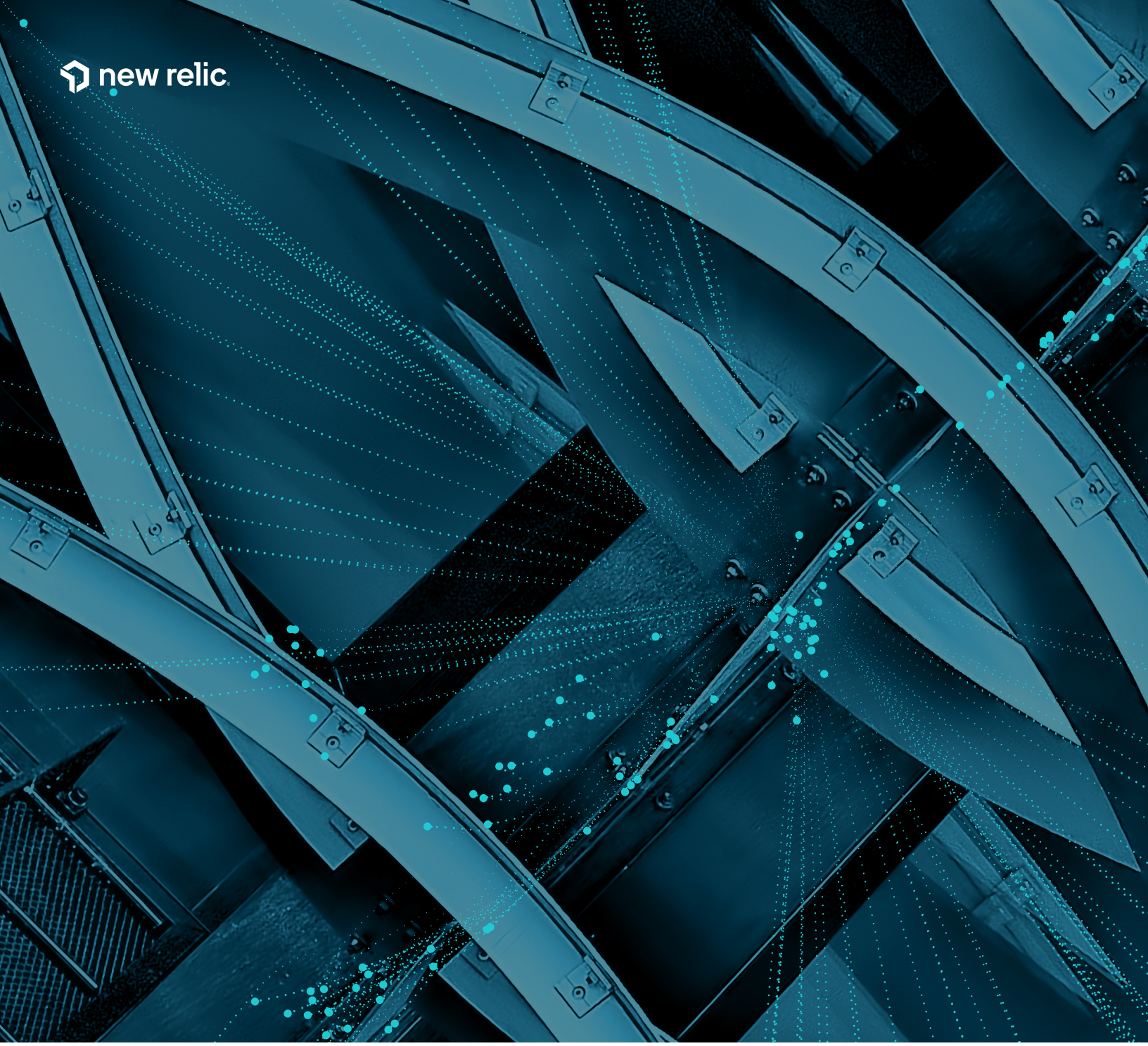


State of Observability for Industrials, Materials, and Manufacturing

Insights and analysis on the adoption and business value of observability for the industrials, materials, and manufacturing industries

Report / August 2024

Contents

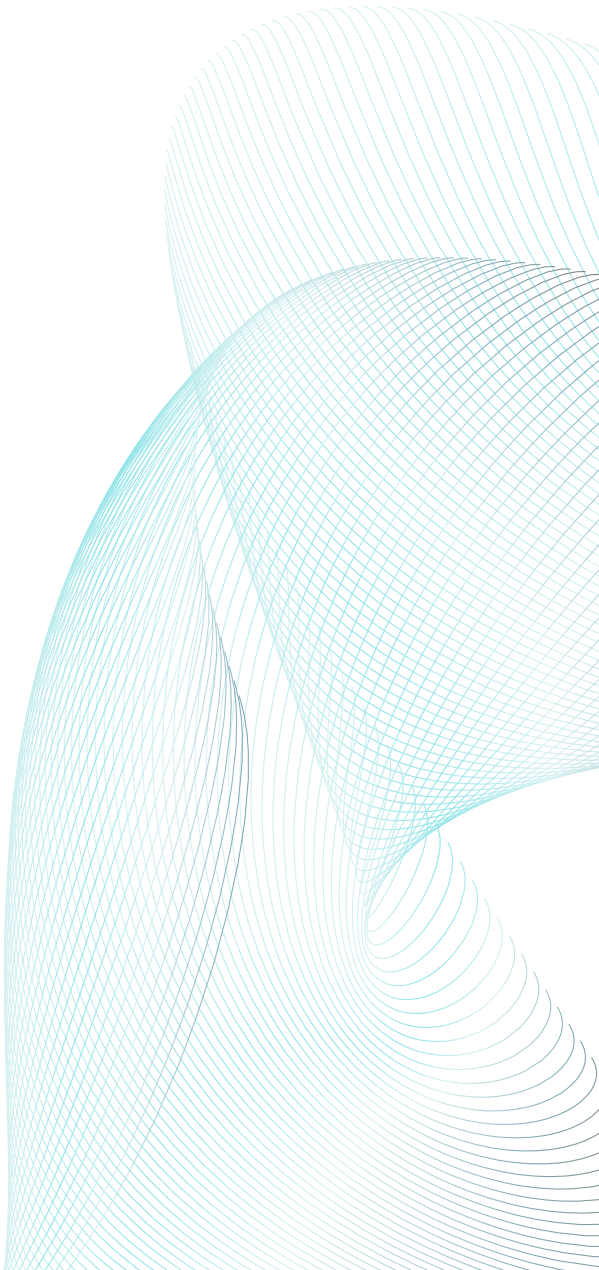
Preparing for the Fifth Industrial Revolution

After riding the wave of Industry 4.0—the Fourth Industrial Revolution—that was dominated by technologies like the Industrial Internet of Things (IIoT), robotics, 3D printing (additive manufacturing), autonomous vehicles, digital twin simulation, touch interfaces, and virtual reality (VR) systems, manufacturing businesses are now entering Industry 5.0—the Fifth Industrial Revolution. This era is set to be defined by artificial intelligence (AI), sustainable product development, human and AI collaboration, and lean production practices.

