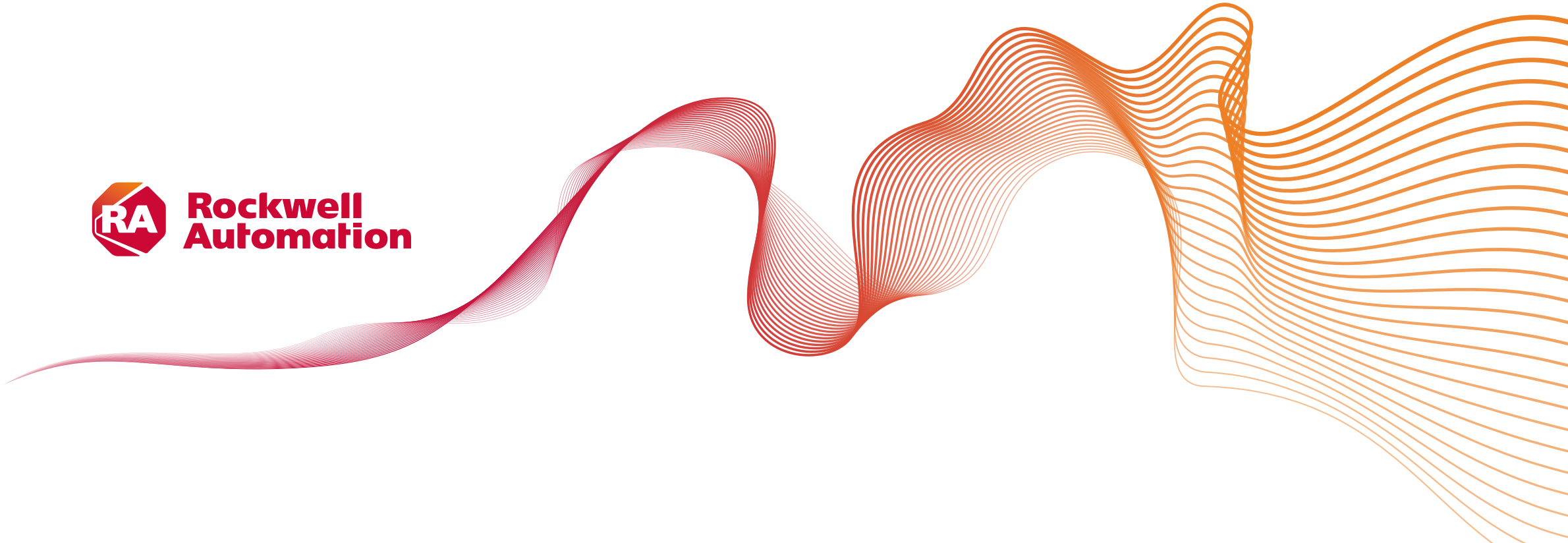


State of Smart Manufacturing Report

11th Annual



Leading in the execution era

Defining the new performance fundamentals

We are pleased to bring you the findings from our 11th annual state of smart manufacturing research. This year's findings show increasing complexity as the market continues to introduce new challenges. From geopolitical tensions to supply chain issues, from skilled worker shortages to rising costs, industrial companies are navigating uncertainty.

What stands out in this year's results is not the pressures we face, but the response. Leaders are no longer treating digital transformation as an initiative, but as the operating system of the modern industrial enterprise. Across eleven years of this report, we've watched transformation evolve from pilots to strategic priority. This year marks a shift from adoption to execution.

We believe intelligent autonomous systems will fuel the future, driving operational improvements and empowering people to pursue greater innovation, while creating more resiliency, agility, and sustainability.

Manufacturers aren't just adopting technology; they are mastering how they execute with it. They are building operations that anticipate conditions, automate decisions, and unlock real-time insight.

**Intelligence, autonomy, resilience,
and adaptability are the new
performance fundamentals.**

They're investing not only in AI and advanced technology, but in the secure, interoperable environments that make intelligence actionable. And, they're elevating teams with tools that amplify judgment and accelerate learning.

The execution era demands more than tools. It demands alignment across systems, teams, and decisions. It will require operations and systems designed to close the gap between data and decisions

to prepare workforces for a new era of partnership between human insight and machine precision.

The data shows that fewer respondents were in pilot mode and more respondents are now actively using smart manufacturing technology at scale. This proves integrated technology, paired with empowered people, isn't just an advantage, it's the defining characteristic of industry leadership. I hope this report inspires you to envision what is possible.



Blake Moret
Chairman and CEO
Rockwell Automation



Table of contents

Introduction	04	The path forward: insight to execution	16
Executive insights	05	Demographics and Firmographics	18
Digital transformation imperative	07		
Defining the next industrial frontier	10		
Capability 1: AI & automation are shaping intelligent operations	11		
Capability 2: Operational intelligence is a new competitive advantage	12		
Capability 3: Cyber risk rises with connectivity	13		
Capability 4: The workforce is being redefined	14		
Capability 5: Competitive differentiation	15		

More than 1,500 leaders in manufacturing worldwide contributed to the 11th year of research for the **State of Smart Manufacturing Report**. This year, 62% of survey respondents were decision-makers, an increase from last year. Their responses reveal an industry operating under sustained pressure, where global risks are accelerating the urgency for transformation. Even among organizations not yet adopting smart manufacturing, 70% plan to invest in the next 12 months, signaling strong forward momentum.

