health and safety, and employee preferences.

The timing of Coleman's book was ideal. Scheduling systems of varying sophistication (think pencil and paper, and magnet boards) have existed since the advent of the assembly line, but software-based scheduling advanced tremendously in the middle and late 1990s in call centers because of the automated call distributor (ACD). The little black box integrates with computerized telephone systems and helps traffic incoming calls to available agents. ACDs also collect data—such as the average time a caller waits to be connected to a service representative, average call time, number of calls handled by an agent in a given period and so on—that mathematicians use to develop algorithms that identify optimal staffing levels for specific work shifts.

The more data an ACD collects, the more precise and more efficient the schedule can become, at least in theory. In practice, many early implementations of scheduling software were *too* efficient, scheduling a bare minimum of employees to take nonstop calls.

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In the past three years or so, scheduling software has ventured beyond call centers more often. These systems access "supply" data from HR systems as well as databases of business rules and employee preferences. But the "demand" data is harder to come by outside the call center where the equivalent of the ACD does not exist, at least not in a tidy box.

Scheduling software tailored to retailers, for example, will tap into point-of-sale systems to access information about what times of the day, week, month and year tend to require more cashiers. In banking, scheduling systems integrate with the systems that record teller transactions to identify similar

Online Resources

See the online version of this article at www.shrm.org/hrmagazine/07May for links to:

- The AMR Research report on workforce management technology.
- A sidebar on the workforce management functionality offered by vendors in integrated or discrete applications.
- An SHRM white paper on considerations in changing the work schedules of nonexempt employees.
- An SHRM white paper on devising shift schedules.

BEFORE YOU SHOP

Workforce management software that helps companies optimize employee schedules works best in areas of a company where there are variable workloads, complex or new labor laws, high turnover and/or recent, dramatic changes in workforce size. To ensure that the software is the right fit at the right time, HR and workforce managers should address the following questions before investing in a solution:

What are our true motivations? "The goal should never be to get a bigger stick to hit the employees," says Frank Pereira, managing partner of The Capstan Group in San Rafael, Calif. "It's really about using people more effectively so I don't have 20 people standing around when I need 10."

How healthy are our scheduling processes? Like every other piece of automation, scheduling-optimization software automates existing processes—it does not automatically improve them.

What do employees want? Ignoring employee scheduling preferences is a sure way to derail the effectiveness—and the cost-efficiency—of the software.

Are our workforce managers on board? Employee resistance to scheduling changes can be formidable, says Pereira, but management opposition is almost always more difficult to overcome.

Can we start with small changes? Witness Enterprise Solutions' general manager, Darryl Demos, reports that one of the most effective post-implementation schedules is one based on the previous schedule with only minor modifications. Subtle variations still deliver efficiency gains and, more important, help ensure employee acceptance at a critical juncture.

Can we give the investment time? The potential return on investment (ROI) in scheduling automation is lofty, but realizing hoped-for benefits requires a grounded approach to timing. "Many times, companies think, 'OK, we have the software; now in two months we should see some amazing ROI,' " says Georgian Hernandez, workforce management administrator for USANA Health Sciences, a global health products manufacturer in Salt Lake City. "In some cases, it may take one to two years to gain those returns."

"demand" information. Manufacturing scheduling systems need to integrate with manufacturing execution systems, which focus more on the availability of machines and equipment, and supply chain systems.

Northeast Georgia Medical Center and Health System's scheduling software links to the hospital's acuity system, which tracks the severity of patients' illnesses. Janice Howser, PHR, the hospital's manager of compensation and HR information systems, says the hospital is able to maximize the functionality between all of its systems. "The systems talk to each other, which enables us to make proactive decisions based on those ever-changing values. We run reports out of our patient acuity systems multiple times throughout the day, and the next staffing schedule flexes up or down based on that information."

The variability of data's locations means that no cross-industry scheduling-optimization software system exists; rather, vendors tend to specialize in developing systems for specific industries. And many of those systems require varying degrees of customization and consulting support depending on the systems environment at a particular organization.

So far, retailers, airlines and health care companies appear to be the leading industries adopting scheduling-optimization software, followed by warehouses, manufacturing plants and utilities, respectively.

Software vendors usually charge on the basis of the number of employees the scheduling software helps to manage, generally from $200 to $400 per employee. The cost also depends on the amount of customization required and the sophistication of the system. If a system provides more than one set of functions, customers can expect to pay more. (For more information about the different functions a system can provide, see the online version of this article at www.shrm.org/hrmagazine/07May.)

Implementation time also varies according to the system's sophistication and the size of the workforce it applies to, although vendors and consultants frequently cite 12 weeks as a standard implementation length.

