

THE STATE OF MANUFACTURING ANALYTICS AND THE CASE FOR **SMARTER OEE AUTOMATION**

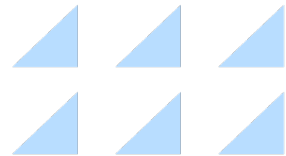
Global Study

KEY FINDINGS AND STEPS TO ACHIEVING MORE AUTOMATION IN 2024



WE DID A GLOBAL STUDY OF MANUFACTURING COMPANIES

THE RESULTS WERE SURPRISING



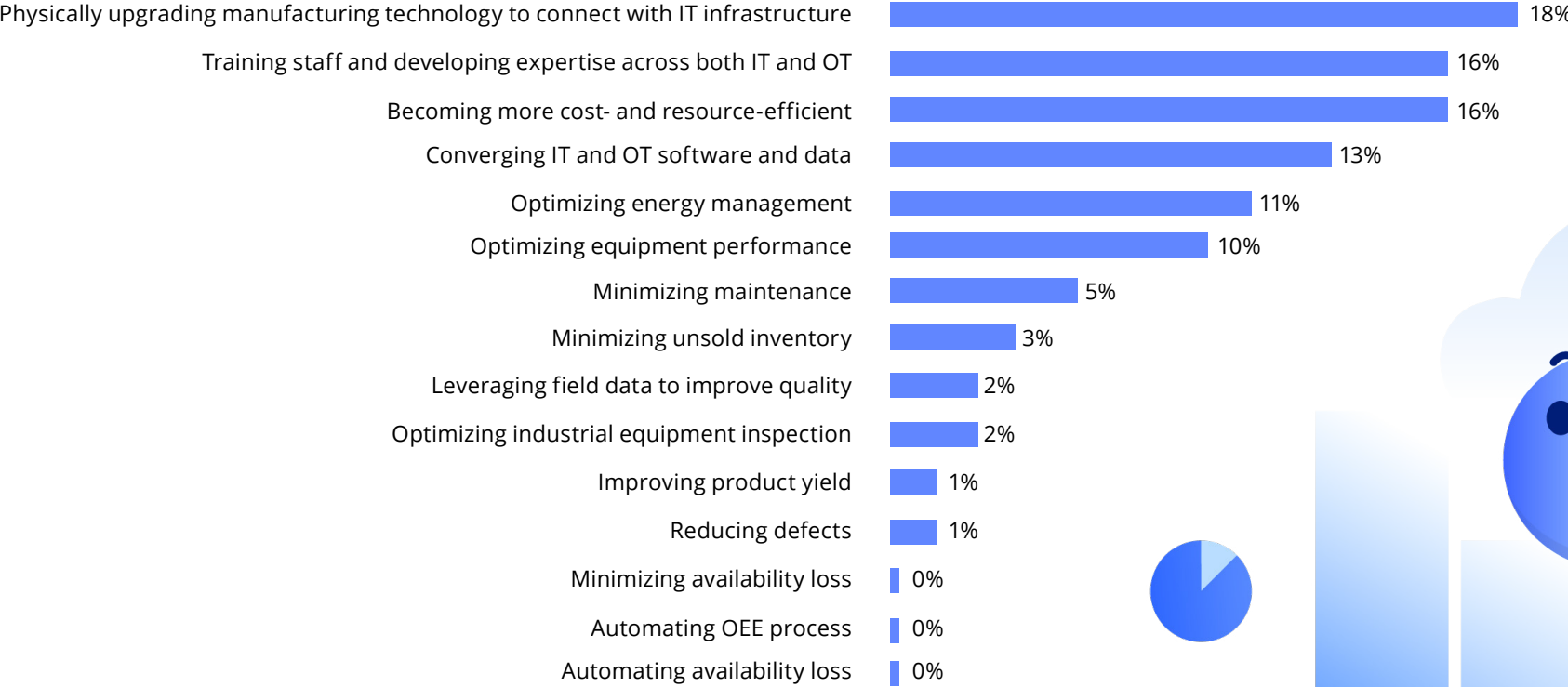
Our goal was to understand how manufacturers collect and use data to improve production on the factory floor. We expected to learn the different levels of data maturity, particularly around overall equipment effectiveness (OEE) data collection and usage.

The first question was:

WHAT DO YOU CONSIDER YOUR ORGANIZATION'S TOP FIVE MANUFACTURING OPERATIONS PRIORITIES?