Organizations in the dynamic industrials, materials, and manufacturing industries are navigating this transformative period with groundbreaking advancements while facing competitive pressure and supply chain constraints. They must also adhere to security, safety, and compliance requirements, standards, and guidelines set by governments and local and international organizations, such as the International Organization for Standardization (ISO), Society of Automotive Engineers (SAE), Defense Information Systems Agency (DISA), and Food and Drug Administration (FDA).

Industrials, materials, and manufacturing organizations are deeply entrenched in production, processing, and distribution of a wide array of goods and materials, including vehicles and automotive parts, consumer goods, aerospace and defense equipment, electronic devices, medical devices, building materials, and more. The production of physical goods has become more technologically focused, forcing manufacturers to become more driven by software.

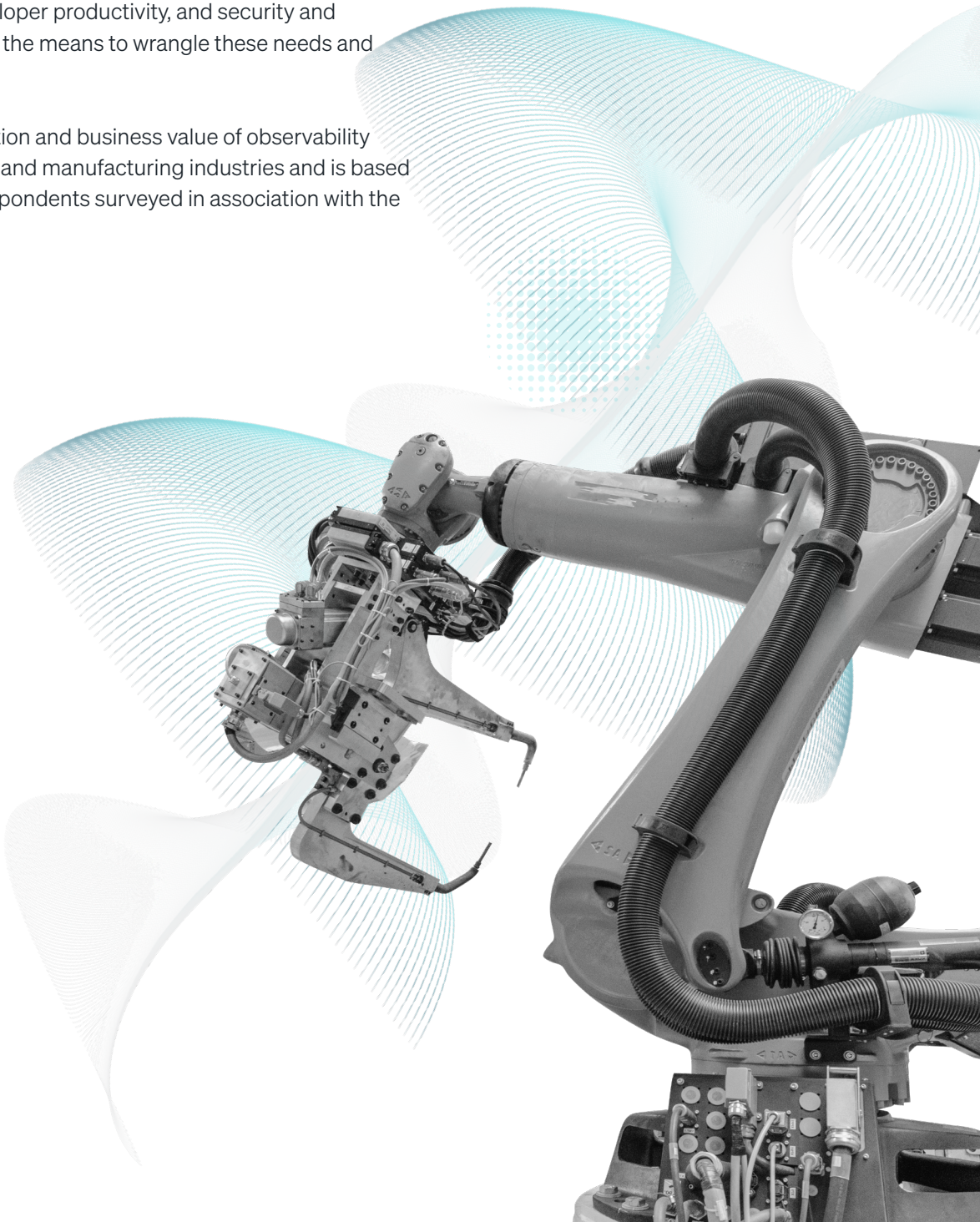
Supply chain disruptions also remain a persistent challenge in this sector. Global dependence on specific regions for raw materials highlights industry-wide vulnerabilities and intensifies the race for greater innovation and self-sufficiency across the broader ecosystem.



In addition to technological advancements and new competitive and global pressures, industrials, materials, and manufacturing organizations must also continue to maintain and improve uptime and reliability. Factories remain focused on maximizing output and quality, reducing waste, increasing speed, improving research and development (R&D)—and doing it all without critical interruptions. These values surface through technological channels via Internet of Things (IoT) sensors, real-time data streaming, edge computing, unattended "lights-out" machining, computer vision, and other AI techniques.

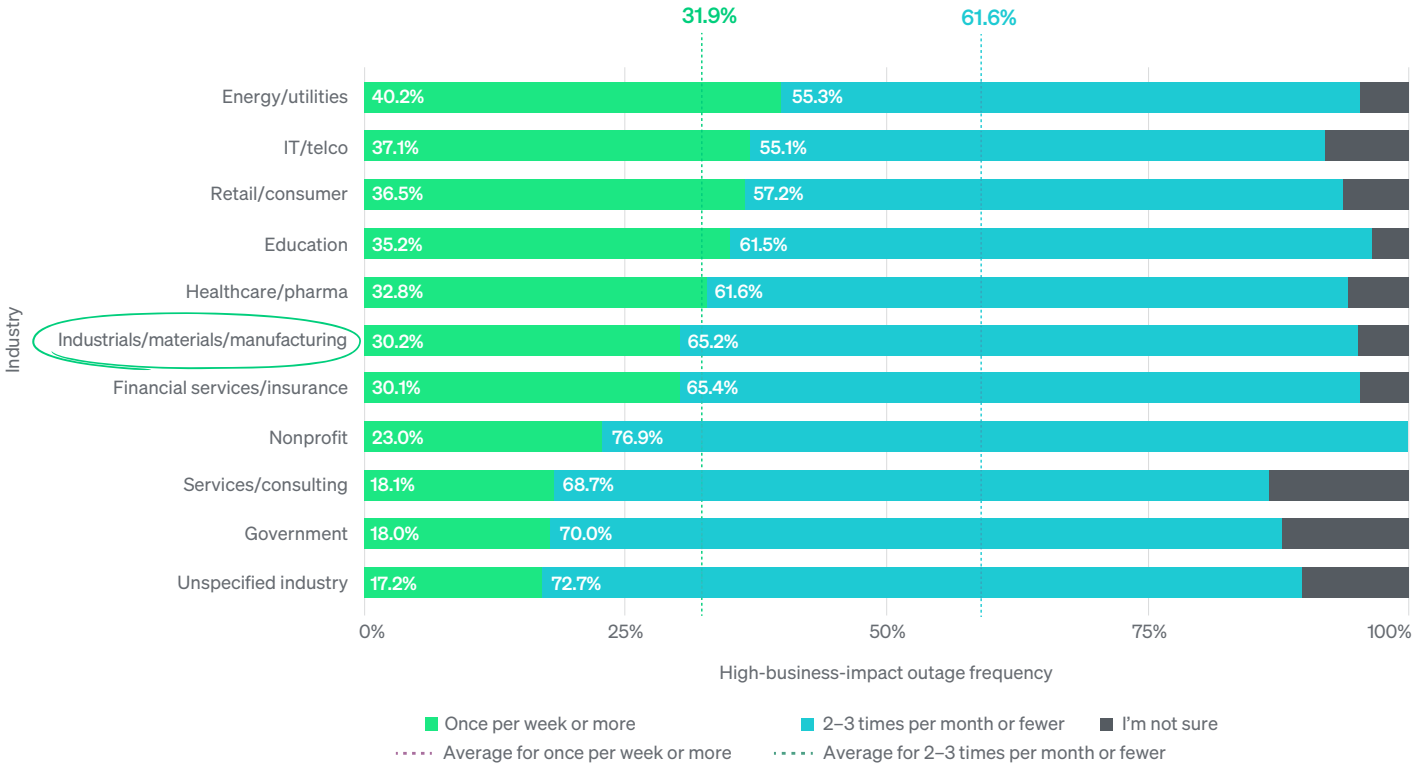
Collectively, these forces lead to a greater need for system visibility, nuanced insight into user behaviors, developer productivity, and security and compliance. Observability offers the means to wrangle these needs and navigate the evolving terrain.

