

# Improving **field service** productivity

*Real-time information can help companies manage “invisible” employees.*

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**If a paramount challenge** for managers is motivating employees to meet and exceed an organization’s goals, that objective can be particularly hard when it comes to managing the field service staff. In recent years, much thinking has focused on ways to improve the productivity of these invisible employees, who work out of view, often at their own pace, in industries such as cable, courier services, high-tech consumer equipment security, and telecommunications.

Most field service improvement programs traditionally rely on detailed productivity metrics and reports that tell executives only what happened in the past, thereby missing the opportunity to make improvements. Now, however, some companies are using new technology to get a more timely and accurate view of the field force, so managers can make decisions as events unfold. This approach uses real-time information flows from the field (for example, the wireless transmission of signals that indicate when technicians start jobs, test equipment, and finish), combined with the statistical analysis of consumer demand for services. The result tends to be a more actively engaged dispatch center that helps field managers to raise the utilization rate of their workforces.

**Article at a glance**

*Field service operations usually don't respond to conventional productivity-improvement programs, because managers have difficulty coordinating the work of employees they can't see on the job.*

*A new approach relies on real-time data from the field to inform a dynamic dispatch center that helps managers raise utilization rates by identifying capacity in the workforce and reassigning field technicians.*

*A flexible approach to scheduling work and an ambitious and realistic plan for booking it help to fill in available capacity. Combined with a sophisticated approach to forecasting demand, these changes can dramatically improve productivity by raising the number of assignments that field technicians can undertake in a typical day, reducing wait times, and improving customer service.*

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Beyond a flexible approach to scheduling and a more attentive management style, these techniques can substantially improve labor productivity and customer service. One US cable company that began using a real-time dispatch system increased the number of jobs completed each day by 80 percent, which in turn reduced, by 30 percent, the time customers spent waiting for appointments with technicians. In another case, a security company that adopted these techniques increased the number of daily alarm installations by 35 percent while doubling its record for timely arrival.

New communications and software technologies underpin this approach, but changes in management style are equally important. Managers will need to supervise their field teams

more actively—for instance, by putting in more face time and occasionally riding along to observe employees in the field.

Field technicians too will have to adapt, learning to be more flexible in their daily schedules and accepting limits on the autonomy they value. In a recent survey of field technicians at one security company, 92 percent said that independence was their favorite aspect of the job. A challenge for managers will be to focus the field staff on the performance and customer service dimensions. In our experience, field technicians do want to improve customer service; in fact, the same survey found that 91 percent of them supported that very goal.

**Identifying lost productivity**

To understand the challenges field service managers face, consider the experience of their technicians at the cable company mentioned earlier. Before the improvements, a typical technician completed four to five jobs (mostly installations and repairs) each day. But the productivity reports that managers received offered them few insights—no information on wasteful driving times, cancellations, or other reasons for lost productivity.

A subsequent study conducted by riding along with the field technicians and observing their typical daily routines revealed ample opportunity for improvement: routing jobs more efficiently and reducing unproductive time (technicians arriving at their first job late, taking long coffee breaks, eating leisurely lunches, and finishing early). Interestingly, the tasks themselves were completed fairly efficiently; opportunities for improvement were found in the time between them (Exhibit 1).

## EXHIBIT 1

**Picking up the slack**

Disguised example of cable company

	<b>Pre-pilot average</b>	<b>Targets after pilot</b>	<b>Time wasted over 8-hour day</b>	
Average time from shift start to job start, minutes	70	30	40	Field agents typically reached first customer site 70 minutes after starting shift.
Average finishing time	4:30 PM	5:00 PM	30	Field agents ended work 30 minutes before end of paid shift.
Average time to complete a job, minutes	35	32	0	Little opportunity for improvement as technicians were fairly efficient once they started work.
Average drive time per job, minutes	24	15–20	30–50	Inefficient routing and driving patterns caused by large work zones wasted 5 to 10 minutes per job.
Average lunch time, minutes	99	60	40	Technicians took long lunch breaks, because they believed, incorrectly, that lunch time = 1 hour plus drive time.
<b>Total wasted time</b>	2 1/3 hours to 2 2/3 hours			
<b>Number of jobs completed</b>	6.3	8.5		

Having identified the opportunities, senior managers needed a better understanding of the field technicians' daily routines. This extra visibility—and a more flexible and dynamic dispatch system—were the cornerstones of the cable company's transformational program to improve productivity in the field and address key quality issues, such as the punctuality of technicians, waiting times for customers, and getting jobs right the first time. Using improved routing software and making better use of mobile phones, the teams in a pilot study established command centers that provided real-time visibility into the schedules of the field workforce. They also implemented innovative staffing and routing techniques designed to meet customer demand more successfully. The command centers helped field force managers to learn where technicians were, when they began and finished assignments, and whether a test signal had been sent back through the cable network to confirm that an installation was successful or a problem had been fixed. In addition, managers learned (in real time rather

than afterward) when employees were ignoring policies; as a result, the company could immediately take corrective action, such as telephoning customers.