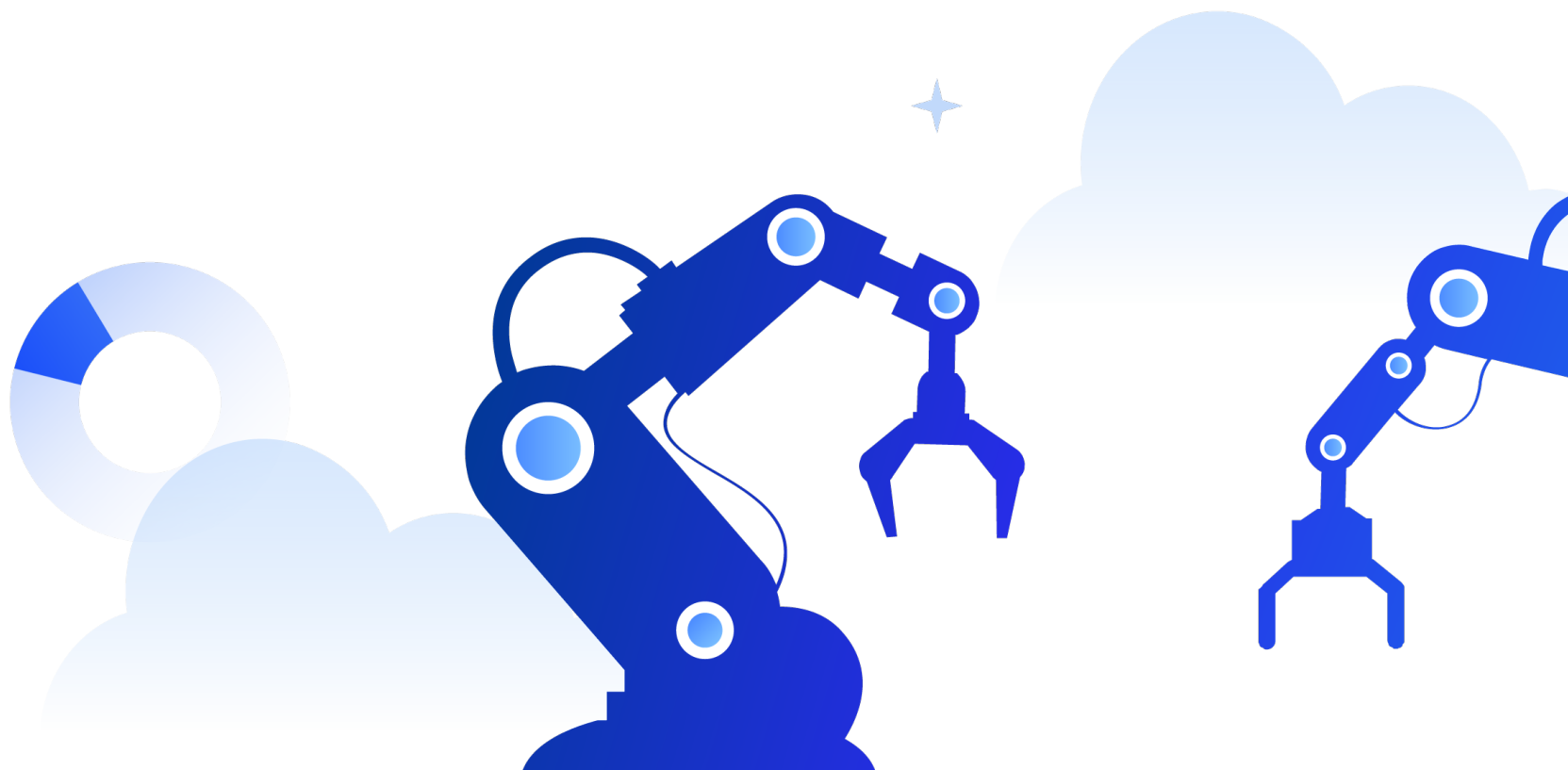
IMAGINE OUR SURPRISE WHEN OEE AUTOMATION CAME SECOND TO LAST, WITH ZERO RESPONSES.

Organizational manufacturing priorities (% ranked 1st)



As a refresher, **OEE (overall equipment effectiveness)** is a critical metric that measures the efficiency and productivity of manufacturing equipment. It takes into account factors such as equipment availability, performance, and quality.

When prioritizing OEE, manufacturers improve processes, reduce downtime, increase throughput, and ultimately improve their bottom line.



OEE AUTOMATION SHOULD BE A TOP PRIORITY FOR ALL MANUFACTURERS

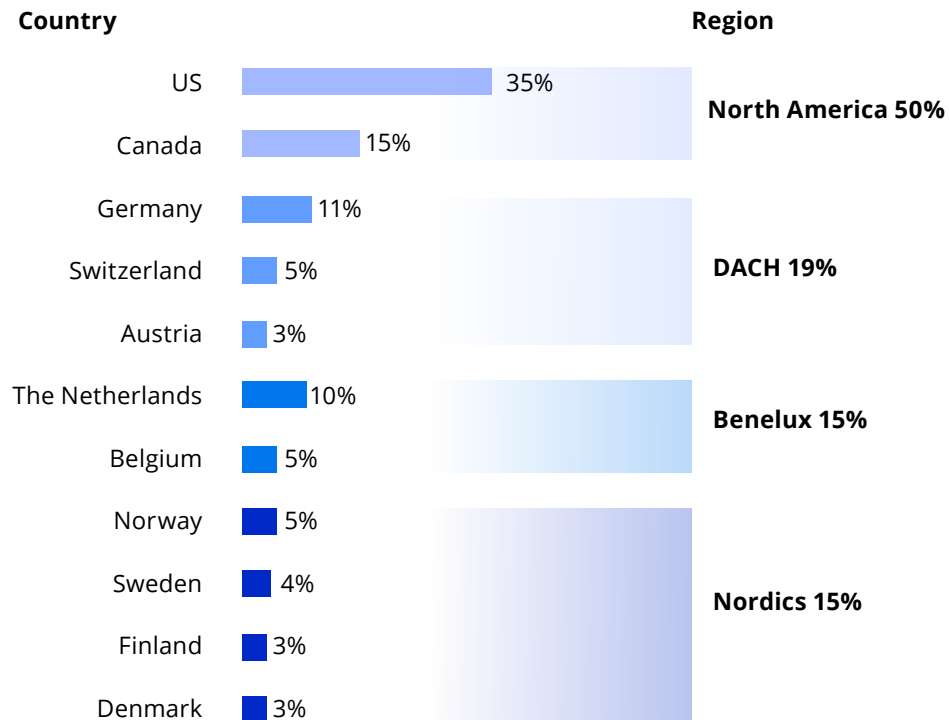


THIS EBOOK EXPLAINS WHY

BUT FIRST, HERE'S HOW THE STUDY WAS DONE AND THE DEMOGRAPHICS OF THE PARTICIPANTS

We received survey responses from 413 manufacturing companies in the U.S. and Europe, which an independent third-party consulting firm collected. The firm also conducted interviews with some participants, and we share some of those interview responses in the Respondent Self-Reporting section.

