THE 2024 FIELD SERVICE BENCHMARK REPORT: MEDICAL DEVICE EDITION

The global medical device market has grown exponentially over the last few years. However, it still faces many challenges, particularly regarding supply chain distribution, escalating service costs, impending retirement waves, and growing knowledge gaps.

Medical device companies are being called to adopt new and innovative approaches to manage their finances, workforce, and business operations. They can maintain their competitive edge by investing in Generative AI technologies and methodologies like the Shift Left strategy.

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INTRODUCTION

The medical device market has experienced significant global growth in recent years—primarily driven by advancements in healthcare technology, an aging population, and the increasing prevalence of chronic diseases.[1] The future of the global medical device market is overwhelmingly positive, fueled by investments in healthcare infrastructure, research and development, and the integration of digital technology.

- By 2028, the medical device industry is expected to reach **over $435 billion**—with a compound annual growth rate (CAGR) of 3.4% through 2023-2028.

- Emerging trends include AI-optimized medical devices, the Internet of Medical Things (IoMT), increasing acceptance of wearable medical devices, growing use of miniaturized medical devices, and growing adoption of 3D printing in medical devices.

However, considering its advancements, the medical device industry has compounding issues, especially around supply chain distribution, rising service costs, retirement waves, and knowledge gaps.[2]

As such, medical device companies are challenged to stay up to speed, stay competitive, and cost-effectively provide the best service to customers.[3] They need to think differently and find new ways to manage their finances, workforce, and business operations, including investing in suitable methodologies and technologies.

But where should you begin?

Shift Your Organization Forward

First, you must understand the strengths and weaknesses of your business on a deeper level. Here's the most effective way to use this report as a guide:

- See how your organization compares to industry benchmarks for critical service KPIs.

- Pay extra attention to areas most organizations overlook, such as understanding the difference between First Time Fix Rates and successful case resolution.

- Dig deeper into lower-performing employees' impact on service outcomes.

- Learn how to measure performance accurately—and use findings to align with business goals. **Pro tip:** consider where the **Shift Left Method** fits into your service strategy—this approach involves using your data to spot opportunities to move service resolutions closer to the customer.

- Use that data to drive measurable improvements.

And best of all, you can start wherever you are right now.

KEY FINDINGS

This year, we reviewed trends across technologies typically found in laboratory and patient-facing settings. In our analysis of this year's data, we learned:

A. Patient-Facing Medical Device Companies

- In the case of **First Time Fix Rates**, the skills gap is more apparent in medical device companies with patient-facing technology, possibly due to the more dynamic nature of the environment. Managing spare parts and tracking parts for work orders and repairs can directly impact First Time Fix Rates. Connectivity is also an issue in hospitals; many knowledge solutions can fail because they lose connection.

- They have **more Visits Per Asset Per Year** than medical device companies specializing in lab equipment because patient-facing assets are designed to operate at scale (due to many daily users). Thus, the equipment requires more maintenance, and service styles tend to skew toward break-fix reactions.

- The **Resolution Time is faster**—the expectation is that the product will break due to the level of daily use. The ramifications of downtime are more critical, so companies put more effort into fixing an issue as soon as possible. Bottom-performing companies take **five times longer to resolve an issue** than top-performing companies.

B. Lab Equipment Medical Device Companies

- Generally, medical device companies with lab technologies have **higher First Time Fix Rates** than those with patient-facing technologies. They also have a **smaller skills gap**. This can be attributed to the more straightforward nature of their equipment, consistent builds, and streamlined service training process.

- They typically have more **extended Resolution Time** than companies with patient-facing technologies. Bottom-performing companies take **four times longer to resolve an issue** than top-performing companies.

- They can **Shift Left by moving to remote resolutions**.

Here's a further breakdown of costs:

- In top medical device companies with lab technology, bottom performers cost **25% more** than the highest. However, the lowest-performing organizations have the most expensive workforce gap, with their bottom performers costing **106% more** than the top-performing employees. That's more than double the cost!

- In medical device companies with patient-facing technologies, bottom performers at top companies cost **31% more** than the highest performers. However, at bottom-performing companies, their lowest-performing employees can cost **94% more** than the top performers!

- If everyone at patient-facing medical device companies had the knowledge and skills to perform like the top 20% of the workforce, **service costs would be reduced by as much as 16%**. At laboratory equipment medical device companies, **service costs would be reduced by as much as 19%**.

However, there are opportunities for both types of medical device companies.

- **Emphasize soft-skills training and in-house technical expertise as technology advances.** The effectiveness of these technologies hinges on the ability of personnel to communicate, problem-solve, and adapt to rapid changes. This trend recognizes the dual need for advanced technical training and the cultivation of soft skills such as leadership, communication, and empathy.

- **Build and expand in-house technical teams** to offer a more personalized and immediate response to technical challenges. This move improves service quality and builds stronger relationships with healthcare providers.

- **Embrace the connectivity and serviceability trends,** especially since modern medical devices are becoming more complex, incorporating advanced technologies such as AI, robotics, and wireless connectivity.

- **Implement the right analytics, strategies, and AI and AR tools** that provide actionable insights, drive operational efficiency, improve patient outcomes, and inform strategic decision-making. **The good news:** the **required tools already exist** and don't necessarily need to be custom-built.

Read on to see how your org stacks up using the benchmarks on the following pages, and learn how to leverage your data and AI tools to become best-in-class.

How We Compiled the Data

Aquant gathered and analyzed anonymized data across leading medical device companies.

PATIENT FACING	LAB EQUIPMENT
25+ organizations	**20+** organizations
More than **4.2 million** work orders spanning **906,000+** assets	More than **3.3 million** work orders spanning **462,000+** assets
Over **10,500** technicians	Over **15,000** technicians
Nearly **$2.7 billion** in service costs	Nearly **$1.1 billion** in service costs
An average of **3.2 years of service data** per company	An average of **3.3 years of service data** per company

"

"Leveraging data isn't just about collecting it; it's also about making sense of it in a way that matters.

Using data to boost the customer experience and improve things for our employees is critical. After all, retaining people is much easier than hiring new ones. This means we need ways to turn all that data into fundamental insights, helping our customers and team members thrive."

Paul McDermott
Director of Service & Support
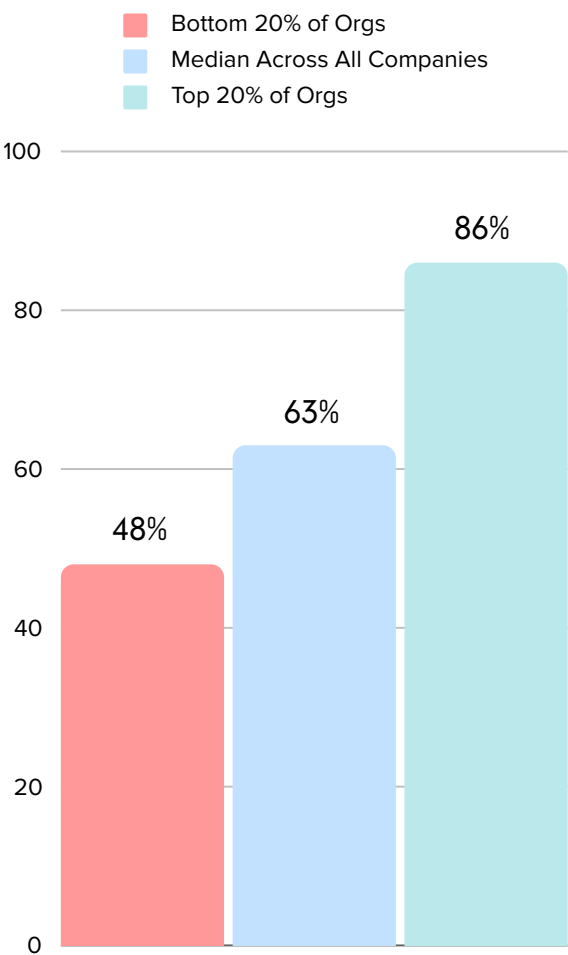
T2Biosystems®