This report focuses on the adoption and business value of observability across the industrials, materials, and manufacturing industries and is based on insights derived from 285 respondents surveyed in association with the *2023 Observability Forecast*.



Outage frequency and downtime

Industrials, materials, and manufacturing organizations experience high-business-impact outages on a less-frequent basis compared to other sectors, with 30% reporting outages at least once a week compared to the average of 32%.



High-business-impact outage frequency by industry

Nearly half (47%) of respondents said it takes at least 30 minutes to detect high-business-impact outages, and 22% said it takes at least an hour. Three in five (61%) indicated that it takes at least 30 minutes to resolve them, and 36% said it takes at least an hour.

Given the relative frequency of outages noted above, this mean time to detection (MTTD) and mean time to resolution (MTTR) adds up to considerable downtime. However, industrials, materials, and manufacturing organizations fare better overall, with a median annual downtime of 20 hours compared to the overall average of 23 hours. Only respondents from the government, services/consulting, and unspecified industries had a lower median annual downtime.

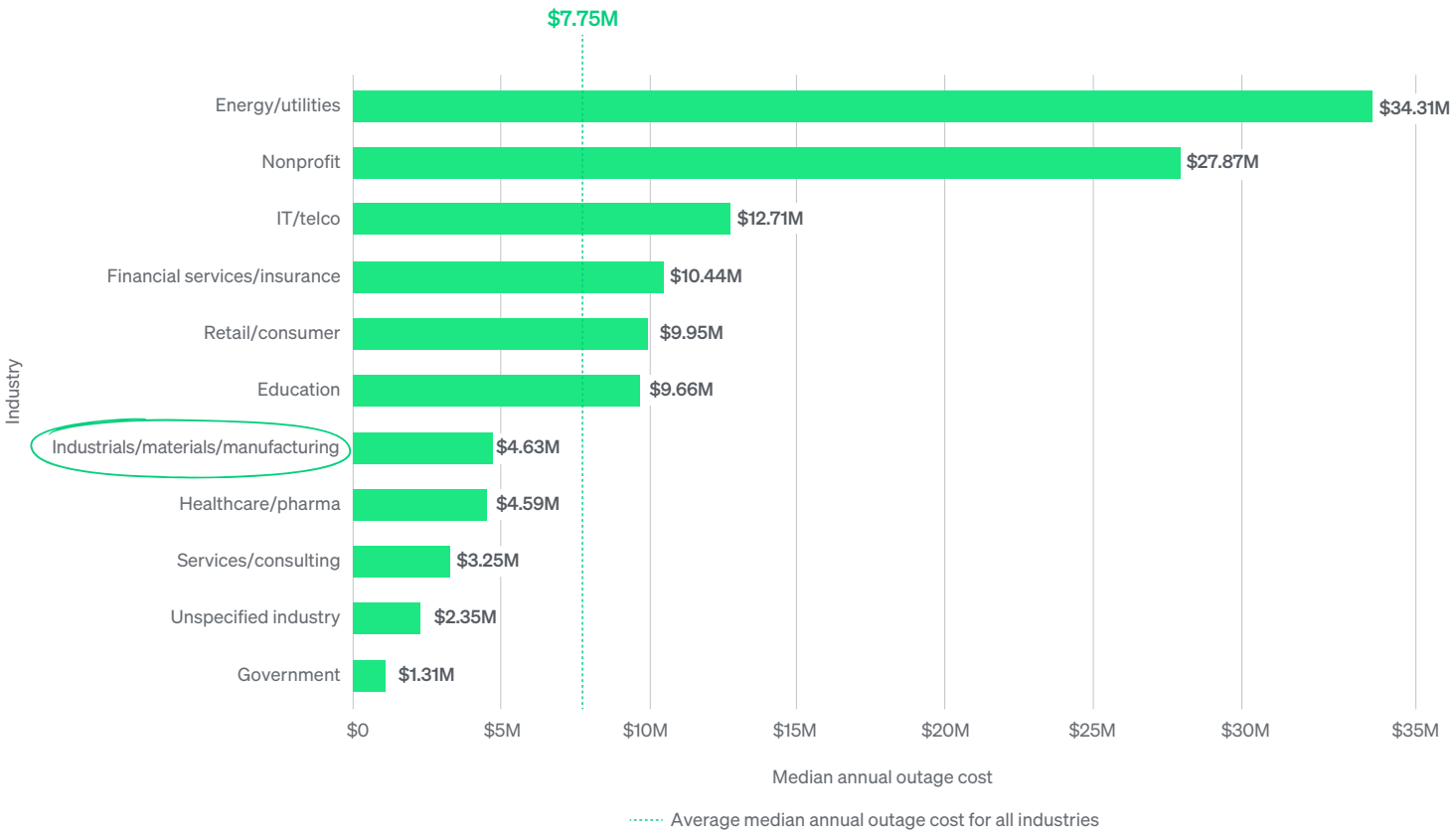
61%

said it takes at least 30 minutes to resolve high-business-impact outages

Outage cost

Downtime is costly for any organization, but respondents from industrials, materials, and manufacturing organizations reported generally lower costs for outages than those from other industries. More than a quarter (27%) said critical business app outages cost at least $500,000 per hour compared to 32% of all respondents. Just 12% estimated these outages cost their organizations more than $1 million per hour, which is lower than the 21% of all respondents who cited this high tier of costs.

Considering downtime and hourly costs, this adds up to a median annual outage cost of $4.63 million for industrials, materials, and manufacturing organizations, which—while considerable—is much lower than the $7.75 million annual outage cost across all industries surveyed and fifth lowest overall compared to other industries.