Here's the country breakdown:

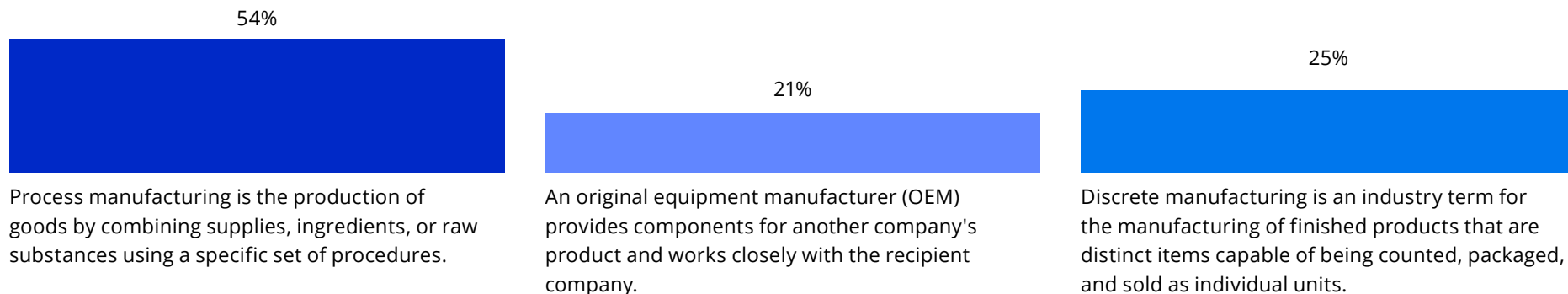


To qualify for this survey, respondents were required to be employed in a manufacturing company with 500 or more employees or revenues exceeding \$250 million. They also had to have a director-level or above title.

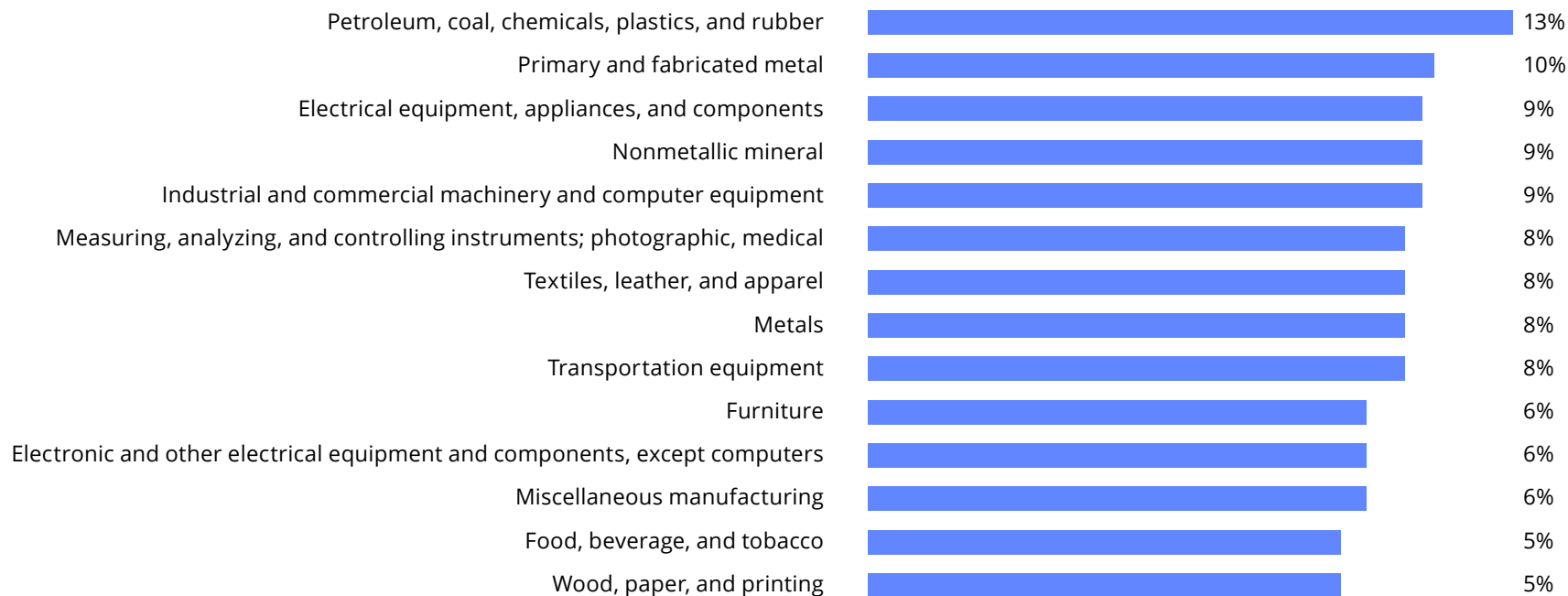


Here are the types of manufacturers that responded and what they produce:

Type of manufacturer



Products manufactured



Now that you know the demographics of the survey results, here's our take...

THE SURVEY REVEALS THE SIGNIFICANCE OF PRIORITIZING OEE

Even though respondents ranked OEE low on their list of priorities, ironically, the survey findings provide compelling evidence of the importance of prioritizing overall equipment effectiveness (OEE).



LET'S WALK THROUGH IT

THE TOP 5 MANUFACTURING PRIORITIES — ANALYZED 2 WAYS

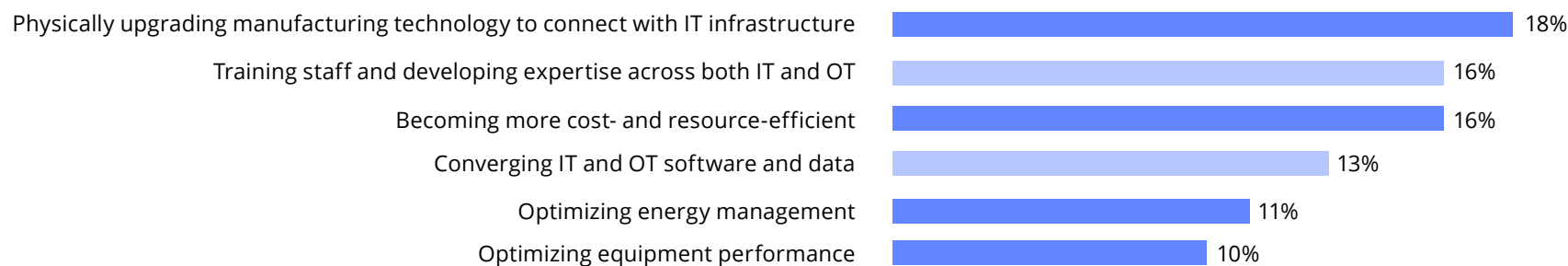
KEY OBSERVATIONS:

The number one priority of manufacturers is physically upgrading plant technology to connect with IT infrastructure

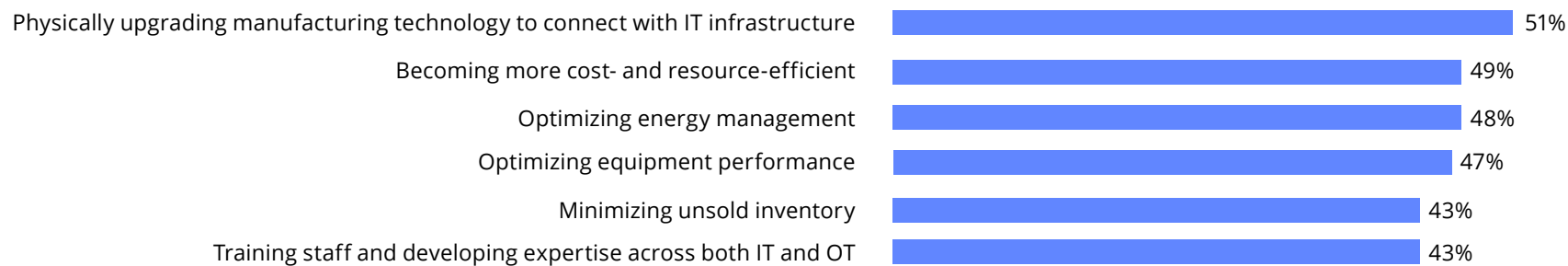
Aligning OT with IT is a top priority for many manufacturers

Physically upgrading manufacturing technology is on par with cost and energy management, and performance

Organizational manufacturing priorities (% ranked 1st)



Organizational manufacturing priorities (% top 5 ranked)



THE CASE FOR AUTOMATING OEE PROCESSES:



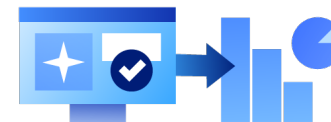
All the top five priorities, from both perspectives, benefit from automating OEE.



Improved OEE measurements have a significant impact on the top manufacturing priority — **physically upgrading manufacturing technology**.



Improved OEE measurements can lead to less equipment downtime and streamlined production runs, resulting in **more cost- and resource-efficient manufacturing**.



Converging IT and OT software and data is a top priority that helps improve OEE analytics, especially when you want to scale OEE across multiple factories.

BOTTOM LINE:

BETTER OEE METRICS WILL GET YOUR ORGANIZATION WHERE YOU WANT TO BE.

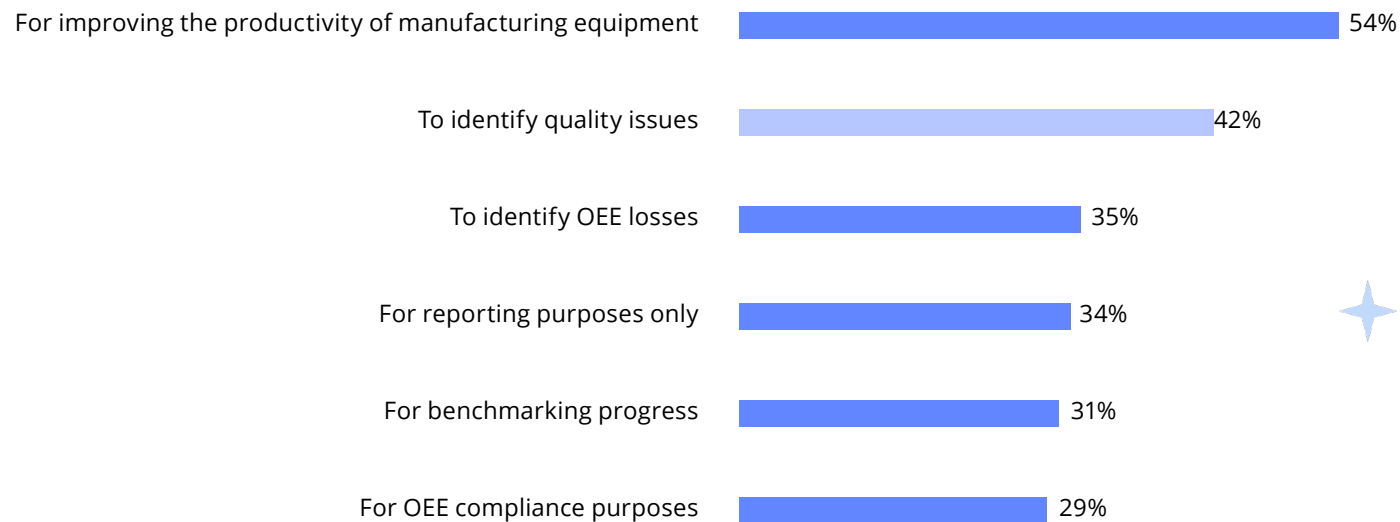
THE IMPORTANCE OF OEE ANALYTICS

Survey question:

FOR WHAT PURPOSE DO YOU USE OEE ANALYTICS DATA?