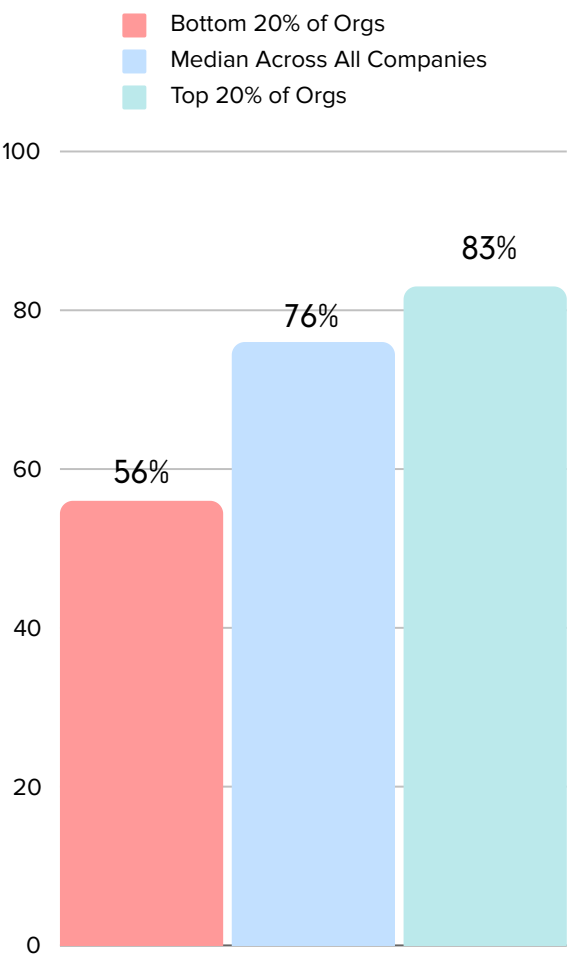READ MORE →

SERVICE BENCHMARKS ACROSS 3 KPIS

First Time Fix Rate

First Time Fix Rate is one of the most popular metrics for workforce measurement. It indicates how often a technician can fix an issue on the first try.

Patient-Facing:

- Bottom 20% of Orgs
- Median Across All Companies
- Top 20% of Orgs

Bar chart (Patient-Facing):
- Bottom 20% of Orgs: 48%
- Median Across All Companies: 63%
- Top 20% of Orgs: 86%

Lab Equipment:

- Bottom 20% of Orgs
- Median Across All Companies
- Top 20% of Orgs

Bar chart (Lab Equipment):
- Bottom 20% of Orgs: 56%
- Median Across All Companies: 76%
- Top 20% of Orgs: 83%

Gap Between Top & Bottom Performing Organizations

COMPARING FIRST TIME FIX RATES (MEASURED AT 30 DAYS)
VS. THE EMPLOYEE SKILLS GAP OF AN ORGANIZATION
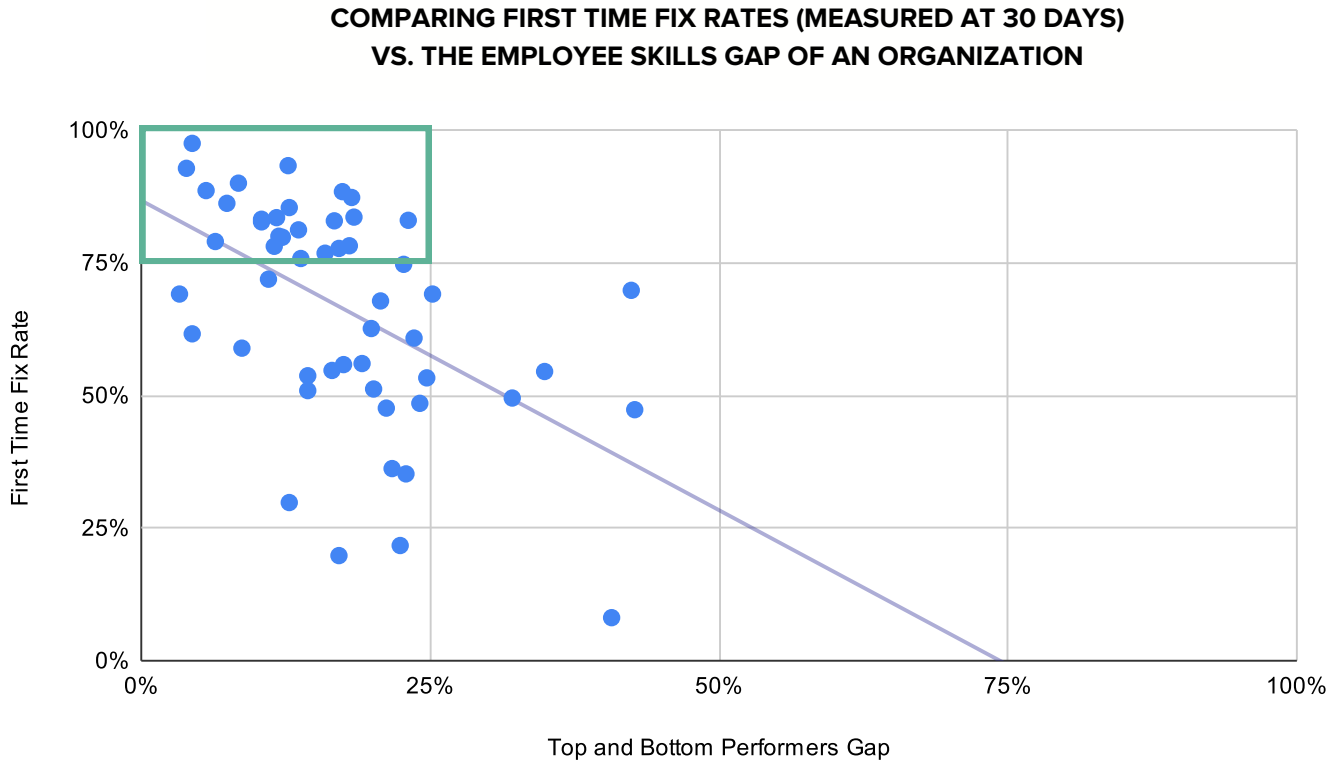
Key Observations

Best-in-class organizations, in the **top left**, have:
- High First Time Fix Rates.
- Better knowledge equity among teams.
- Lower service costs.

Tip: Examine your First Time Fix Rate from different points of view to determine your next steps.

- **Workforce Angle:** Assess technician performance, honing in on those needing improvement. Focus on low-performing workers with the highest number of events or costs.

- **Observation Angle:** Check out observations that require repeat customer visits. Track low First Time Fix Rates and frequent occurrences.