The impact was dramatic: 18 months after the company launched the program, technicians were completing an average of 8 jobs a day, compared to 4.5 previously; the average waiting time for an appointment with a technician had dropped to 1.2 days, from 5; and labor costs had decreased by more than 30 percent, since less work had to be outsourced to external contractors.

### **Creating and managing transparency**

Any program to improve the productivity of a field force should address three basic challenges. The first is getting a clear picture of what's going on in the field and setting up a dispatch center that can adapt to changes; the second, rethinking the way jobs are booked: most companies plan their operations in ways that leave too much capacity unused. The third involves adopting more sophisticated forecasting models that take into account all relevant factors and moving away from the tendency to forecast by memory.

#### Dynamic dispatch

Traditional approaches to scheduling a field force usually assign jobs only for the day ahead and don't respond quickly to changes—partly because dispatchers aren't aware of the field technicians' activities or of pending jobs in the pipeline. A more dynamic approach allows managers to see changes as they unfold and to fill in gaps by adjusting schedules. In a typical day for the field force of a cable or telecom company, for example, 5 to 10 percent of all jobs are canceled, and 20 to 30 percent of them run longer or shorter than expected—changes that create scheduling difficulties and, often, unused capacity. Dispatch centers that track capacity in real time allow managers to reschedule on the fly, matching people with jobs. While GPS technology can help, it's not necessary; mobile phones allow companies to stay informed about the activities of field employees and to monitor data on their locations and on the start and finish times of certain jobs (see sidebar, "Tracking technologies"). A secondary benefit of real-time awareness is that managers can track employees and rein in long breaks. Spot checks with customers confirming the arrival and departure times of technicians minimize the risk that employees will manipulate the system.

#### Improved capacity management

Most field service organizations allow some gaps in their schedules, for urgent jobs that arise unexpectedly. Cancellations, however, consistently outnumber them—a fact that many companies don't know or overlook in

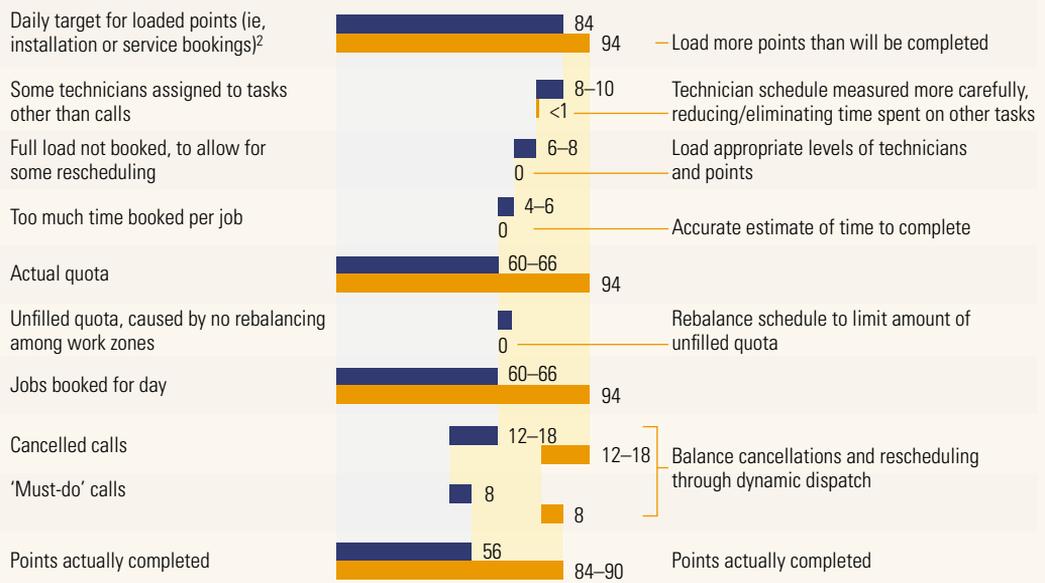
planning. By taking this statistical tendency into account, managers can safely overbook the days of technicians, since cancellations will probably allow them to arrive at their assignments punctually and only occasionally create a need for overtime (Exhibit 2).

EXHIBIT 2

**Booked up**

Disguised example of cable company booking for branch with 100 technicians, points<sup>1</sup> per technician per day

■ Traditional model  
■ Overbooking model



<sup>1</sup> 1 point = 5 minutes of installation or service booking including driving time to and from job.