THE MAIN USES OF OEE DATA ARE TO IMPROVE PRODUCTIVITY AND QUALITY

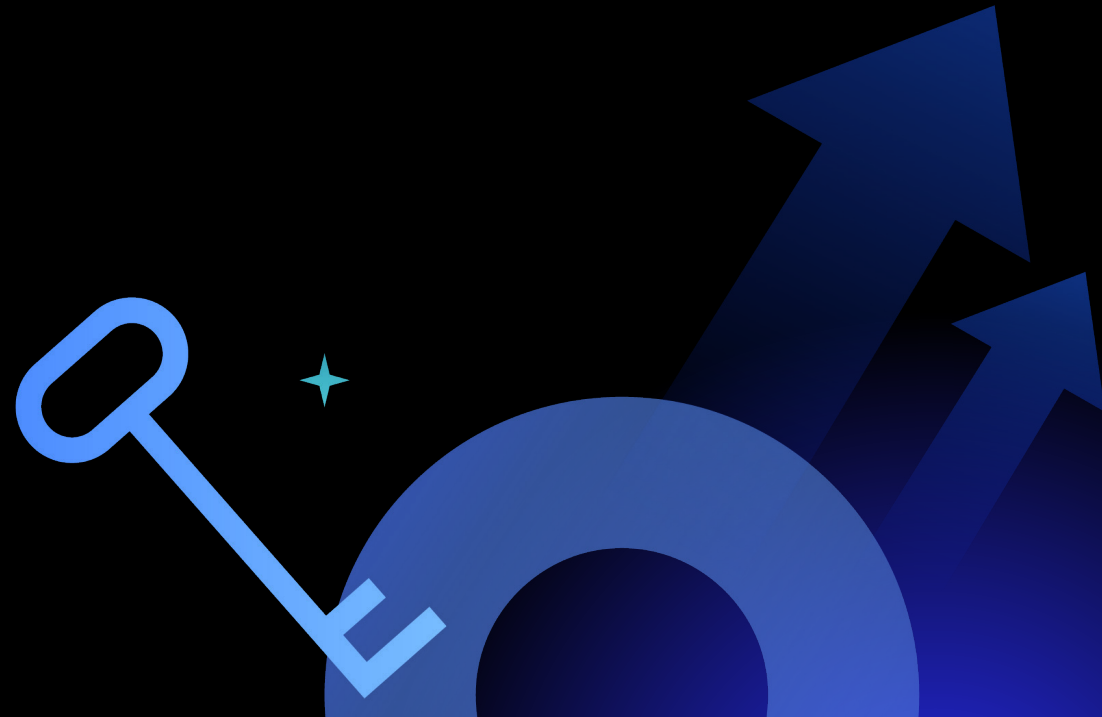
Use of OEE data analytics



Organizations do recognize the significance of analyzing OEE performance to pinpoint areas of improvement and optimize overall production efficiency.

Building a solid data foundation is critical to effectively monitoring OEE performance with any degree of accuracy.

STRONG OEE MEASUREMENT CAPABILITIES ARE THE KEY TO EXCEPTIONAL PRODUCTIVITY IMPROVEMENTS



THE STATE OF OEE MATURITY — RESPONDENTS’ SELF-REPORTING

We asked:

HOW WOULD YOU RATE YOUR COMPANY’S ABILITY TO MEASURE OVERALL EQUIPMENT EFFECTIVENESS (OEE)?

Only 4 out of 10 say they have strong OEE measurement capabilities.



THE COMPANIES WE INTERVIEWED GAVE US EYE OPENING SCENARIOS THAT CLEARLY SHOW:

THE LEVEL OF OEE AUTOMATION CORRELATES WITH SUCCESSFUL FACTORY FLOOR OPTIMIZATION.



HERE ARE SOME EXAMPLES

THE INCREDIBLE RESULTS OF HIGH OEE MEASUREMENTS

As told by our respondents who self-rated their ability to measure OEE at a 9 out of 10.



Our new plants based in Germany are so highly automated that a single engineering expert, an assembly line operator, and a coworker can oversee entire assembly lines.

Overcoming people resources and enabling systems to gather data for automation will optimize production, delivering better quality, cost-efficiency, and less waste. ”

Director of Operations Technology

\$135B German manufacturer with 170,000 employees

THE BENEFITS OF AVERAGE OEE MEASUREMENTS

As told by our respondents with a self-rated average ability to measure OEE.

Even average OEE process automation is a significant value add.

This manufacturer can test different scenarios in different plants to optimize processes

“ We make the same product in multiple plants worldwide, but the identical process does not always produce the same results. Does what work in India make sense for China? How does it compare to Mexico? Using this kind of data allows you to extract transferable best practices. ”

Chief Information Officer

\$1.5B U.S. manufacturer with 10,000 employees

“ We have different lines in our plant operations. Everything was done manually, and we didn't know the overall effectiveness. It was hampering productivity. In the last year, we implemented tools and analytics to optimize the data we are getting. Having a good OEE process in place is not enough. You must adopt the tools and technologies to leverage that data. You need a strong set of analytics to know where losses are happening. ”

Director of Operations Technology

\$2B Denmark manufacturer with 2,000 employees

EVEN A WEAK OEE PROGRAM HAS ITS ADVANTAGES

As told by our respondents with a self-rated low ability to measure OEE.

Companies just starting out share their experiences.



We have robust machine connectivity. The information is ingested into a data warehouse. With the help of analytics, we have developed dashboards using visualization tools to develop KPI formulas for increased operational efficiency. ”

Global Director, Data Analytics, Enterprise Architecture, Strategy and Digital Transformation

\$2.9B U.S. manufacturer with 10,000 employees



Our production ramp-up wasn't yielding the expected performance increases. Unfortunately, the high-level data we were capturing couldn't tell us why. Implementing OEE on the plant floor gave us insight into what needed to be measured with more detail. ”

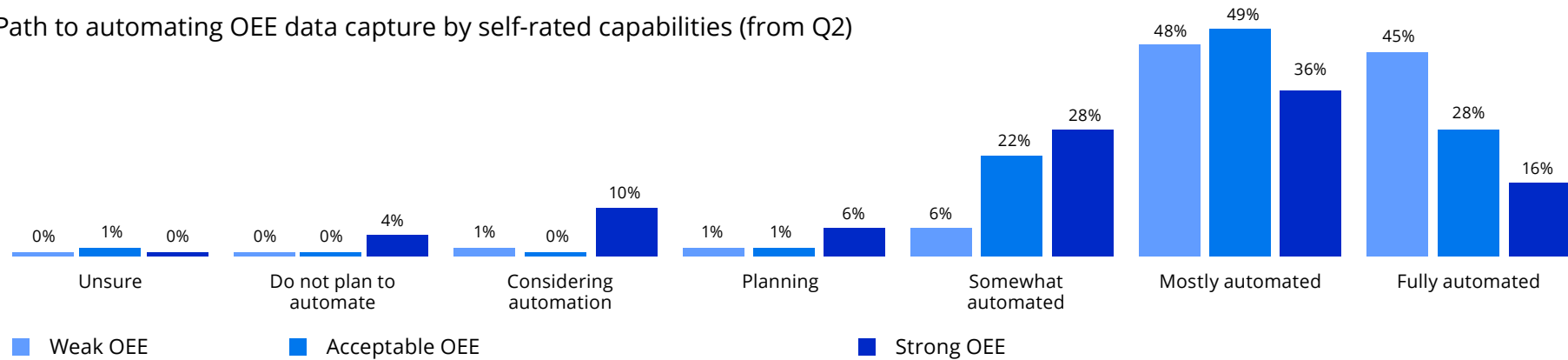
Senior Director of Manufacturing Engineering