- **Customer Angle:** Investigate which customers are at risk and why. Look at customers with poor experiences, understand which KPIs are the culprit, and dive into why those KPIs changed over time.
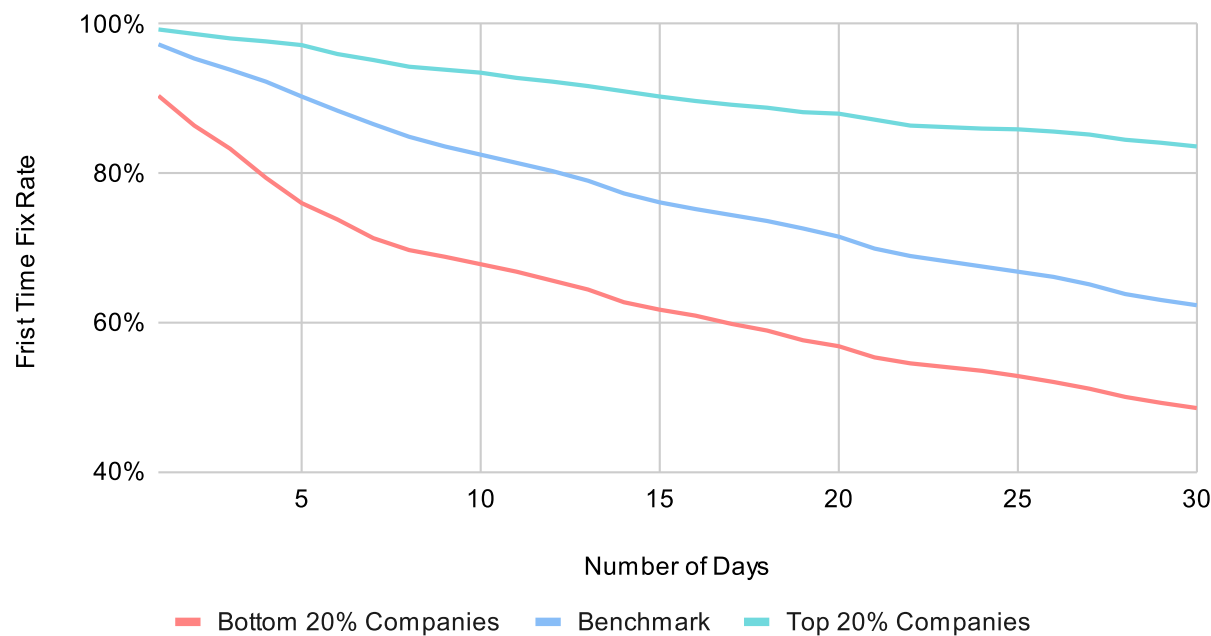
Customer Experience Gap

The Customer Experience Gap shows the difference between what customers expect and what your organization delivers. Our analysis shows that companies that measure First Time Fix Rates in 7-day or 14-day windows are setting the stage for a significant experience gap, leading to frustrating customer experiences. **The moral of the story:** a few metrics can't provide the entire picture—it's time to look at the experience as a whole.

Patient-Facing:

Customer Experience Curve

Y-axis: Frist Time Fix Rate (40%, 60%, 80%, 100%)
X-axis: Number of Days (5, 10, 15, 20, 25, 30)

Legend: Bottom 20% Companies — Benchmark — Top 20% Companies
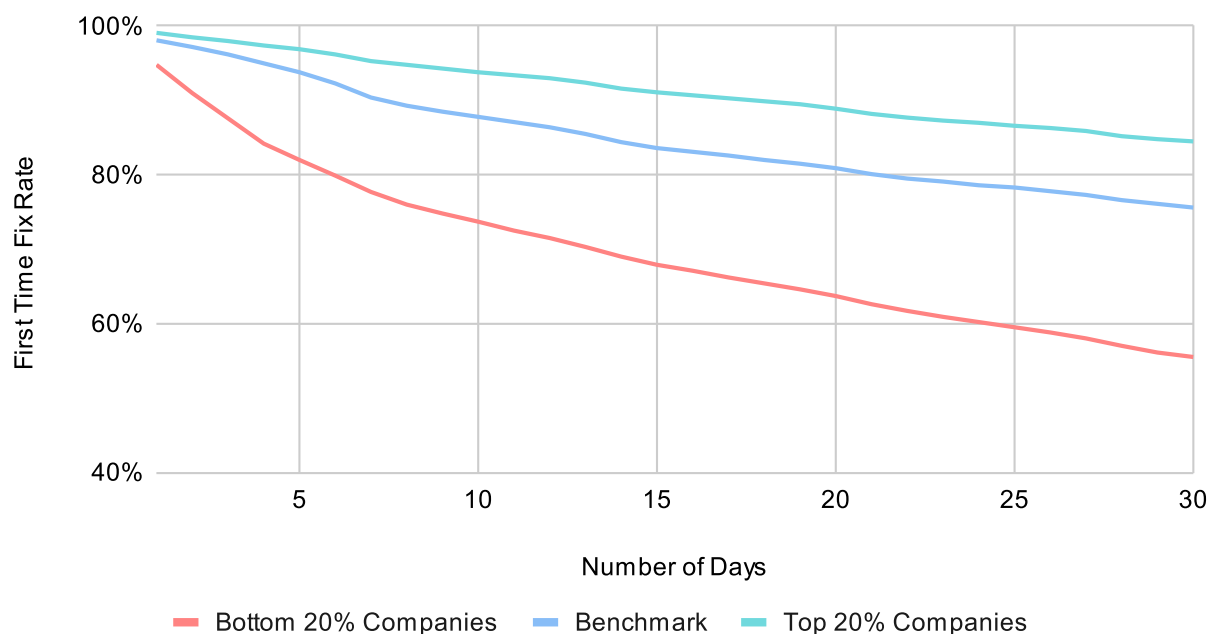
Tip: Knowledge discrepancies among technicians can lead to inconsistent service quality. Enhance customer satisfaction by ensuring all service team members understand your products and adhere to best practices.

Lab Equipment:

Customer Experience Curve

Monitoring First Time Fix Rates over intervals shorter than 30 days can lead to overestimating success and underestimating Resolution Costs. This discrepancy happens when an organization fails to aggregate multiple tickets addressing the same problem.

Moreover, the overall customer experience should always be a priority. The need for repeated service interventions, even for distinct issues, detrimentally affects the customer's perception of your service quality.

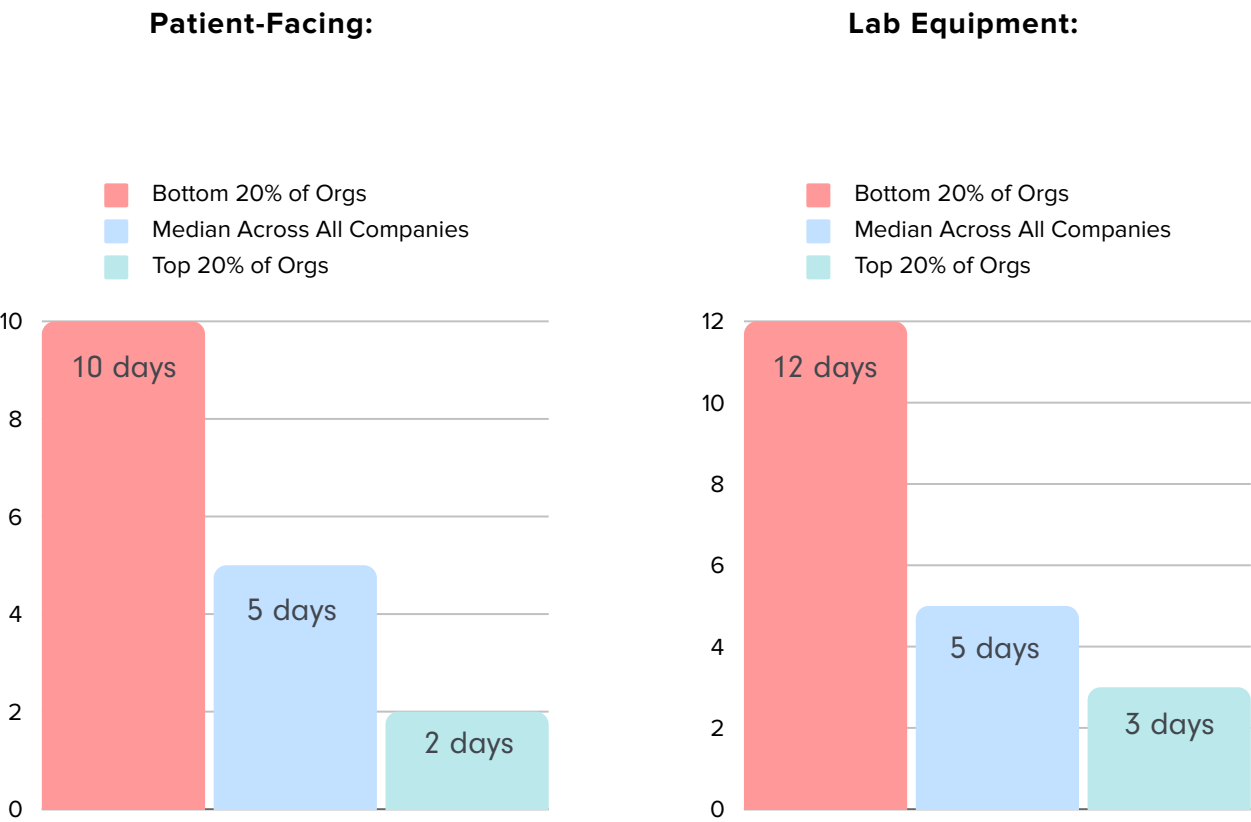At medical device companies with patient-facing technologies, a failed first visit could lead to **three visits overall** to resolve the issue and **13 extra days** added to the Resolution Time.