Median annual outage cost by industry

Still, it's clear that the stakes are high. Critical outages can cost these organizations millions of dollars in lost output, disrupt intricate global supply chains, and sour business-to-business relationships.

But observability can help. For example, 65% said their MTTR has improved to some extent since adopting an observability solution. Additionally, respondents from industrials, materials, and manufacturing organizations that had achieved full-stack observability reported even more substantial MTTR improvements: 34% of those with full-stack observability said MTTR improved by 25% or more since adopting observability, compared to just 28% of respondents without full-stack observability.

Nearly half (47%) of the industrials/materials/manufacturing practitioners surveyed said observability helps improve their life the most by increasing productivity so they can find and resolve issues faster. Plus, 51% of all the industrials/materials/manufacturing respondents said observability improves collaboration across teams to make decisions related to the software stack, 40% said it increases operational efficiency, 38% said it improves system uptime and reliability, and 30% said it mitigates service disruptions and business risk.

65%

said their MTTR improved since adopting an observability solution

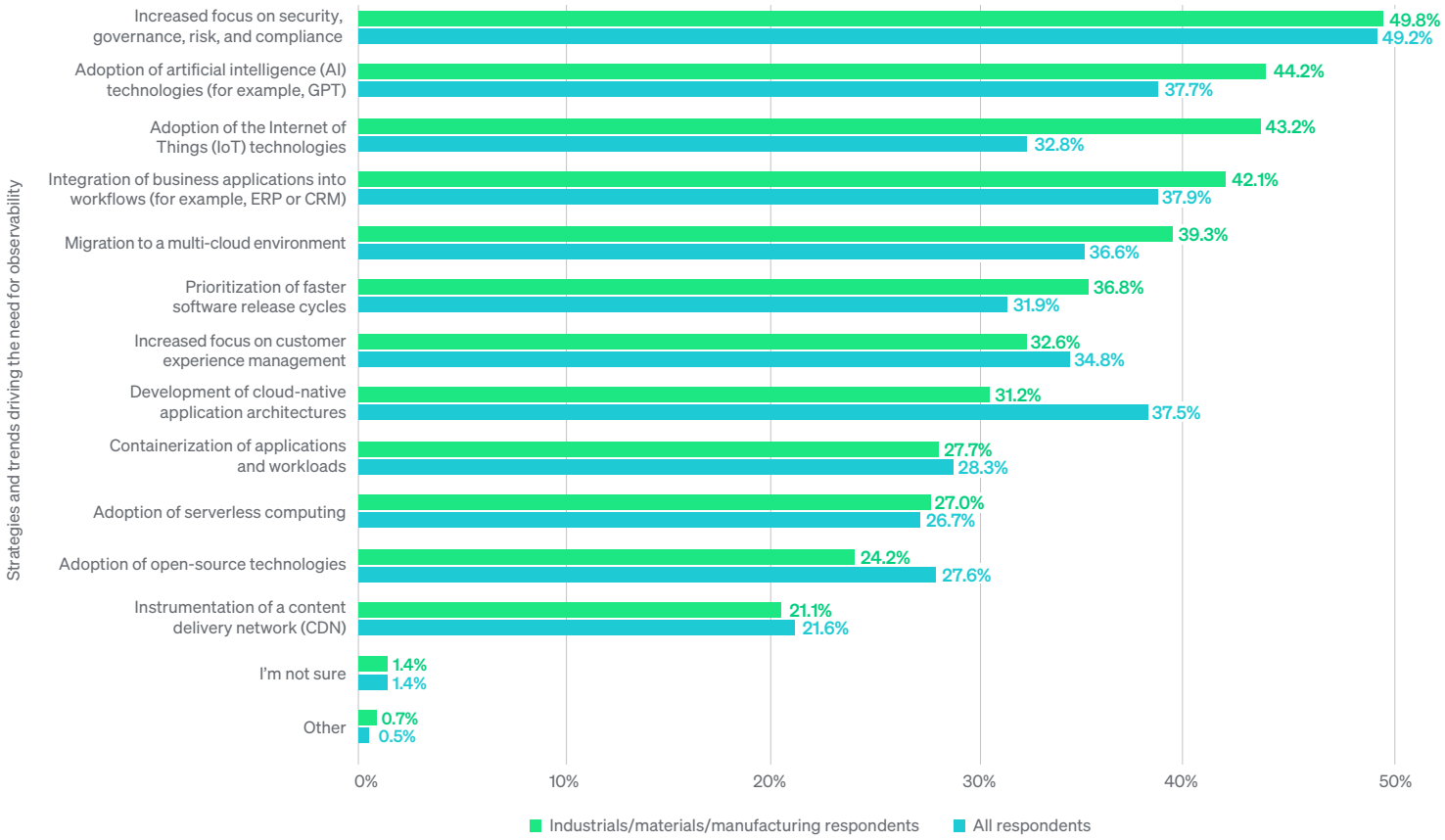
Trends driving observability adoption

The top technology strategy or trend driving the need for observability among industrials, materials, and manufacturing organizations was an increased focus on security, governance, risk, and compliance (50%).

Notably, respondents in these industries were more likely than average to say some strategies and trends drive the need for observability than others, including adoption of AI technologies (44% compared to 38% overall), adoption of IoT technologies (43% compared to 33% overall), integration of business applications into workflows (42% compared to 38% overall), migration to a multi-cloud environment (39% compared to 37% overall), and prioritization of faster software release cycles (37% compared to 32% overall).

44%

said the adoption of AI technologies is driving their need for observability



Technology strategies and trends driving the need for observability for industrials/materials/manufacturing respondents compared to all respondents