\$10B U.S. manufacturer with 10,000 employees

THE BENEFITS OF GREATER OEE AUTOMATION — ALL THE RESULTS

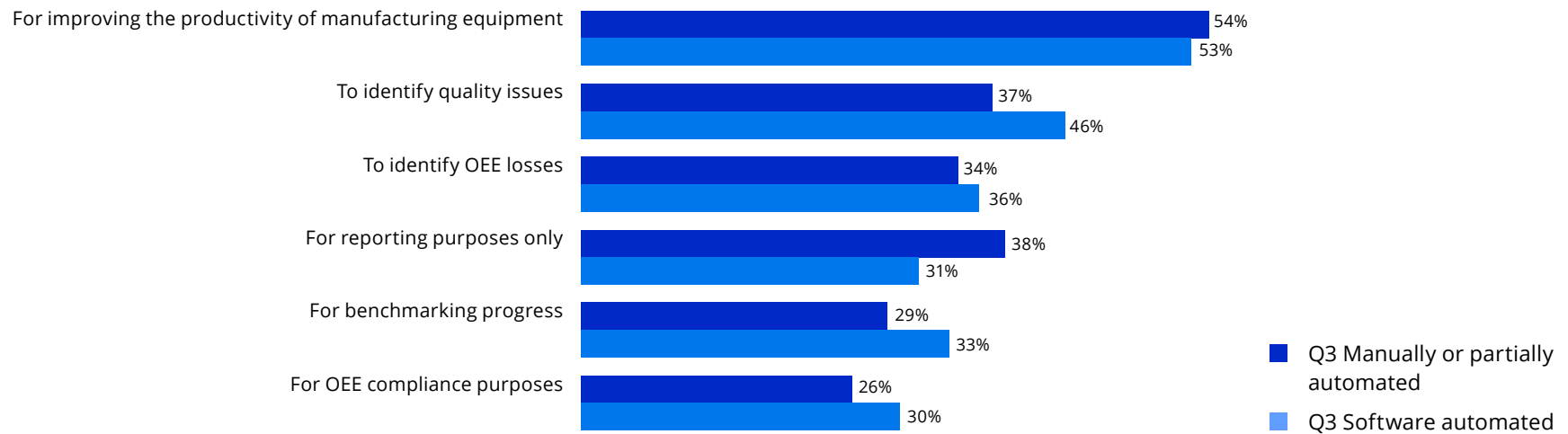
Those with strong self-rated OEE are much more likely to be fully automated

Path to automating OEE data capture by self-rated capabilities (from Q2)



Those that use software to automate OEE are much more likely to use that data to identify quality issues

Use of OEE data analytics by level of OEE automation (Q3)



THE DIGITAL TWIN DILEMMA

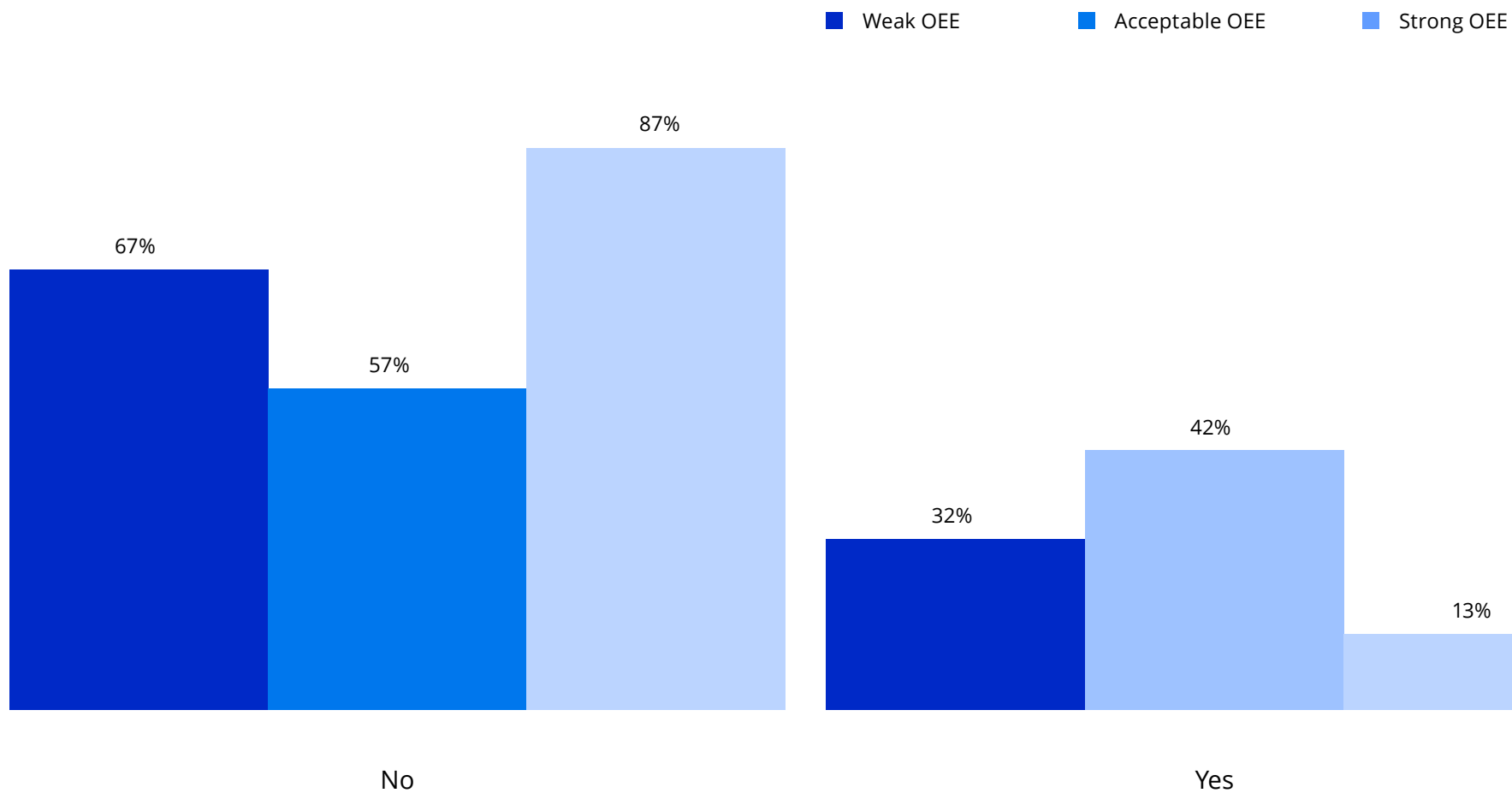
Digital twins are the key to running state-of-the-art efficient manufacturing.
And you can't build them without OEE automation.