These are just a few of the important insights garnered through feedback from 1,560 decision-makers from 17 of the top manufacturing countries, with more than half (52%) representing companies with over \$1B in revenue.

This global perspective provides a clear view into how manufacturers are navigating today's challenges and preparing for the future of industrial operations. [Learn more about our respondents.](#)

This report from [Rockwell Automation](#), in association with [Sapio Research](#), includes [a plan to start your journey](#) alongside the research findings to help you turn insights into action.

Executive insights

Respondents enter 2026 amid sustained operational pressure. The findings in this report identify the factors most closely associated with improved performance and leadership outcomes.

90% of manufacturers say **they need digital transformation to stay competitive**



Digital transformation is now a baseline requirement

Manufacturers are no longer debating transformation — they are executing it. The pace of industrial technology and rising operational complexity have turned digital transformation into a strategic condition for competitiveness.

34% cite **energy, workforce, and cyber** as top challenges



External pressure has become a multi-front battle

The industry is no longer facing one dominant threat, but a synchronized cluster of cost, labor, cybersecurity, and economic pressures. Leaders are responding by building operations that can absorb multiple disruptions at once.

34% of operations are **AI augmented today** rising to **54%** by 2030



AI has crossed the tipping point from pilot to production

AI and ML now sit at the core of quality, cybersecurity, and optimization. The divide is shifting from who is using AI to who can scale it responsibly and reliably.

48% of manufacturers rank **AI/ML as the top outcome driver**



AI delivers the biggest business outcomes

When leaders assess which smart manufacturing features and capabilities drive the biggest business impact, AI/ML surpass every other capability.

Executive insights

43% of collected **data**
is **used effectively**



**Data remains the
bottleneck blocking scale**

Organizations continue to collect more data, but lack the ability to use it effectively. Until this gap closes, AI and autonomy will underperform their potential.

28% of operating budgets
are dedicated to
industrial technology



**Investment is no longer
exploration – it's execution**

Technology budgets reflect commitment: Organizations are no longer proving feasibility; they are modernizing at scale.

40% of manufacturers
reported their **workforce**
was reskilled last year



**The workforce is
transforming in real-time**

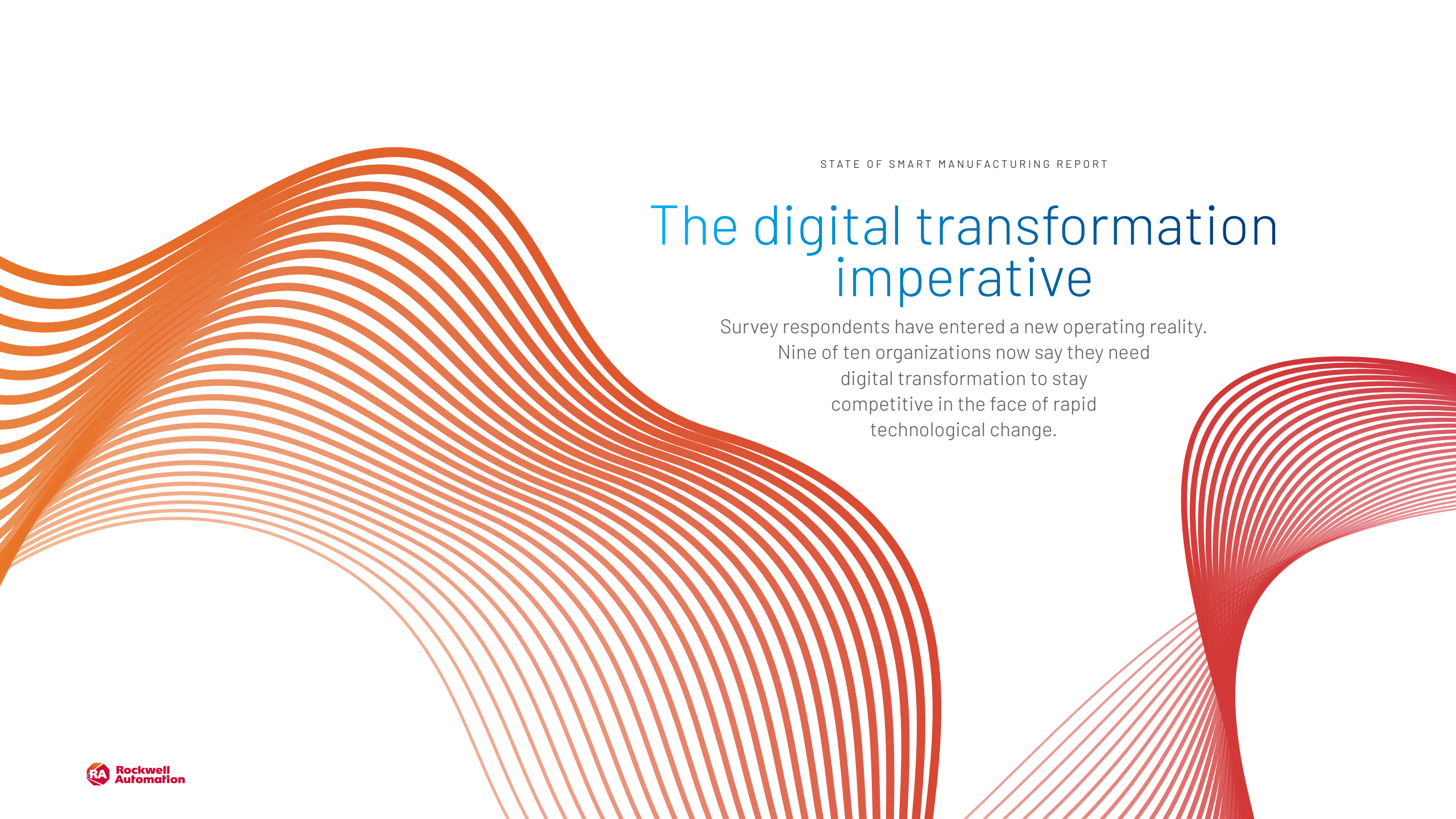
Smart manufacturing is rewriting roles, skill sets, and expectations. Reskilling is essential, not an aspirational initiative.