<sup>2</sup> Represents 7 hours of productive work, allowing 1 hour for breaks and tech center time.

A second capacity issue is the way geographic work zones sometimes create rigidities that limit efficiency. A company that installs PCs and home theater systems, for example, found that demand in specific geographic zones tends to peak predictably—for example, during bonus week at a big local employer or back-to-school days at a local university. At such times, companies ought to shift technicians across zones to rebalance the workload, boosting utilization rates by 15 to 30 percent.

Better demand forecasting

Field managers often blame flawed workload forecasts on the weather or power outages, but analysis shows that these conditions have little impact. The real problem is usually the lack of a good model for forecasting and an

## Tracking technologies

Technology can assist in driving field force improvements, but not all are “must haves.” The following list includes the types of solutions available to management, in order of importance:

*Real-time routing software.* New applications improve the way dispatchers monitor and schedule the field force, by visually displaying both capacity and exceptions (such as excessive driving times or long breaks), thereby letting the dispatchers act quickly to improve a given day’s performance. Some systems also reduce driving times or assign jobs to the nearest technician. UPS has a well-known system that designs routes to minimize left turns, thus saving fuel costs and the time of the company’s drivers.

*Call-ahead solutions.* Autodial software, which can check to make sure that customers are at home while technicians travel toward them, dramatically reduces the number of abortive visits—to 2 percent, from about 12. When the software is linked to a database that records how long it takes

to complete each job, it can call the customer or the field technician to see if a job has been completed, reducing the potential for errors and the ability of technicians to manipulate the data on assignments.

*Wireless handhelds.* Handheld computers, a boon for transferring data between field agents and dispatch centers, reduce the time employees must spend filling out paperwork, allowing them to focus on the job. These systems also allow field agents to access customer account information, which facilitates maintenance and up-selling efforts.

*GPS.* Global positioning systems can help improve productivity by tracking the locations of technicians in real time, particularly if they have daylong assignments or if the time needed to complete the work is unpredictable. In most cases, however, an effective dynamic dispatch process, combined with input from the field technicians, can reduce the need for GPS.

overreliance on gut instinct or memory. Many companies, for example, don’t coordinate marketing and customer care with their field service teams, which therefore don’t know about promotions that may affect demand for installations or raise novel technical issues linked to newly introduced devices or services. The introduction of digital video recorders, for instance, can increase the demand for service calls by 40 percent in the initial phases.

A better approach to forecasting identifies broader cyclical patterns—not only seasons and the weather but also the sales and marketing agenda, as well as major events in the community (for example, the start of the school year) or the media (say, a major sporting event). In the cable industry, models built along these lines have been accurate up to 98 percent of the time on a regional level, as compared with traditional field forecasts, which are only about 75 percent accurate—too low to plan schedules effectively. Better planning reduces the cost of overtime and contractors. What’s more, a good support team ensures that trucks are appropriately stocked with equipment and supplies in order to avoid repeat calls.

## Making changes stick

Few of these changes endure without appropriate leadership and metrics. Companies launch successful programs by enlisting the support of senior

managers, ideally the CEO and the chief operating officer. Productivity metrics must be visible to them, so they can cite successes to encourage positive competition among regions.

Regional leaders, who must also rely on metrics, should encourage branch managers to spend less time on reports and more time supervising their field staff. Our experience shows that their active engagement—either by speeding field technicians out of the door in the morning or by riding along with them to observe and spread best practices—can have an immediate impact on productivity. A close-up view of unproductive behavior in the field (long breaks, short days) can help managers take immediate corrective action.

If a workforce suffers from “change fatigue,” leaders may need to signal their commitment to a major shift. One way is to launch a certification process highlighting teams or regions that meet demanding standards (for example, by achieving high percentages of on-time service) and continue to meet them over time. Certification, which can be linked to compensation, has proved a compelling way to ensure steady improvement.

Finally, companies can’t hope to reap all the advantages of a plan to improve productivity unless they’re willing and able to change the size or workload of the labor force. Such programs aim to raise each field employee’s productivity; companies increase their profits by undertaking more jobs with the same workforce or by serving the same customer base with a smaller one. A typical field force has a fairly high turnover rate (20 to 30 percent a year), so companies can often make adjustments through attrition and reassignment.

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Taken as a whole, these techniques aim to increase management’s understanding of how effectively the field force works and thus to improve productivity and customer service. Until recently, a lack of transparency prevented field service managers from implementing the kinds of productivity-improvement efforts that have successfully raised the standards of on-site operations. Applying these methods in the field should help managers pursue similar results there. **Q**

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