ORACLE

Making Sense of Optimization in Field Service

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✴ **Spark Series**

What is field service optimization?

When field service exceeds expectations, your customers—and your bottom line—benefit.

Managing an on-the-go workforce to install, repair, or maintain assets is critical to earning and preserving customer satisfaction and trust. And field service has come a long way since the early days of fragmented applications for call center, dispatch, scheduling, and routing. Today's field service operations are interconnected and more mobile than ever, relying on innovative technologies such as artificial intelligence (AI), machine learning (ML), and the Internet of Things (IoT). But with progress comes complexity, and if any of these moving pieces become misaligned, customer happiness, team morale, and company profits can take a hit.

Field service optimization is the practice of refining how resources are deployed to achieve three primary goals: maintain seamless, efficient, cost-effective operations; make employees productive and engaged; and keep customers happy.

Many factors contribute to overall field service effectiveness, and each presents a unique opportunity for optimization. Factors include:

- **Training, skillsets, and workflows** for field technicians who visit customers to perform service

- **Hours of service**, service area, and length of appointments

- **Vehicles driven by technicians**, including required parts and equipment

- **Transportation routes, vehicle speed, and fuel required** to travel between locations

Optimizing these factors requires software to help analyze data, apply AI and ML, automate processes, and provide ongoing recommendations for improvement.

Let's explore how optimizing field service adds value for you, your employees, and your customers.

Why it matters today

Maximize customer satisfaction
and reduce operating costs through
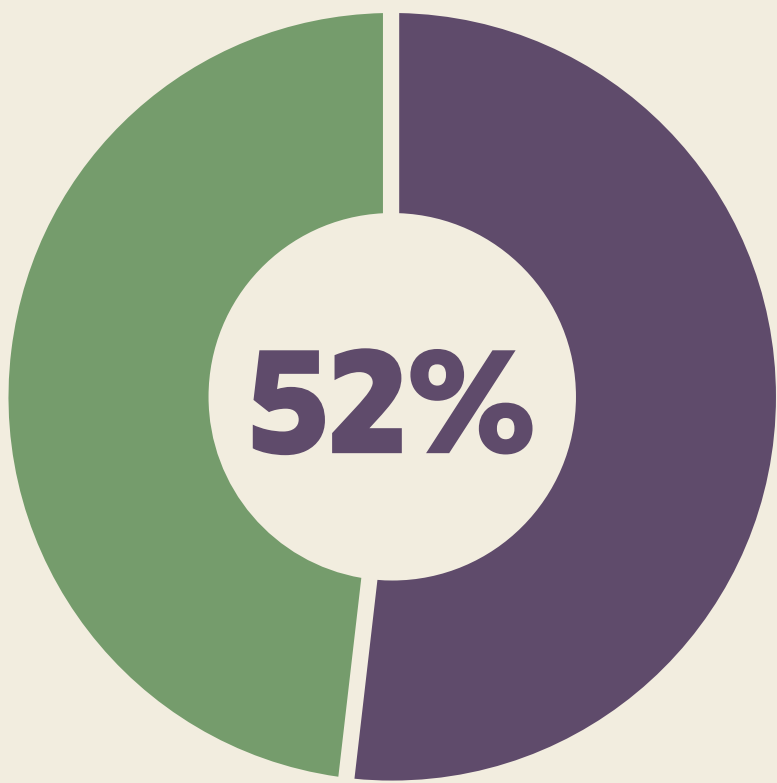field service optimization.

When you can get to every call on time and
complete the work successfully on the first visit,
your gross profit margin gets a boost.

Perhaps most importantly, a fine-tuned field service
operation drives higher customer satisfaction by

- **Completing services within the promised timeframe**

- **Performing services correctly the first time and eliminating the need for multiple appointments**

- **Minimizing incremental or unexpected customer costs**

Higher customer satisfaction rates also help retain
business and increase loyalty. And happier
customers are more likely to pay more for a product
or service, buy additional services, or renew
maintenance subscriptions.

52%

52% of Americans will pay more if they know they'll receive great customer service.[1]

Beyond that, optimizing field service operations can increase job satisfaction among field technicians. When technicians have the tools and information they need to perform their jobs well, they will be less frustrated and more likely to earn high customer satisfaction ratings.