In the case of medical device companies specializing in lab technology, a failed first visit could lead to **three visits overall** to resolve the issue, as well as **15 days** added to the Resolution Time.

Resolution Time

Resolution Time measures the time it takes to resolve a customer issue. Typically, it's the time between the case creation and closure dates.
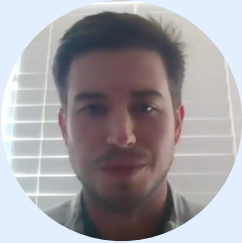
Patient-Facing:

Lab Equipment:

Patient-Facing chart:
- Bottom 20% of Orgs
- Median Across All Companies
- Top 20% of Orgs

- 10 days (Bottom 20% of Orgs)
- 5 days (Median Across All Companies)
- 2 days (Top 20% of Orgs)

Lab Equipment chart:
- Bottom 20% of Orgs
- Median Across All Companies
- Top 20% of Orgs

- 12 days (Bottom 20% of Orgs)
- 5 days (Median Across All Companies)
- 3 days (Top 20% of Orgs)

Key Observations

Bottom-performing medical device companies specializing in patient-facing technologies take **five times longer** to resolve an issue than their top-performing counterparts. Similarly, bottom-performing lab equipment medical device companies take **four times longer** to resolve an issue than their top-performing peers.

Tip: Make low Resolution Time rates your goal. Benefits include longer machine uptime, happier customers, fewer repeat visits, and higher revenues.
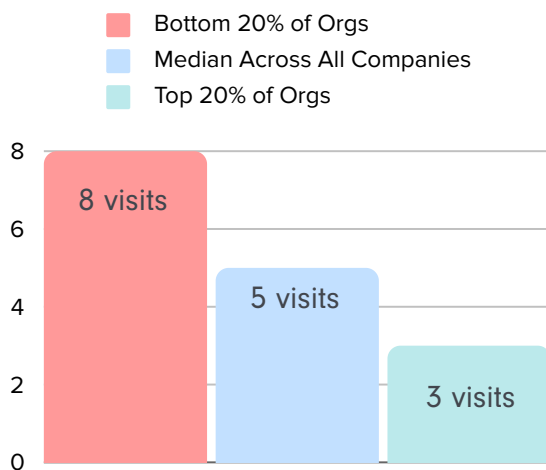
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"Aquant will lead to substantial time savings over the year, reducing hours spent in front of the computer searching for contacts or locating assets. It's a significant win that accelerates my workflow, freeing up time and energy for other tasks."

Zach Kahre
Field Service Technical Specialist
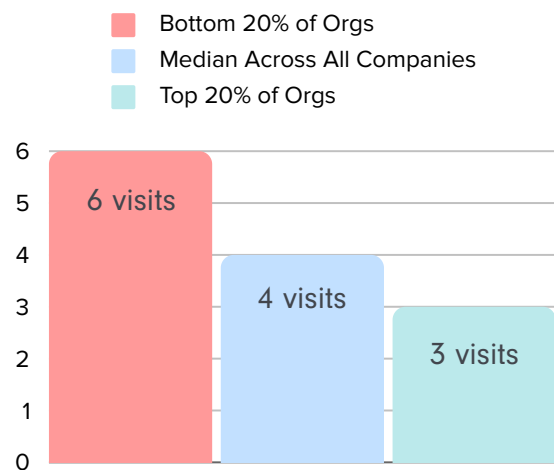
stryker

Number of Visits Per Asset Per Year

Number of Visits Per Assets Per Year measures the frequency of maintenance checks or service visits performed on a specific asset within a year. It is an essential KPI for measuring uptime, and is particularly useful for industries that heavily rely on the performance and reliability of physical assets. It helps medical device service organizations understand the frequency of attention required for each asset, which can reveal the asset's condition, maintenance efficiency, and overall operational reliability.

Patient-Facing:

- ▉ Bottom 20% of Orgs
- ▉ Median Across All Companies
- ▉ Top 20% of Orgs

8 visits

5 visits

3 visits

Lab Equipment:

- ▉ Bottom 20% of Orgs
- ▉ Median Across All Companies
- ▉ Top 20% of Orgs

6 visits

4 visits

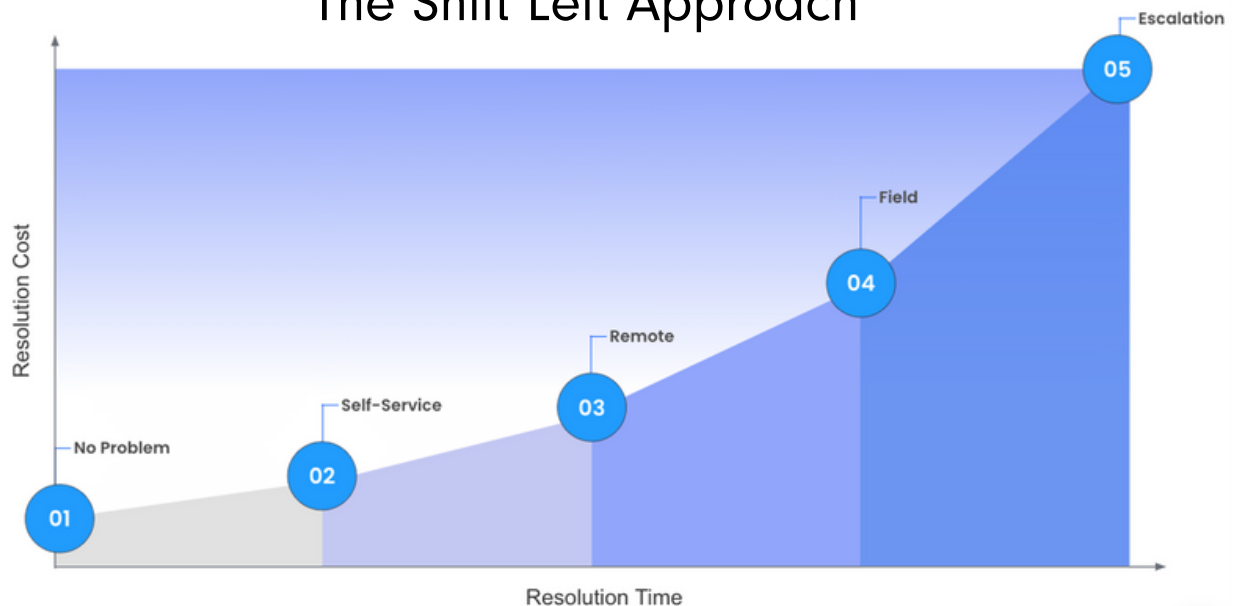3 visits

Key Observations

The challenge of repeat visits, often seen as indicators of service lapses or ongoing issues, presents a significant setback for service-driven businesses. This can be due to:
- Rising expenses associated with parts, labor, and travel.
- A demotivated frontline workforce, which could lead to higher staff turnover, disengagement, and a decline in service standards.
- A less efficient team that manages fewer customer cases.

Savvy medical device companies are adopting the **Shift Left Approach** to solve issues quickly and effectively. Simply put, it's about looking closely at your company's data to find ways to impact the bottom line positively.