DO YOU USE DIGITAL TWIN TECHNOLOGY?

Not surprisingly manufacturers that are weak on OEE data collection rarely use digital twin technology.

Incidence of digital twin technology in manufacturing by self-rated OEE capabilities (Q2)



THE IMPORTANCE OF DIGITAL TWINS IN MANUFACTURING

Digital twins play a vital role in manufacturing by providing next-generation platforms for production optimization. Leveraging advanced simulations and automation, digital twins unlock unprecedented factory floor efficiencies. With this level of real-time visibility into operations, manufacturers can make data-driven decisions with precision and agility.

DIGITAL TWINS:

Improve every step of the production optimization process.



Provide real-time visibility, operational intelligence, and enable data-driven decisions.



Analyze collected data, identify hidden patterns, uncover failure reasons, and highlight areas for improving OEE.



Simulate processes, automate decision-making, and implement actions, reducing the need for human intervention and possibly preventing costly capital expenditure mistakes.

Boost equipment availability through predictive maintenance.



Monitor equipment and perform analytics to identify potential failures.



Test scenarios that precede failures, allowing proactive servicing of equipment.



Identify issues before they occur and reduce unplanned downtime.

Enhance quality assurance through automated visual inspections.



Enable optimization of equipment performance by simulating its behavior.



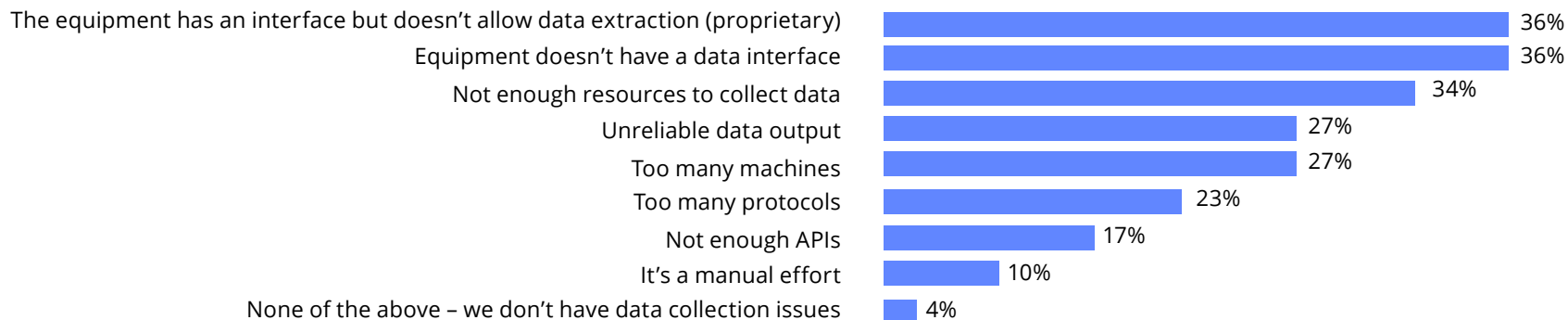
Analyze and run “what-if” scenarios to minimize in-process adjustments.



This reduces idling and minor stops, leading to improved overall quality assurance.

WHAT'S HOLDING MANUFACTURERS BACK FROM OEE AUTOMATION? (BESIDES NOT MAKING IT A PRIORITY)

Biggest barriers in current OEE data collection processes

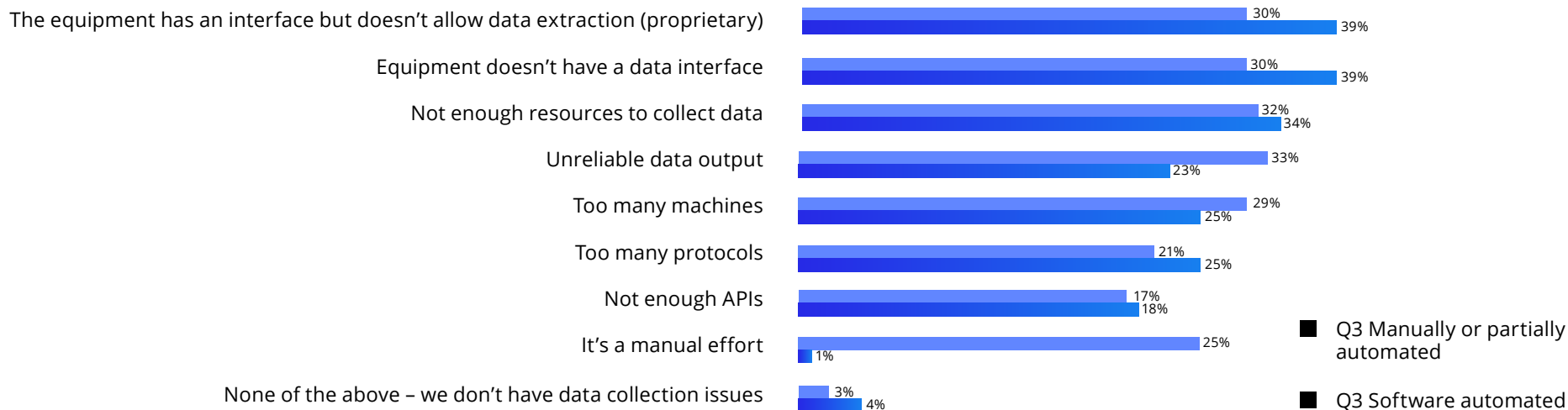


Survey question:

WHAT ARE THE BIGGEST BARRIERS IN YOUR CURRENT OEE DATA COLLECTION PROCESS, IF ANY?