Let's identify the best opportunities for optimization, the technology and data required for optimization, and key metrics to monitor success.

The basics

Field service looks different for every organization, but most could benefit from a few core optimizations.

These include:

- **Capacity planning and forecasting:** Ask yourself: How many service calls can you book in a specific time period? How long will each service call take? Do your technicians have the right skills?

- **Scheduling:** When scheduling service calls, account for customers' and technicians' availability, technicians' skill sets, and travel time between locations.

- **Routing:** Consider distance, traffic conditions, and driving speeds to establish the most efficient routes between multiple locations.

Key technologies driving field service optimization

- **AI** leverages computers and machines to mimic the human mind's problem-solving and decision-making capabilities.[2]

- **ML**, a branch of AI, uses data and algorithms to imitate how humans learn.

- **IoT** is a network of physical objects (like appliances or equipment) embedded with sensors, software, and other technologies that connect and exchange data over the internet.

All three can work together to better predict field service needs and opportunities, so you can plan—and optimize—better.

1. Capacity planning and forecasting

Applying AI to capacity planning and forecasting helps minimize business disruptions by anticipating spikes in demand so you can schedule staff appropriately or add contractors if needed. It also helps you avoid paying overtime costs by ensuring you're properly staffed to meet demand.

IoT enables you to perform remote and real-time diagnoses and can even allow technicians to resolve issues without traveling to sites. Fewer on-site visits means you can utilize your dedicated workforce more efficiently and hire cost-effective contract workers to share the workload during peak periods. And when visits are required, IoT ensures technicians have the information they need before they arrive so they can resolve the issue quickly, the first time. IoT combined with AI empowers you to take a proactive approach to field service, resulting in a more predictable and reliable operation.

2. Scheduling and routing

When it comes to assigning technicians to appointments, AI takes into account average time to complete similar tasks, past productivity, and each technician's skills and certifications. This allows you to assign jobs requiring a more common skill set to less experienced technicians and devote your more skilled technicians to more complex jobs.

> **By 2025, algorithms and bots will schedule over two-thirds of appointments for field service providers leveraging automated schedule optimization, up from less than 25% in 2019.[3]**

Then, armed with location, traffic, and weather data, AI helps calculate travel time and identify optimal routes so appointments that are close to one another can be scheduled accordingly, and technicians can be rerouted if traffic or weather conditions arise. This helps technicians stay on schedule and complete more jobs within the promised window. Additionally, less time on the road means less gas and wear and tear, reducing maintenance costs that cut into profits.

And IoT applied to technician vehicle routing tracks each vehicle's location in real time to update customers on technicians' expected arrival. It also optimizes routes so the technician will arrive safely and quickly, which may mean more service calls can be completed.

Key metrics to monitor and measure

Keep your eye on common field service metrics to judge the impact of optimization and reveal efficiency gains that drove customer satisfaction. Common field service metrics include:

- **Annual fuel and vehicle maintenance costs:** The amount you spend yearly to fuel and maintain service vehicles

- **Average response time:** How quickly technicians arrive at customer calls

- **Average travel distance:** The number of miles technicians drive in a specific time period

- **Average travel time:** The number of hours or minutes to get from one customer site to another

- **Customer effort score:** How much effort a customer has to exert to get an issue resolved

- **First-time fix rate:** The percentage of jobs completed correctly on the first service call

- **Mean time to repair:** Average length of time spent performing on-site repairs and completing work

- **Overtime labor costs:** The amount of money spent on overtime pay

- **Repeat visits:** The number of jobs that were paused and resumed later because technicians didn't have the right equipment or couldn't access a site

- **Rescheduling ratio:** The percentage of jobs rescheduled because technicians didn't complete them or missed the appointment

- **Rework percentage:** The percentage of jobs that need to be redone because the initial repair or installation failed

- **Service-level agreement adherence:** How often technicians miss the contractual or guaranteed appointment window

- **Technician utilization:** The number of productive, billable hours expended by technicians during a shift

What's next?

AI and IoT are at the center of emerging technologies and workforce models for field service.