This can involve figuring out which problems solved by technicians on the road can be fixed from a distance or how simple customer questions can be answered without needing to call in. The goal of Shifting Left is to make solutions more accessible to the customer, so they get what they need without having to reach out to the service department unless necessary.

The Shift Left Approach

Tip: Shift your service delivery left to reduce repeat visits and increase First Time Fix Rates. **Get started in six easy steps**!
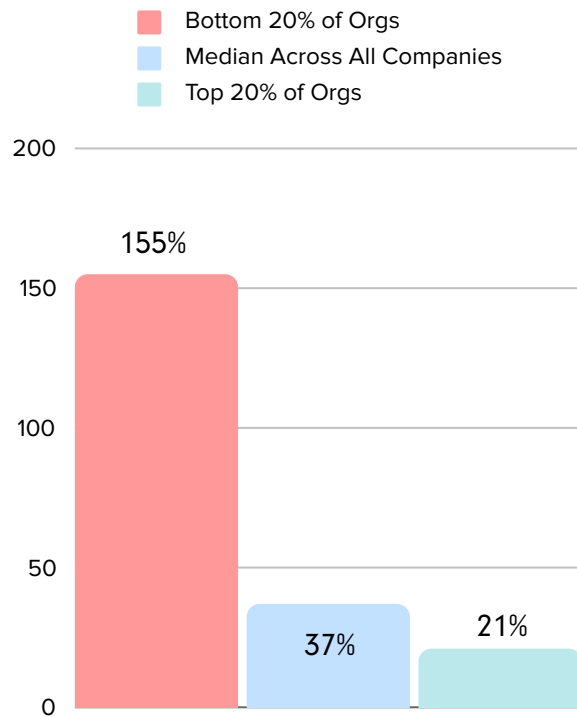
aquant

At Aquant, we help our clients identify areas where they can **Shift Left and de-escalate the resolution process** by:
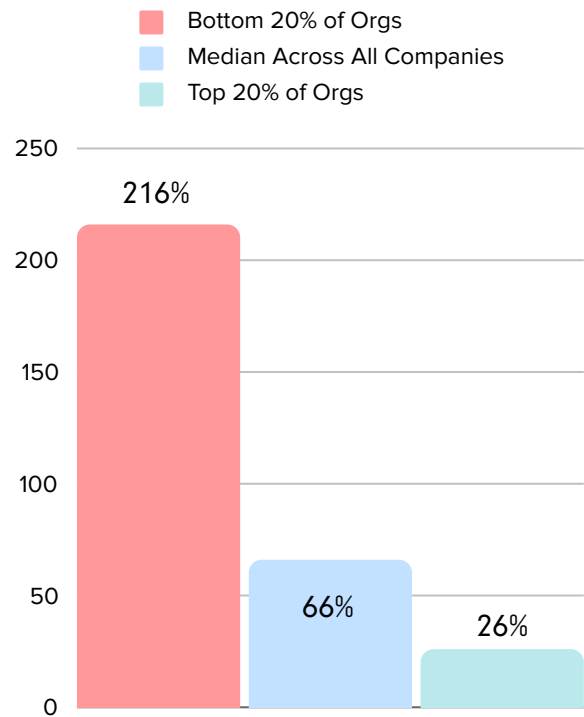
- Reducing escalations, improving First Time Fix Rates, preventing issues from becoming more extensive than needed, and aiming for a smooth fix right from the start.

- Leveraging AI tools to get more thoughtful about diagnosing problems, ensuring the right solutions are applied faster.

- Tackling the habit of **parts shotgunning**, or blindly swapping out parts—a common tactic among less experienced techs.

- Using data to figure out areas of improvement, like which onsite visits could have been resolved with a quick remote fix, saving time and resources.

- Reimagining how tasks are approached, decisions are made, and problems are solved to make everything more streamlined and customer-friendly (this could mean training call center teams to handle troubleshooting directly or using a blend of key performance metrics to track success!)

- Ensuring customers can easily find the information they need to fix issues independently through Aquant's Service Co-Pilot.

- Helping expert technicians share their knowledge and tips with the newer folks, boosting the team's overall skill level.

Additional Resolution Costs vs. Cost Per Work Order (Service Event)

Patient-Facing:

Bottom 20% of Orgs
Median Across All Companies
Top 20% of Orgs

- 155%
- 37%
- 21%

Lab Equipment:

Bottom 20% of Orgs
Median Across All Companies
Top 20% of Orgs

- 216%
- 66%
- 26%

If a service issue isn't solved on the first visit:

- At medical device companies specializing in patient-facing technology, the Resolution Cost is **37% more** than the Cost Per Work Order.
- At lab equipment medical device companies, the Resolution Cost is **66% more** than the Cost Per Work Order.

Cost Per Work Order measures rates for materials, travel, and more per job.

Resolution Cost measures the dollar amount needed to close a service ticket, considering multiple visits and truck rolls, various parts, and labor costs.

THE WORKFORCE SKILLS GAP

The data shows that the skills gap—also known as the **knowledge gap**—is one of the most significant barriers that prevent companies from achieving their business goals.

The skills gap refers to the difference between the skills an employer expects their employees to have and the skills that the employees possess. This disparity exists for many reasons: for example, some employees may lack years of experience, while others may not have been adequately trained.

**The skills gap is also expensive.** On average:

- At medical device organizations specializing in patient-facing technologies, the lowest-performing employees can cost **94% more** than the top-performing employees.

- Low-performing lab equipment medical device company employees can cost **106% more** than top performers.

Where does your organization fall?

If the cost gap between your top and bottom performers is:

- **Green: You're on track!** There are opportunities to transfer workforce knowledge across all employees, but you are among the highest-performing organizations.

- **Blue: Dig deeper!** At this rate, the cost differences are making a more significant impact on your bottom line, resulting in moderately uneven customer service. There is an opportunity to make substantial changes in your service delivery strategy.

- **Red: It's time to make changes!** You have an enormous cost gap within your workforce. If you dig deeper into organizational-wide performance, you will likely find chronic issues such as substandard First Time Fix Rate, parts shotgunning, poor or uneven customer service experiences, low Net Promoter Scores, and higher-than-average employee dissatisfaction and turnover rates.

Medical device organizations specializing in **patient-facing technologies**

0-31%　　　　**Between 32%-93%**　　　　**94%+**

Medical device organizations specializing in **lab equipment**

0-25%　　　　**Between 26-105%**　　　　**106%+**
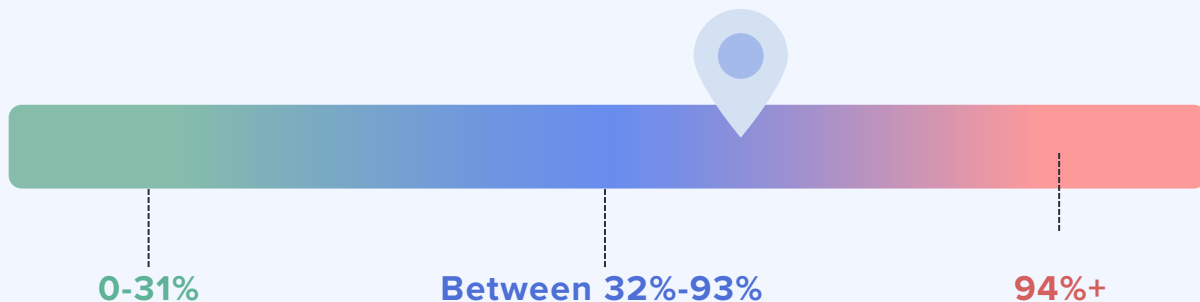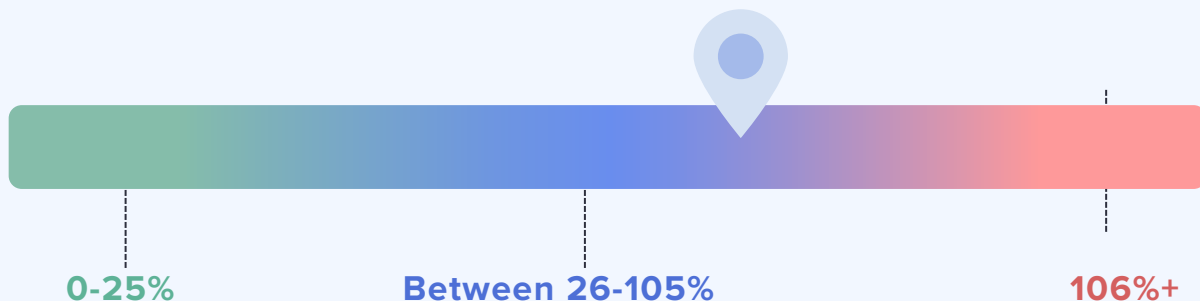
Tip: Find ways to democratize knowledge and give everyone access to the best answers to every service challenge. These methods reduce onboarding time for new employees and upskill every workforce member.