Smaller companies can access less sophisticated scheduling-automation technology in the form of customized spreadsheet applications produced by some workforce management consultants for much less than $200 per employee, although those arrangements also require additional fees for consulting services. Christa Degnan Manning, the research director of human capital management at AMR Research of Boston, reports seeing more companies with as few as 200 employees investing in some type of scheduling software. Software vendors claim that their offerings can earn back their costs within two months to a year for workforces as small as 50 employees.

The Value of Smarter Scheduling

The benefits of optimal staffing efficiency can be sizeable.

Frank Pereira, managing partner of The Capstan Group, a workforce management consulting firm in San Rafael, Calif., and a workforce management consultant with 20-plus years of experience, studied 25 companies that implemented scheduling-optimization software in their call centers—all with at least 100 employees—during a recent two-year period. He says the companies saved an average of 9 percent of their total labor budget within one year of the software implementation. Most of the cost savings came from:

- Workload matching, which reduces employee downtime (4.5 percent).
- Schedule adherence, which decreases employee absence rates (3.2 percent). ❯

- Reduction in management time devoted to scheduling (0.5 percent).
- Reduction in turnover costs (0.3 percent).

Pereira also reports that call centers in which agents can cross-sell and up-sell services or products saw moderate increases in revenue after the software implementation. Deloitte Consulting's Volk, who has studied the software's impact on retailers, reports similar benefits. He says that retailers can expect 3 percent to 7 percent decreases in labor costs as well as 1 percent to 4 percent bumps in sales after successful implementations.

Hernandez reports that scheduling software can also level the playing field by ensuring more-equitable workloads. "Back when I was a call center agent, before this type of software was implemented, I often had neighbors in my cubicle who were just sitting back while I handled all sorts of calls," she recalls. "You look around and say, 'Wait a minute, this isn't fair.' That imbalance creates a lot of dissatisfaction."

For a similar reason, Manning reports that the software interests unions, which want to make sure companies treat employees fairly and equally. "These systems take the agreements between unions and the employer [and] make sure that [rules] are applied across the board," she says.

After implementing scheduling-optimization software, Northeast Georgia Medical Center saw decreases in turnover, temporary-staffing costs and overtime, and managers found they were spending less time scheduling—as much as 80 percent less time, Fulbright reports. In addition, employees now receive their schedules at least four weeks in advance. "That's a big staff satisfier," he says. "Before, some employees were finding out their schedules only a week ahead of time ... and it was clear that the turnover in those units was higher than it was in units that were more effectively staffing."

The system also alerts managers when employee certifications and other requirements of national health care accrediting agencies need to be renewed. Previously, that certification information was housed in an HR folder. "The system puts that information in front of the manager's eyes instead of in a paper file somewhere," Howser says.

Mathematical and Managerial Errors

Of course, the logic coded in the software must be tempered by human judgment.

Pereira recalls a consulting engagement with an airline where his team was developing scheduling-automation processes and technology for gate agents and flight attendants while the company was implementing a scheduling-optimization system in its call centers.

One week after the 450-agent call center implementation, "the call center employees were ready to unionize," he reports. "They were flipping out. The software was producing schedules where an agent would start work at 2 p.m. one day and midnight the following day."

The airlines' executives pulled Pereira and his staff off of their project for gate agents and flight attendants to reimplement the technology in the call center.

"We had to come in and ask, 'OK, what parameters are important to people?' " he explains. "We figured out how to incorporate those preferences with business rules, but only after we ... spent a couple of months building credibility with the employees before we took the [redesigned] software live again. ... I've seen that scenario repeated numerous times in health care, with call center outsourcers, and even in places where employees earn minimum wage and are happy to have a job. Even there, if you build people a bad enough schedule, you can raise the rate of pay and they're still not going to stay."

But even employee resistance is not the most formidable obstacle to successful implementation of scheduling-optimization software. "The biggest challenge I've encountered," Pereira emphasizes, "involves change management on management's side, and that is even the case at some of the hottest union environments." Managers tend to resist for political reasons; adoption of the software may mean another colleague receives the credit or that the schedule they worked so hard to create manually is obsolete.

Northeast Georgia Medical Center saw decreases in turnover, temporary-staffing costs, overtime and managers' time spent on scheduling.

He points out that manager and employee resistance can be reduced through project management and change management fundamentals that typically should accompany any software implementation: Involve the affected employees early in the implementation process; listen to, collect and apply their ideas and preferences; and roll the new technology out in stages, addressing concerns and snafus along the way.

Regardless of how well an implementation is managed, some individual employees may remain dissatisfied. "But even those upset individuals don't have as big of a negative effect as a manager who doesn't want to change," Pereira says.

In the world of scheduling-optimization systems, neglecting to factor relatively simple aspects of human nature into the equation can create complex problems. HR

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