Wearable technology: Augmented reality (AR) in wearable technology (think smart-watches or head-mounted displays) could guide technicians through diagnosing a problem or installing equipment. This results in increased productivity and fewer mistakes. Wearable technology and AR could also help customers troubleshoot and fix issues on their own, saving you valuable time and resources.
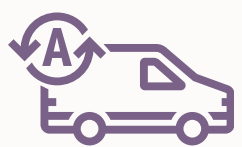
Self-driving vehicles: As self-driving vehicles become more common and accepted, they raise an opportunity to extend your field service operations. These vehicles are programmed to take the most efficient routes and make real-time adjustments based on schedule changes, possibly even before the technician knows the adjustment was made.

Diversified mobile employees: AI and IoT not only increase the capacity to deliver excellent customer service, but they may also create additional capacity for new growth opportunities. When that happens, technicians can carry out other unrelated tasks once on-site, helping improve the customer experience and provide excellent customer service.

A view toward practical solutions

Optimizing field service operations keeps technicians informed and engaged—and your customers happy.

Thanks to AI and IoT, it's easier than ever to optimize your field service operations. Connected devices drive greater productivity, and the data generated from those devices helps technicians respond more quickly to customer calls. AI and IoT also enable your organization to move to a proactive maintenance model.
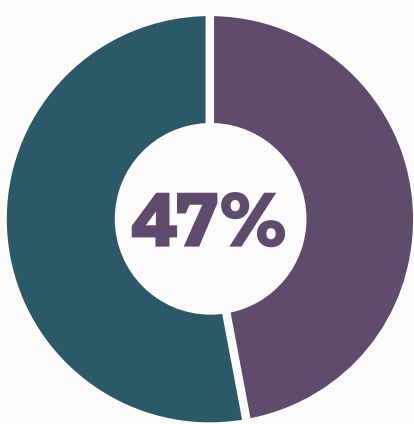
47% — **Nearly half of field service organizations indicate connected devices increase team productivity.**[4]
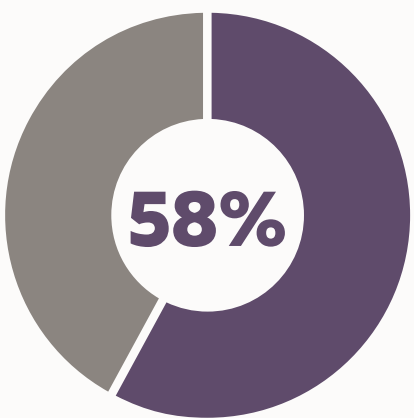
58% — **Over half state that leveraging data from connected devices helps technicians quickly and successfully respond to customers in the field.**[4]

When you optimize field service operations using AI and IoT, you'll:

- **Get the right technicians with the right skills to the right place on time**

- **Better predict when on-site service calls are required and plan accordingly**

- **Identify issues before customers notice them**

- **Meet service expectations and make customers happy**

And you'll be able to do it cost-effectively and drive greater profitability.

To the experience-maker who's always moving forward

At Oracle, we know great experiences come from great inspiration, and we're providing the spark for your next idea. Packed with powerful info, the Spark Series will get you up to speed on core CX concepts—such as as field service optimization—quickly.

Think of it as a way to hone your understanding before turning your eyes toward a new strategy. Because if anyone's going to create CX gold, it's you.

What will you discover next?

- [Blog: How to Unlock the Value of IoT-Enabled Customer Service Experiences](#)

- [Report: The Operations Guide to Connected Devices](#)

- [Spark Guide: Making Sense of Field Service Knowledge and Collaboration](#)

About Oracle Advertising and CX

Make every customer interaction matter by connecting all your business data across advertising, marketing, sales, commerce, and service. Oracle Advertising and Customer Experience (CX) is a connected suite of applications that goes beyond traditional CRM to help you create and nurture lasting customer relationships. Build a complete view of every interaction and every customer, no matter how and when they engage. Empower your entire business to deliver exceptional customer experiences—from acquisition to retention—and everything in between.

Sources

1. Shep Hyken, "The 2021 ACA Study: Achieving Customer Amazement, The State of Customer Service and CX," 2021

2. "Artificial Intelligence" IBM Cloud Education, June 3, 2021

3. Jim Robinson, Naved Rashid, "Gartner Magic Quadrant for Field Service Management," Gartner Inc., July 6, 2020, (gated)

4. Chris Rand, "The Operations Guide to Connected Devices," WBR Insights, 2020

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