"Being efficient on-site depends on adequately trained field service engineers. We want to ensure they have the right part, at the right place, at the right time. **Predictive outcome technology helps ensure that we send technicians into an environment where they are enabled for success.**"

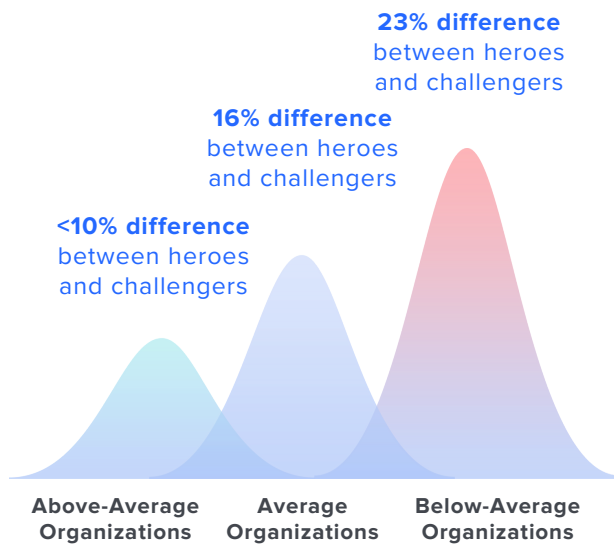**Mark Horvath**
Corporate VP of Global Services

HOLOGIC®

A Snapshot of High-Performing and Low-Performing Organizations

Higher-performing organizations have a better distribution of knowledge among employees.
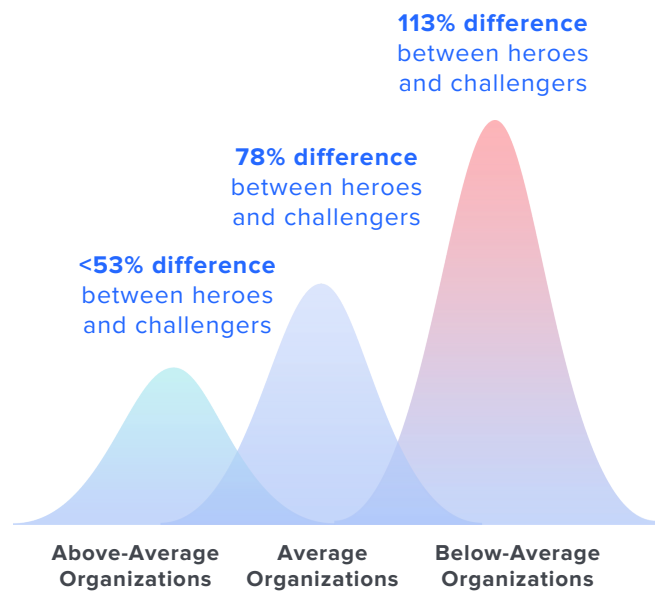
Note: Above-average organizations have the lowest skills gap,
while below-average organizations have the widest ones.

Patient-Facing (by % Difference):

First Time Fix Rate
(in Percentage Points)

23% difference
between heroes
and challengers

16% difference
between heroes
and challengers

<10% difference
between heroes
and challengers

Above-Average Organizations   **Average Organizations**   **Below-Average Organizations**

of Visits per Asset

113% difference
between heroes
and challengers

78% difference
between heroes
and challengers

<53% difference
between heroes
and challengers

Above-Average Organizations   **Average Organizations**   **Below-Average Organizations**

Resolution Time

77% difference
between heroes
and challengers

41% difference
between heroes
and challengers

<25% difference
between heroes
and challengers

Above-Average Organizations   **Average Organizations**   **Below-Average Organizations**

Resolution Cost

94% difference
between heroes
and challengers

47% difference
between heroes
and challengers

<31% difference
between heroes
and challengers

Above-Average Organizations   **Average Organizations**   **Below-Average Organizations**

Lab Equipment (by % Difference):

First Time Fix Rate
(in Percentage Points)

23% difference
between heroes
and challengers

18% difference
between heroes
and challengers

<11% difference
between heroes
and challengers

**Above-Average
Organizations**

**Average
Organizations**

**Below-Average
Organizations**

of Visits per Asset

177% difference
between heroes
and challengers

86% difference
between heroes
and challengers

<50% difference
between heroes
and challengers

**Above-Average
Organizations**

**Average
Organizations**

**Below-Average
Organizations**

Resolution Time

80% difference
between heroes
and challengers

45% difference
between heroes
and challengers

<13% difference
between heroes
and challengers

**Above-Average
Organizations**

**Average
Organizations**

**Below-Average
Organizations**
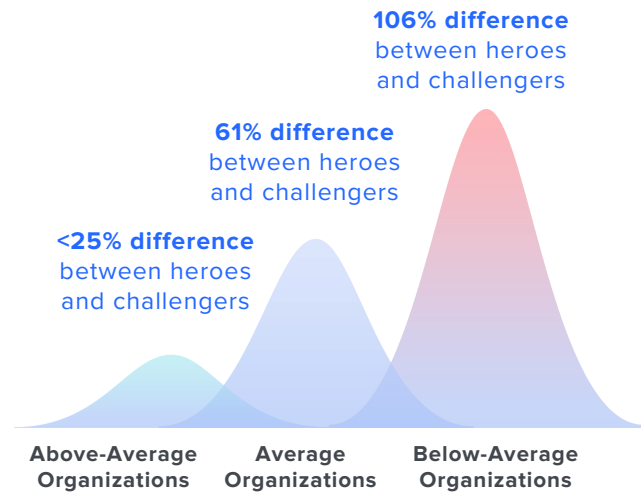
Resolution Cost

106% difference
between heroes
and challengers

61% difference
between heroes
and challengers

<25% difference
between heroes
and challengers

**Above-Average
Organizations**

**Average
Organizations**

**Below-Average
Organizations**

It pays to empower your team!

If everyone at medical device companies with patient-facing technologies had
the knowledge and skills to perform like the top 20% of the workforce,
service costs would be reduced by 16%. At laboratory equipment medical
device companies, **service costs would be reduced by 19%**.