Observability capabilities deployed

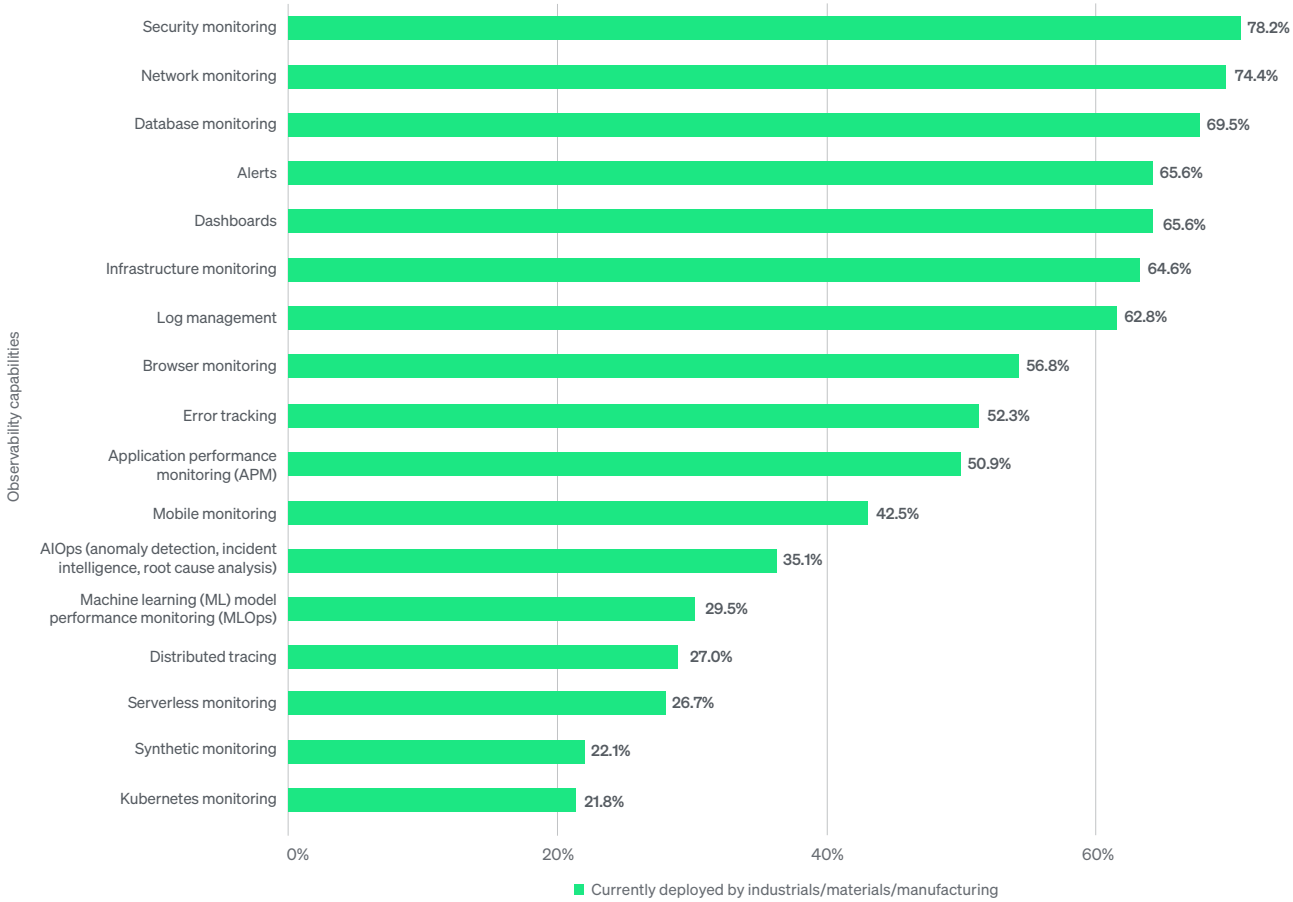
Like many other industries, security monitoring was the most widely deployed capability for the industrials/materials/manufacturing respondents (78%). Network monitoring was the second most widely deployed (74%), followed by database monitoring (70%), alerts (66%), and dashboards (66%).

A higher proportion had several capabilities currently deployed than average, including security monitoring (78% compared to 75% overall), database monitoring (70% compared to 68% overall), dashboards (66% compared to 65% overall), log management (63% compared to 62% overall), browser monitoring (57% compared to 55% overall), error tracking (52% compared to 50% overall), and mobile monitoring (43% compared to 41% overall).

In addition, 36% had achieved full-stack observability compared to 33% overall—the second highest of any industry.

36%

had achieved full-stack observability



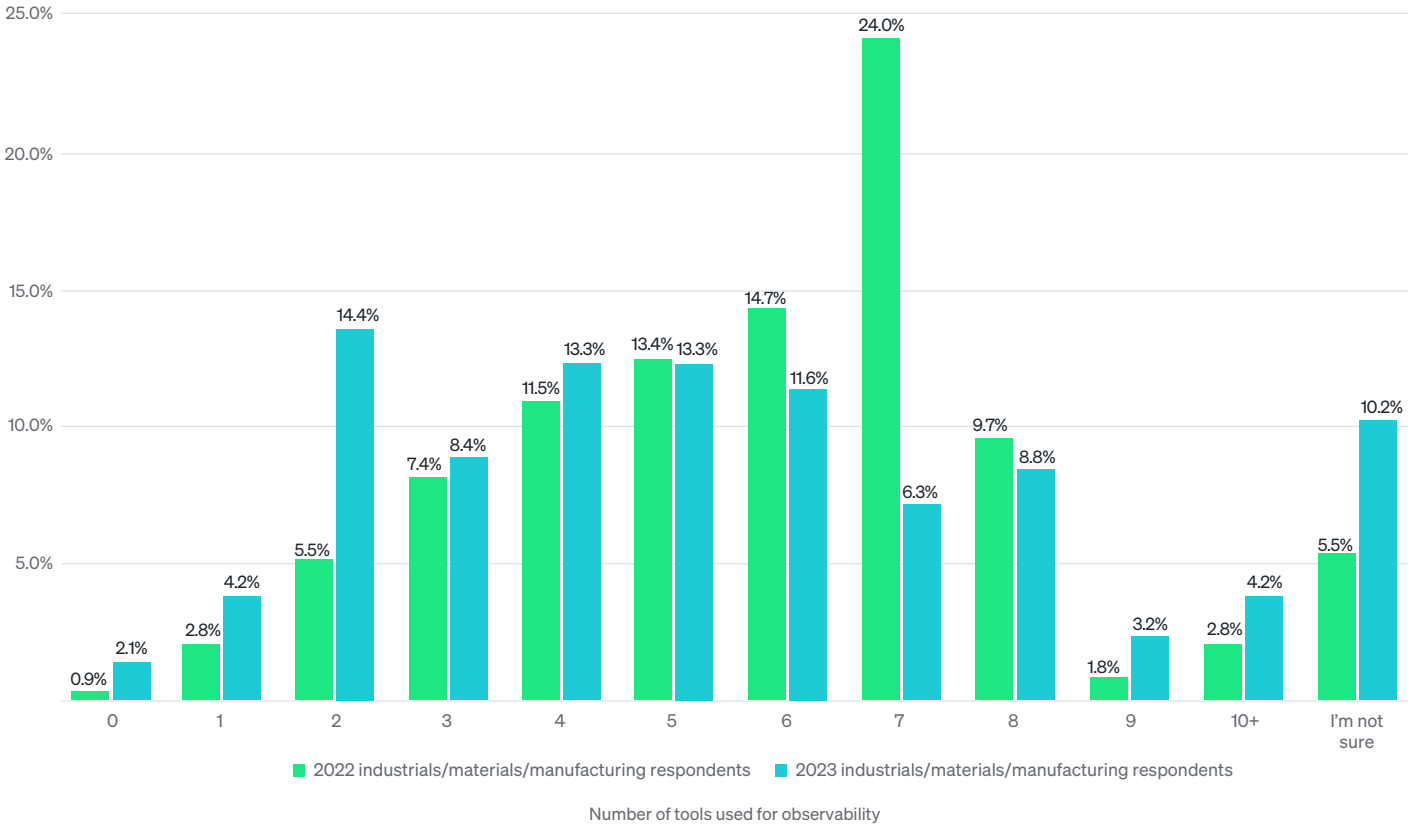
Deployed observability capabilities for industrials/materials/manufacturing respondents

Number of monitoring tools, preference, and observability spend

Industrials, materials, and manufacturing organizations were less likely than average to use multiple monitoring tools for the 17 observability capabilities included in this study. Three-fifths (61%) used four or more tools for observability compared to 63% overall. And 16% used eight or more tools compared to 19% overall.