Those that have not fully automated OEE data feel the burden of the manual effort and that their data is unreliable

Biggest barriers in current OEE data collection processes by level of automation



**OEE AUTOMATION IS THE KEY TO MORE COST AND RESOURCE EFFICIENT
FACTORY FLOORS**

AND THAT'S WELL WORTH THE TIME AND INVESTMENT

**EVEN A SMALL
AMOUNT OF
AUTOMATION CAN
PROVIDE **BIG RESULTS****



**HERE ARE SOME SUGGESTIONS TO GET YOU READY
FOR MORE OEE AUTOMATION IN 2024**



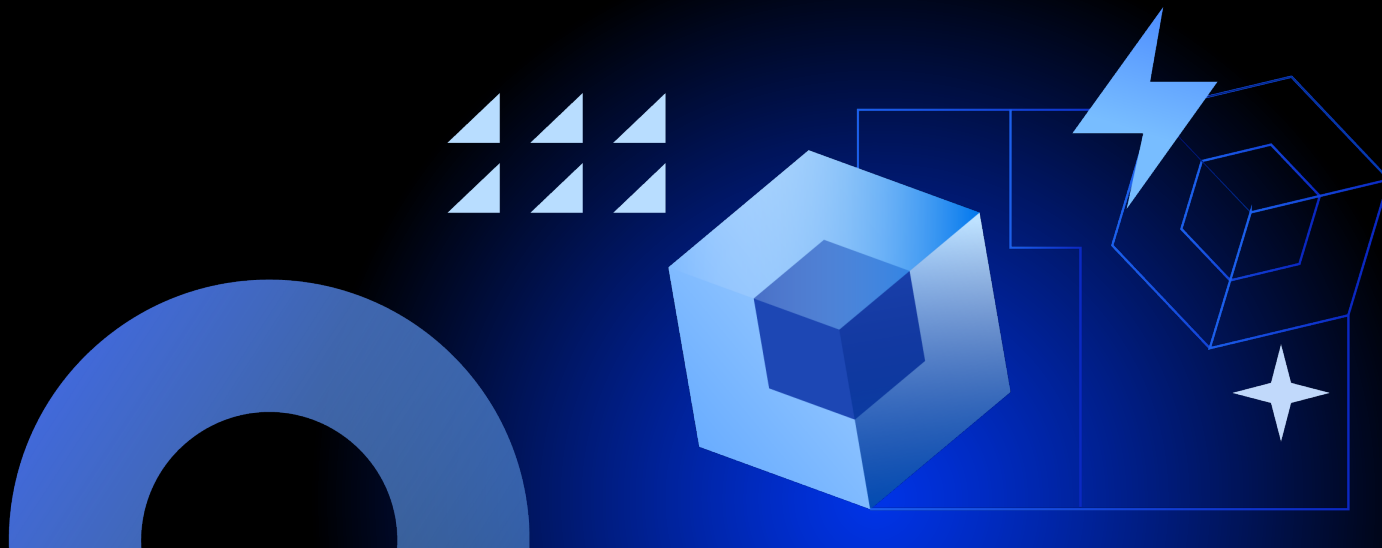
STEPS TO MORE OEE AUTOMATION — IT DOESN'T HAVE TO BE COMPLICATED

We advise our manufacturing customers to start with the basics and work towards continuous improvements. Each step leads to greater production effectiveness.

Check out these articles for additional advice on improving your OEE automation:

[Methodically Improve Your Factory Floor Analytics](#)

[Three Steps to a Better Overall Equipment Effectiveness \(OEE\) Program](#)



LET'S RECAP:

The global study demonstrates the significance of prioritizing OEE by analyzing manufacturing priorities and showcasing the benefits of OEE automation.

1

Aligning with IT infrastructure, upgrading manufacturing technology, and converging IT and OT software and data all benefit from automating OEE processes.

2

Strong OEE measurement capabilities are key to exceptional productivity improvements, while even average OEE automation yields significant advantages.

3

Achieving higher OEE measurements positively impacts manufacturing priorities, resulting in cost-efficient production and streamlined processes.

4

Digital twins play a vital role in manufacturing, offering real-time visibility, data-driven decision-making, and simulation capabilities, working in conjunction with OEE.

5

Each step taken towards automation leads to greater production effectiveness, more cost-efficiency, and resource optimization on the factory floor.

It's undeniable — prioritizing OEE has an unprecedented transformative impact on manufacturing operations — adding in digital twins amplifies the power of automation and propels manufacturing companies towards new heights of success.



About **SoftServe**

SoftServe is a digital authority that advises and provides solutions at the forefront of technology. We reveal, transform, accelerate, and optimize how enterprises and software companies do business. Our end-to-end approach and expertise deliver innovation, quality, and speed across verticals, including healthcare, retail, energy, manufacturing, and financial services. We empower enterprises and software companies to re-identify differentiation, accelerate solution development, and vigorously compete in today's marketplace — no matter where you are in your journey.



info@softserveinc.com
www.softserveinc.com

Contacts

NORTH AMERICAN HQ

201 W. 5th Street, Suite 1550
Austin, TX 78701
+1 866 687 3588 (USA)
+1 647 948 7638 (Canada)

EUROPEAN HQ

30 Cannon Street
London EC4 6XH
United Kingdom
+44 333 006 4341

softserve