A Snapshot of Individual Technicians

See performance trends across the entire workforce on an individual level.
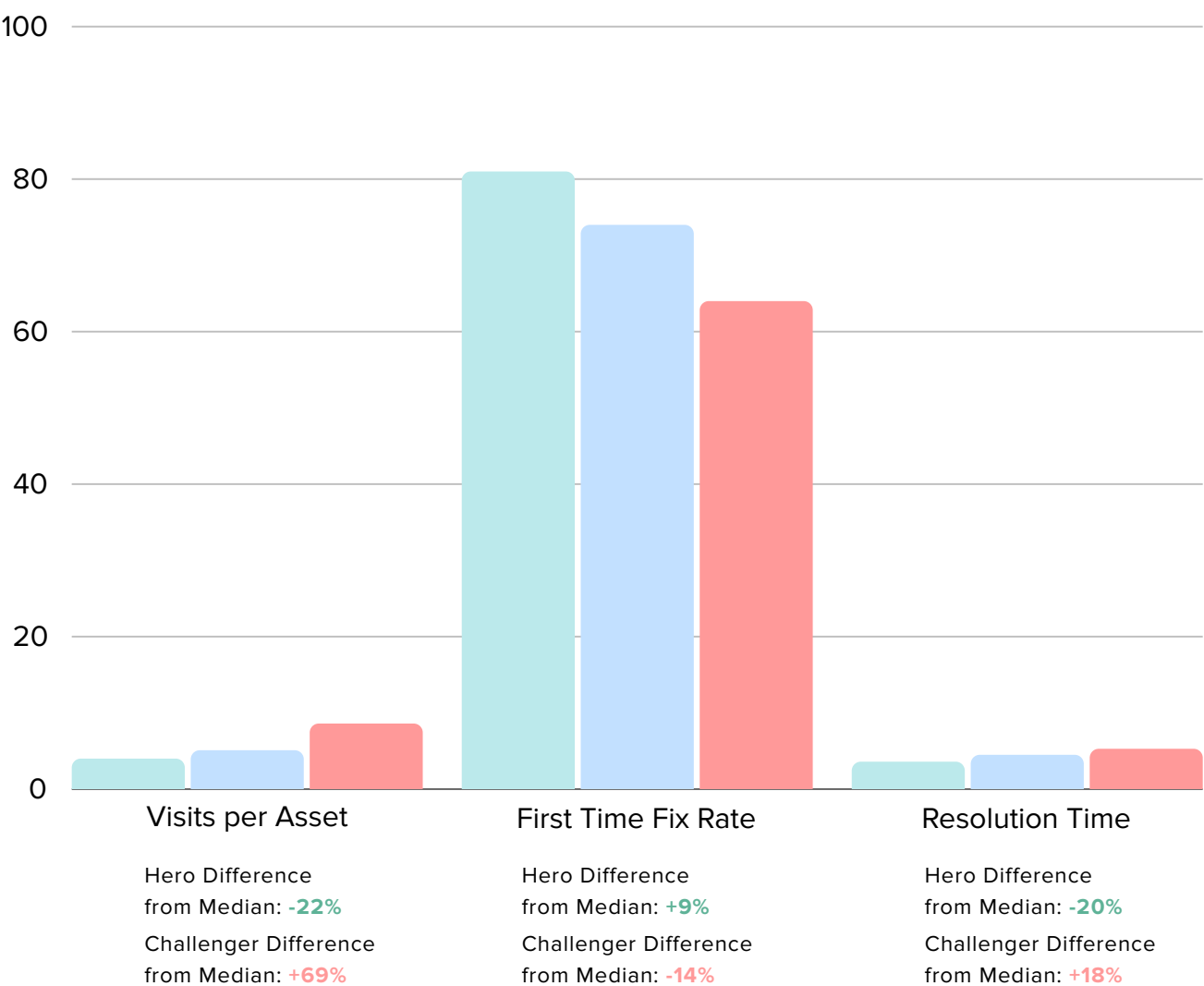
Patient-Facing:

HERO

Median First Time Fix Rate: 81%

Median Resolution Time: 3.6 days

Median # of Visits Per Asset Per Year: 4

CHALLENGER

Median First Time Fix Rate: 64%

Median Resolution Time: 5.3 days

Median # of Visits Per Asset Per Year: 8.6

Visits per Asset	First Time Fix Rate	Resolution Time
Hero Difference from Median: **-22%**	Hero Difference from Median: **+9%**	Hero Difference from Median: **-20%**
Challenger Difference from Median: **+69%**	Challenger Difference from Median: **-14%**	Challenger Difference from Median: **+18%**

Lab Equipment

HERO

Median First Time Fix Rate: 81%

Median Resolution Time: 4.2 days
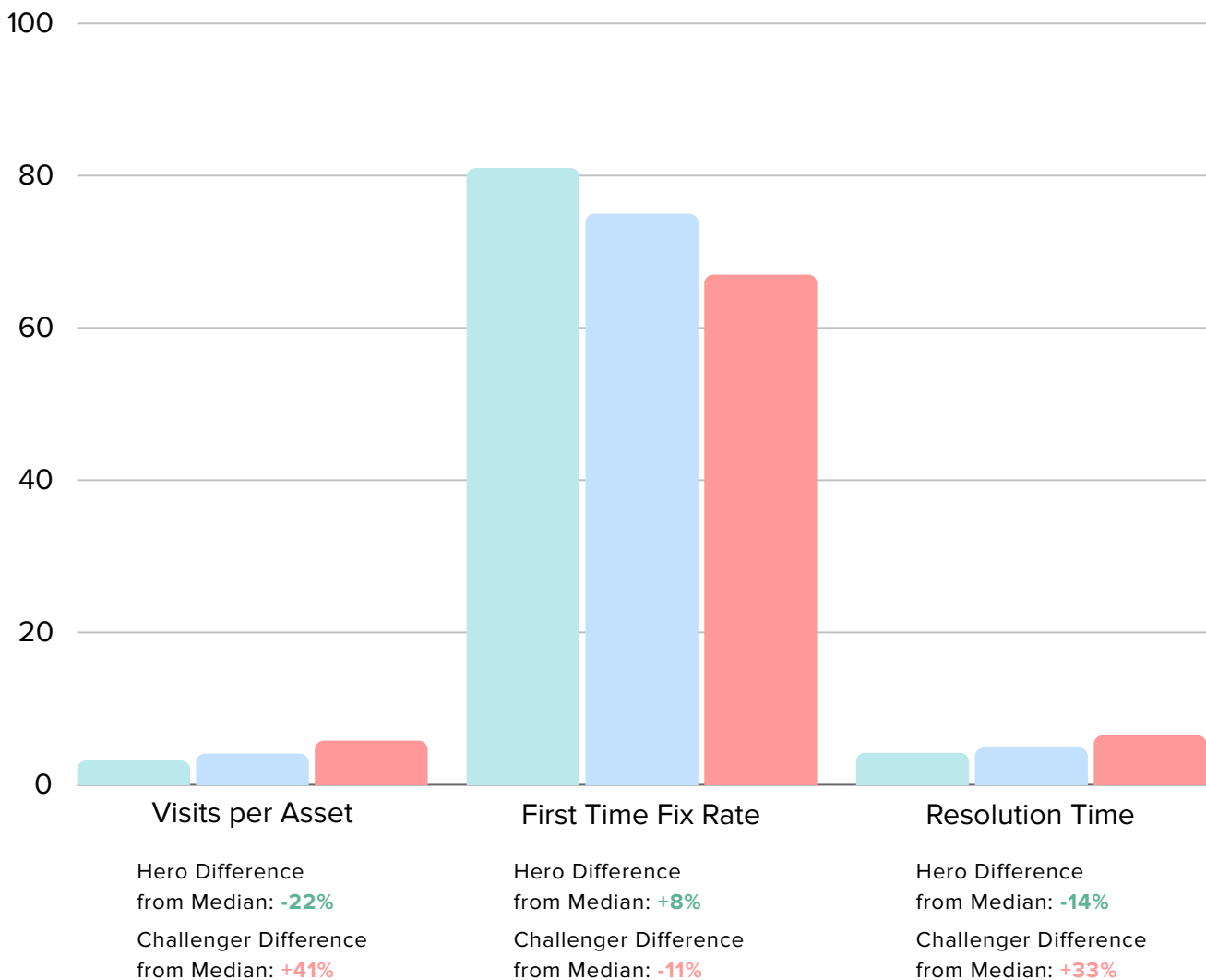
Median # of Visits Per Asset Per Year: 3.2

CHALLENGER

Median First Time Fix Rate: 67%

Median Resolution Time: 6.5 days

Median # of Visits Per Asset Per Year: 5.8

	Visits per Asset	First Time Fix Rate	Resolution Time
Hero Difference from Median:	**-22%**	**+8%**	**-14%**
Challenger Difference from Median:	**+41%**	**-11%**	**+33%**