The proportion of respondents using a single tool has increased since last year, growing from 3% to 4%. Additionally, the average number of tools has gone down by almost one tool, from an average of six tools in 2022 to five tools in 2023.

The data indicate that industrials, materials, and manufacturing organizations are moving toward tool consolidation to understand the different aspects of their business and avoid costly outages.



Number of tools used by industrials/materials/manufacturing organizations for observability capabilities in 2023 compared to 2022

When asked how unified their organization's telemetry data (metrics, events, logs, traces, or MELT) is, 40% said it's more unified, 34% said it's more siloed, and 24% said it's roughly equally unified and siloed.

Moreover, IT teams detected software and system interruptions primarily with one or more monitoring tools (73%), though more than a quarter (26%) said they detect outages with manual checks or tests, complaints, or incident tickets, and just 14% said they do so with one observability platform.

Their prevailing preference was for a single, consolidated platform (54%) compared to just 30% who preferred a multiple point solution. And 46% said their organization is likely to consolidate tools in the next year to get the most value out of their observability spend, the highest proportion intending to consolidate across all industries.

Industrials, materials, and manufacturing organizations spend less annually than most other industries on the tools used for observability—just 37% said they spend $500,000 or more, and 24% said they spend $1 million or more per year on observability. More than half (55%) said they spend less than $500,000 per year compared to 46% overall.

46%

said their organization plans to consolidate tools in the next year

The business value and ROI of observability

We also asked industrials/materials/manufacturing respondents what ways observability helps improve their life the most. The top answer for IT decision makers (ITDMs) was that it simply makes their job easier (43%), and tied for second and third place was that it helps drive business strategy and helps translate technology strategy into tactical execution (both 40%). For practitioners, the top two answers were that it increases productivity so they can find and resolve issues faster (47%) and enables less guesswork when managing complicated and distributed tech stacks (31%).

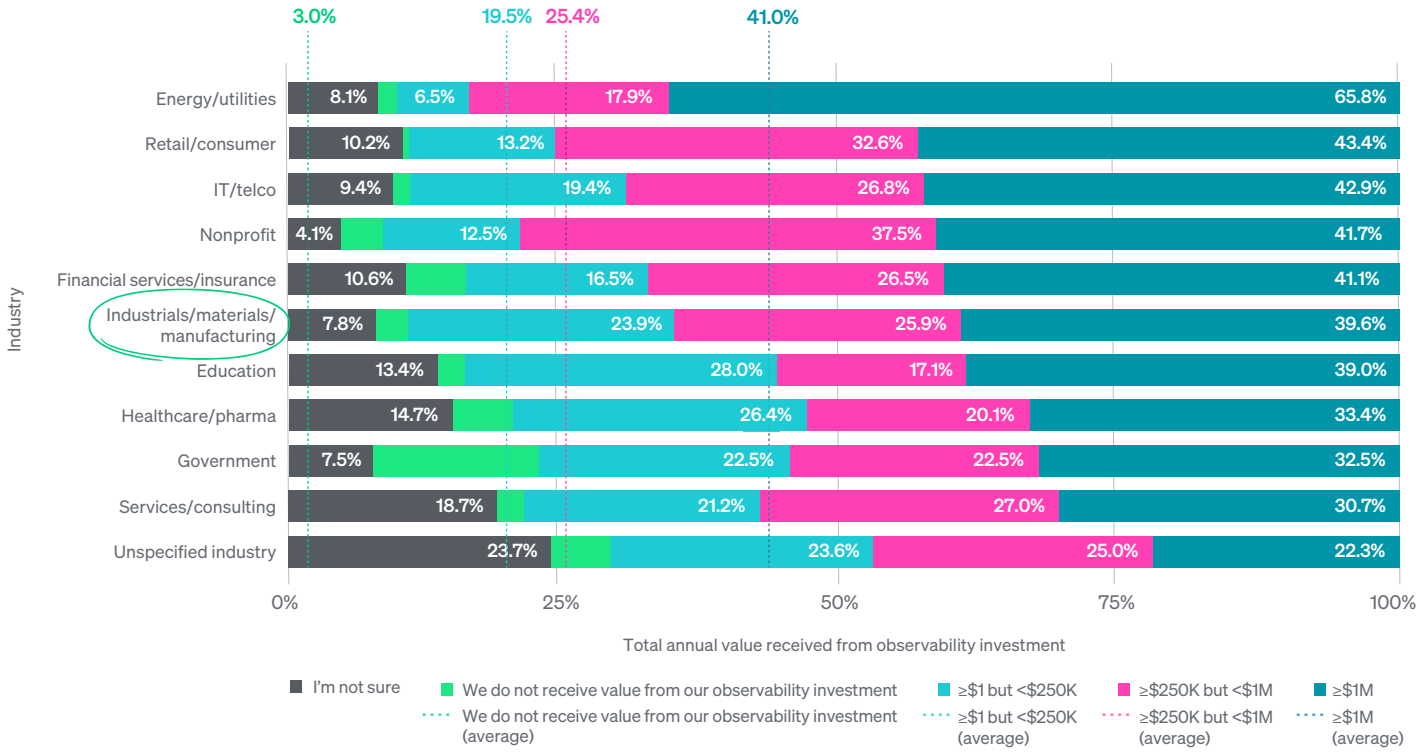
In regard to business outcomes enabled by observability, more than half (51%) said observability improves collaboration across teams to make decisions related to the software stack—which was second highest across all other industries and 10% more overall.

Industrials/materials/manufacturing respondents also indicated that the primary benefits enabled by observability were increased operational efficiency (40%), improved system uptime and reliability (38%), and security vulnerability management (35%).

40%

said they receive at least $1 million in value from observability per year

When asked how much total value their organization receives from its observability investment per year, half (50%) said at least $500,000, including 40% who said $1 million or more. A sixth (17%) estimated they receive $5 million or more per year in total value.



Total annual value received from observability investment by industry

Based on annual spend and annual value received estimates, industrials, materials, and manufacturing organizations receive a 2x median annual return on investment (ROI), or 100%.

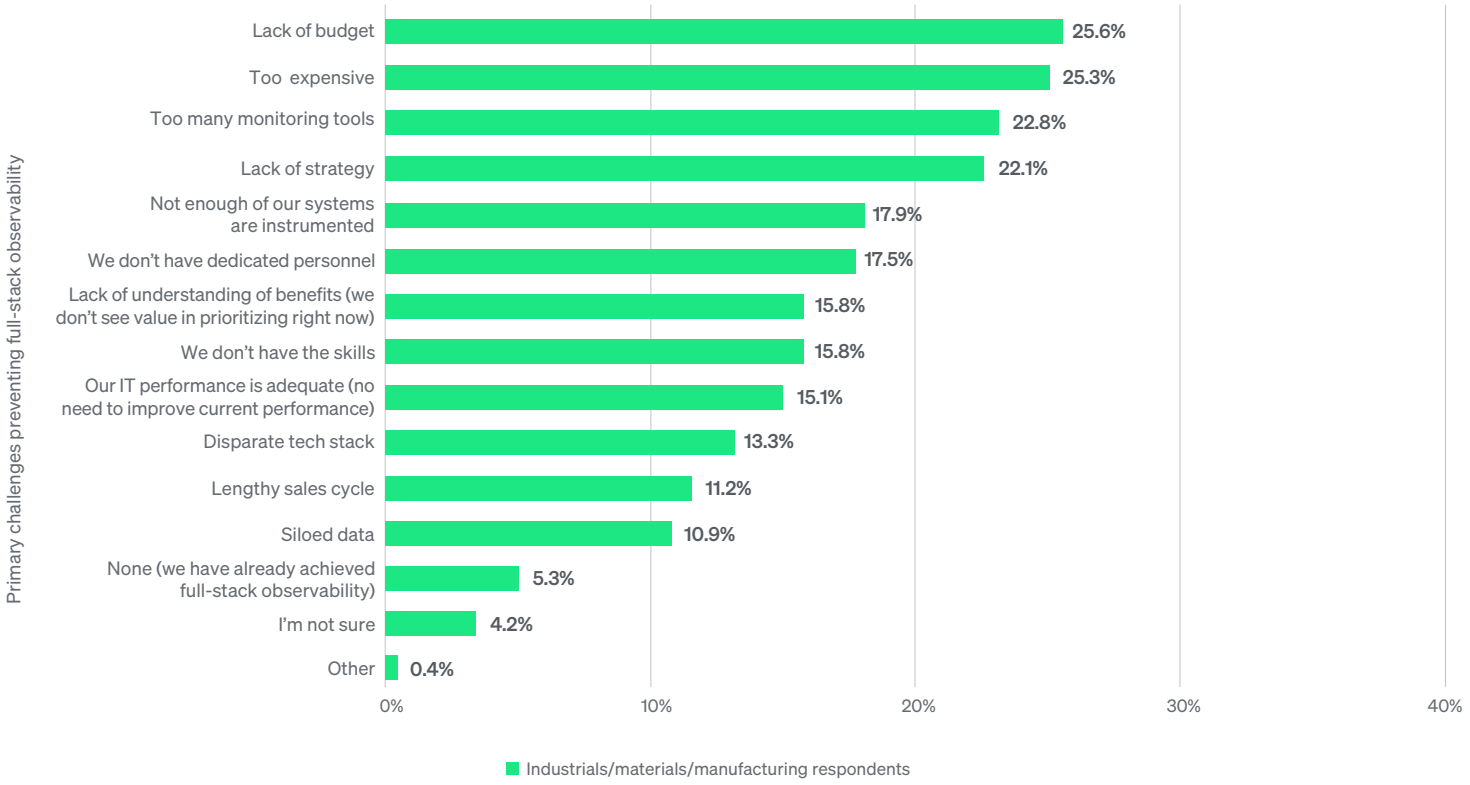
Several factors had an even more positive impact on ROI. Generally, respondents whose organizations had:

- Achieved full-stack observability (by the report's definition) had a higher median annual ROI (114%) than those who hadn't (100%).
- A mature observability practice (by the report's definition) had a higher median annual ROI (250%) than those with less mature practices (100%).
- Five or more capabilities currently deployed had a higher median annual ROI (114%) than those with 1–4 deployed (0%, which means they broke even).
- Five or more observability practice characteristics currently employed had a higher median annual ROI (114%) than those with 1–4 employed (100%).

These findings strongly suggest that industrials, materials, and manufacturing organizations receive a minimum 2x ROI from observability and that the ROI is even higher for organizations that monitor more of their tech stack or have a more mature observability practice.

Challenges preventing full-stack observability

The top challenges preventing industrials, materials, and manufacturing organizations from achieving full-stack observability were a lack of budget (26%) and that it's too expensive (25%), followed by having too many monitoring tools (23%).



Primary challenges preventing industrials, materials, and manufacturing organizations from achieving full-stack observability

When asked what the most significant business outcome would be if their organization did not have an observability solution, about a third (32%) said higher operation costs due to increased operational effort.

In addition, the top three pricing- or billing-related issues experienced by industrials, materials, and manufacturing organizations with their observability vendor(s) in the past year were rapid data growth significantly impacting their bill (39%), paying for unwanted bundles to get the capabilities they need (34%), and frequent re-forecasting and re-contracting for multiple SKUs (30%).

39%

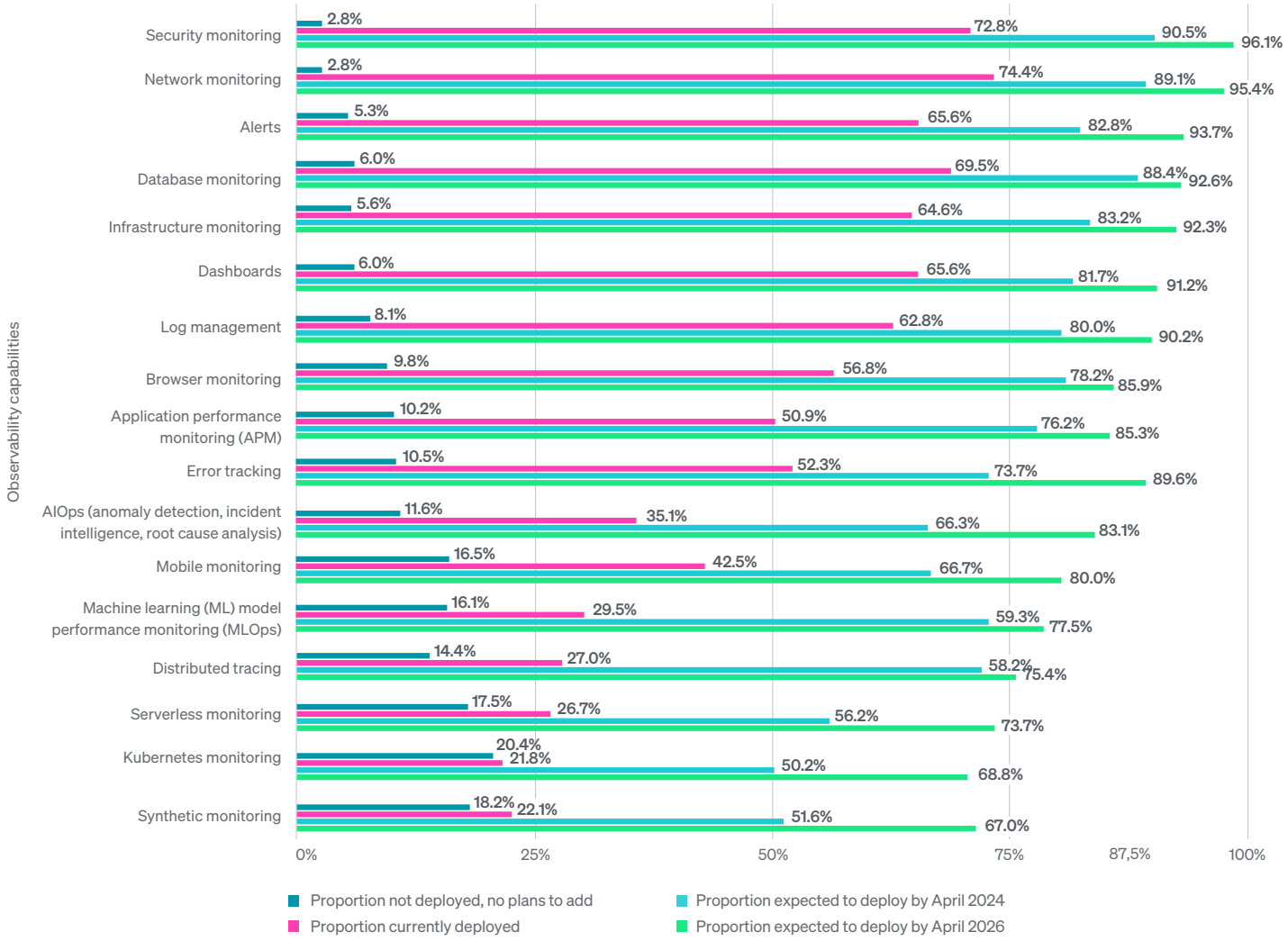
said rapid data growth significantly impacted their observability bill in the last year