Key Observations:

Here's another example of the customer experience gap when comparing First Time Fix to overall Resolution Time. Remember, your customers aren't concerned with your internal stats about First Time Fix Rate. **Their main concern is how long it takes to solve the problem.**

DATA CLEANLINESS AND MAINTENANCE HOLD THE KEY TO PERFORMANCE IMPROVEMENTS

It's essential to monitor your Key Performance Indicators (KPIs) to achieve significant results. However, you must have your data organized and structured before you can do that.
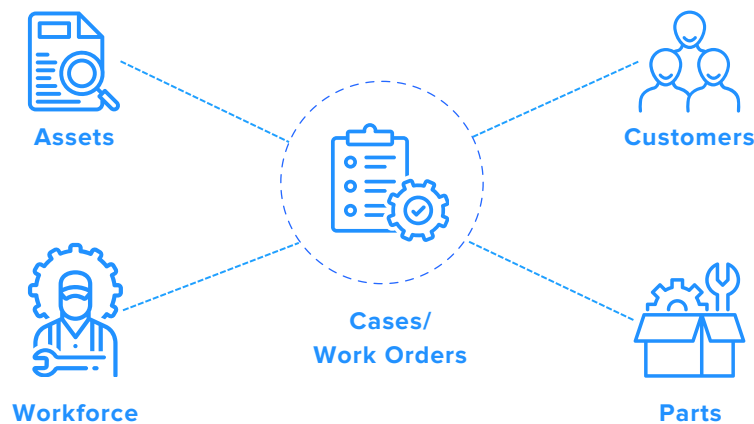
For your service organization to become more efficient and productive, it's crucial to understand its landscape. **This involves recognizing how each data point is interconnected, identifying gaps in the reporting, and having the right tools to address the inconsistencies**. You can profoundly understand your company by leveraging precise data and insightful analysis. This knowledge empowers you to chart the right course, devise a winning strategy, and make a meaningful impact.

The encouraging news is that there's no need for your data to be flawless to get started. Allowing a wide range of sources for data ingestion is recommended, as it will result in a more complete and accurate dataset. The quality of your AI outputs is directly proportional to what you feed into it. Use whatever data you have, then commit to refining your AI outputs to yield better results each time.

Internal Aquant research has shown that **30% of service solutions are not found in historical service data**. Instead, the knowledge of veteran service experts contains the best answers.

3 SERVICE TRENDS THAT WILL SHAPE THE MEDICAL DEVICE INDUSTRY

In the evolving landscape of medical device service organizations, staying ahead of trends is crucial for success. Integrating technology and service models transforms how companies operate, service their products, and interact with customers. Medical device service organizations should embrace the following:

Connectivity for Enhanced User Experience

In the past, the idea of connecting medical devices was met with doubts from both industries and regulators, mainly due to security concerns. However, overall sentiment is changing—and companies can use technology to improve user experience and increase device uptime. The drive towards connectivity is not just about keeping devices online. It also uses data to make informed decisions, anticipate maintenance requirements, and build stronger relationships with end-users.

TIPS
- **Invest in secure and scalable platforms prioritizing data protection.**
- **Utilize data analytics for insights into usage patterns, predict potential failures, and tailor your service offerings.**
- **Connectivity allows for more touchpoints with your customers — use them as opportunities to gather feedback, provide personalized support, and continuously improve your products and services.**

Navigating the Technician Talent Gap

As medical devices become more complex, the demand for skilled technicians exceeds supply. Hospitals are assembling in-house technical teams, creating a competitive landscape for talent and widening the skills gap. Organizations will struggle to maintain high service levels with a dwindling pool of qualified technicians unless they adopt the right tools and strategies to navigate the changes.

TIPS
- **Invest in comprehensive training programs and AI and AR tools that enhance technical skills, customer service, and remote resolution techniques.**
- **Collaborate with educational institutions to create apprenticeship and internship programs.**
- **Leverage technology to diagnose and resolve issues more quickly and accurately.**

The Rise of Remote Resolution

Remote resolution is becoming an essential aspect of service delivery in the medical device industry. This addresses the immediate need for efficiency and safety and aligns with the broader shift toward digital healthcare solutions. Companies can significantly reduce downtime and service costs by using remote diagnostics, software updates, and customer support while improving the overall customer experience.
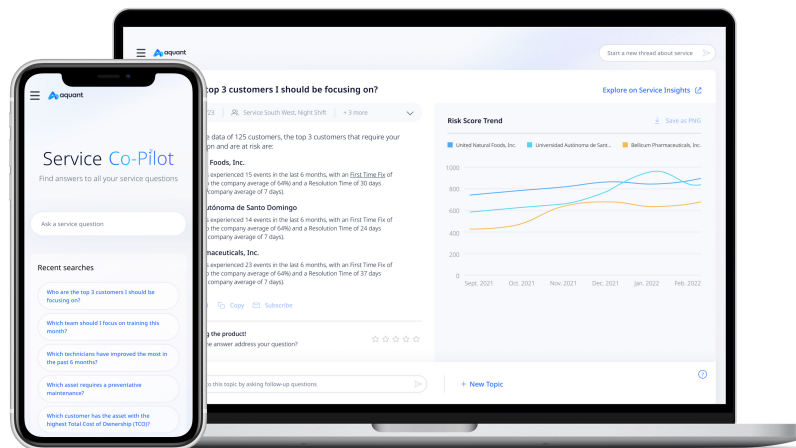
TIPS
- **Invest in technology and training for remote service capabilities.**
- **Use predictive analytics tools, chatbots, video calls, and remote monitoring for preventive maintenance.**
- **Identify and address potential issues before they escalate, minimizing the need for emergency interventions and prolonging the lifespan of devices.**

START YOUR JOURNEY TO SERVICE EXCELLENCE

Curious about how your org stacks up against the benchmarks outlined in this report? **Participate in Aquant's 7 Day Challenge to find out — at no cost.**

Our analysts will process and analyze your data via Aquant's robust AI engine. We'll show you the results of your org's key metrics (including First Time Fix Rate), how you can be more efficient, and where to save money.

Use your data to uncover the most significant opportunities for performance improvement and see how Shifting Left can help your org stay ahead of the competition.

> "Initially, we didn't expect immediate improvements in our KPIs. However, [**Aquant's 7 Day Challenge analysis**] **matched and exceeded our internal evaluation**, providing new insights and improvement opportunities.
>
> This achievement, particularly in understanding our business deeply within a week, impressed us and our internal skeptics, **demonstrating the effectiveness of data-driven analysis**."

Mike Rembelski
Vice President of Global Service

BECKMAN COULTER   WEBINAR

FOOTNOTES

1. [Medical Device Market: Trends, Opportunities, and Competitive Analysis to 2028](#), Lucintel, March 2023

2. [What issues are the Medical and Hospital Equipment Industry facing today?, ERP Software Research](#), April 2023

3. [Medical Equipment and Service Companies: How to Improve First Time Fix Rates with FSA](#), Velosio, 2020

4. [Medical cost trend: Behind the numbers 2024](#), PwC, 2024

Aquant offers generative AI purpose-built for service through its Service Co-Pilot platform. Whether you're a service leader, field technician, customer service representative, or customer, this platform is designed to offer expert guidance for all participants involved in the service lifecycle, ensuring optimal decision-making at each stage. Service Co-Pilot continuously refines its capabilities by learning from real-world service data, expert insights, and user feedback. This dynamic approach enables the engine to generate the most accurate and personalized recommendations for every query, throughout every phase of the service cycle.

Learn more about Aquant here: **www.aquant.ai**.

Press and News

Aquant Wins "2023 Technology Innovation Leadership Award" From Analyst Firm Frost & Sullivan

Aquant Earns Most Promising Vendor Ranking in CB Insights' Analysis of Agent Support Tools

Aquant Named Best Overall Solution 2023 by Service Council