The future of observability for manufacturers

Industrials, materials, and manufacturing organizations had ambitious observability deployment plans for the next one to three years. For example, by mid-2026, most expected to have deployed security monitoring (96%), network monitoring (95%), and alerts (94%).

These industries are confronting the possibilities—and challenges—of AI and machine learning (ML) with enthusiasm, too. Smart factories, automation, reliance on computer vision, edge computing and IoT—all of these developments underscore the need for better ML model performance monitoring. In fact, by mid-2026, more than three-quarters (78%) planned to have deployed ML model performance modeling.

To get the most value out of their observability spend in the next year, half (50%) of these organizations planned to train staff on how to best use their observability tools, and 46% planned to consolidate tools.



Observability capabilities deployment summary for the industrials, materials, and manufacturing industries from 2023 through 2026

Report summary

Today's industrials, materials, and manufacturing organizations are taking advantage of the technological advancements driven by the Fourth Industrial Revolution and embracing the new technologies of the Fifth Industrial Revolution as they become more reliant than ever on software to stay competitive.

Uptime and reliability remain table stakes in these sectors, with outages proving costly and detection and remediation of outages a top priority. Speed, quality, and efficiency have driven the adoption of IoT, real-time data streaming, edge computing, and AI in these industries, all of which require manufacturers to deploy sophisticated monitoring tools to attain maximum visibility across the tech stack.

In fact, insights from the *State of Observability for Industrials, Materials, and Manufacturing* report show that observability adoption for these industries is driven primarily by security and compliance concerns as well as adoption of AI and IoT technologies. It also shows that these industries are in relatively good shape, experiencing outages less frequently, enjoying less annual downtime, and lower outage costs than average.

Despite spending less on observability annually than most other industries, they had a higher proportion of observability capabilities currently deployed and more had achieved full-stack observability than average. The lower spend is likely due to using fewer observability tools. They are also generally pushing for more observability tool consolidation, and they see clear ROI from their observability investments.

Given their strong interest in deploying more capabilities in the next few years and a desire for a single platform for observability, signs indicate that these organizations will continue to move from point solutions to robust observability platforms that provide end-to-end visibility. As technology transforms the industrials, materials, and manufacturing sectors to be ever more reliant on software and data, the need for observability will grow.

Getting started

New Relic is uniquely positioned to help industrials, materials, and manufacturing organizations deliver on the cutting-edge technological advancements defining their industries while maintaining security and compliance; improving system uptime and reliability; adopting AI technologies; and maximizing ROI through reduced cycles, increased productivity, improved quality, product innovation, and faster manufacturing and delivery times.

The first step is to model data from field sources like sensors, IoT devices, and other operation-level instrumentation, along with system-level telemetry such as user interactions, cloud service metrics, and data from business applications like customer relationship management (CRM) systems, transactions, and post-interaction activities. Then both technical and business teams can use the New Relic all-in-one observability platform to monitor important business metrics in real time, gain insights into critical metrics that directly impact the business such as revenue lost during an outage, make data-driven decisions about software investments, and build better, more efficient operations across all channels to maximize ROI.

Industrial organizations can use the full suite of New Relic capabilities, such as mobile monitoring to improve mobile apps and IoT device connections, collect logs in edge environments, and monitor app operation and error status; log management to visualize data in real time; and dashboards to drill down into application resources and metrics.

In addition, New Relic AI monitoring and ML model performance monitoring can enable manufacturers to adopt AI technologies with confidence and accelerate modernization by removing barriers like lack of visibility into user interactions. And they can integrate their existing security tools with New Relic Vulnerability Management to get a better risk assessment with a single view and context for security findings.

Consolidating monitoring tools on the New Relic platform also enables manufacturers to gain business observability of their operations. New Relic Pathpoint merges customer, product, and services paths into a single business journey to quantify the financial impact of operational issues, including how much potential revenue is lost for every minute of downtime.

> "New Relic is a critical component in our DevSecOps cycle. New Relic will allow us to normalize the process of driving continuous application and service improvement through observing the user experience, which is key for any project, and moves beyond setting and forgetting after deployment."

Mitsuhiro Mabuchi, Ph.D
Group Manager, Cloud CoE Grp., DS System Development Dept., Advanced Data Science Management Div., Advanced R&D and Engineering Co., (Concurrently Lead of the CCoE Virtual Team at the Direct Reporting Digital Transformation Promotion Dept.), Toyota Motor Corporation

Learn more about New Relic for industrials, materials, and manufacturing and request an in-depth, customized demo to find answers to your tough technical questions and get competitive pricing information.

Request a Demo

About this report

All data in this report are derived from a survey, which was in the field from March to April 2023 as part of our work in publishing the *2023 Observability Forecast* report. It's the only study of its kind to open-source its raw data. View the *2023 Observability Forecast* survey results.

Industrials/materials/manufacturing respondents comprised 285 of the total respondents surveyed in the *2023 Observability Forecast* report, or 17%.

ETR qualified survey respondents based on relevant expertise. ETR performed a non-probability sampling type called quota sampling to target sample sizes of respondents based on their country of residence and role type in their organizations (in other words, practitioners and ITDMs). Geographic representation quotas targeted 15 key countries.

All dollar amounts in this report are in USD.

Definitions

View the definitions used in this report.

About New Relic

After inventing application performance monitoring (APM), New Relic stands at the forefront of observability with the most advanced platform for eliminating digital interruptions.

Businesses around the world including adidas Runtastic, American Red Cross, Domino's, GoTo Group, Ryanair, Topgolf, and William Hill run on New Relic to create better digital experiences, optimize revenue, and lead innovation.

About ETR

Enterprise Technology Research (ETR) is a technology market research firm that leverages proprietary data from its targeted ITDM community to deliver actionable insights about spending intentions and industry trends. Since 2010, ETR has worked diligently at achieving one goal: eliminating the need for opinions in enterprise research, which are typically formed from incomplete, biased, and statistically insignificant data.

The ETR community of ITDMs is uniquely positioned to provide best-in-class customer/evaluator perspectives. Its proprietary data and insights from this community empower institutional investors, technology companies, and ITDMs to navigate the complex enterprise technology landscape amid an expanding marketplace.

Request a Demo