46% experienced a **cyber**
incident in the past year



**Cyber risk is rising as
operations become
more connected**

As manufacturers adopt more digital and connected technologies, cyber risk continues to increase, particularly at the intersection of IT and OT. Experiencing cyber attacks has become the new normal, with almost half of respondents saying they experienced an incident in the last twelve months.



STATE OF SMART MANUFACTURING REPORT

The digital transformation imperative

Survey respondents have entered a new operating reality.
Nine of ten organizations now say they need
digital transformation to stay
competitive in the face of rapid
technological change.

The digital transformation imperative

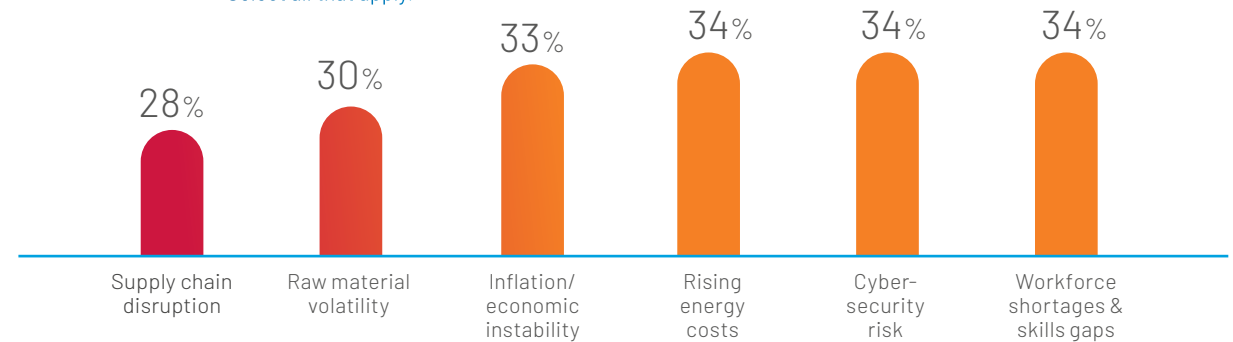
Manufacturers are operating in an environment where rising costs, labor constraints, market volatility, and supply chain fragility make transformation unavoidable. For the second year in a row, nearly a third of operating budgets remain dedicated to adopting industrial technology.

The data shows why:

- Respondents report operating under sustained volatility driven by cost, labor, cybersecurity, and supply chain pressures
- Industrial and connected technologies have become core investments toward continuous, execution-focused transformation
- Smart manufacturing is moving from pilots to production; this year, only 18% of respondents reported they were in the pilot phase with smart manufacturing technologies while 59% reported these tools are used actively to support operations

Manufacturers are targeting digital transformation efforts at measurable outcomes: Improving quality, reducing cost, reducing risk, and increasing OEE.

What do you see as the biggest external obstacle(s) to your organization's growth over the next 12 months?
Select all that apply.



HEAVEN HILL
DISTILLERY

In Practice

Translating strategy into operational outcomes

Heaven Hill's experience shows how a unified control strategy becomes the backbone for scalable digital maturity. [Read the full case study](#)

Quality, cost, and risk reduction remain core drivers

Across industries and regions, respondents report a consistent set of objectives driving digital transformation. Year over year, the primary outcomes organizations seek remain focused on improving quality, reducing cost, and reducing exposure to operational risk. These priorities persist regardless of industry segment, geography, or organizational maturity, indicating that the underlying reasons for transformation have remained stable.

Top outcomes targeted by transformation efforts:

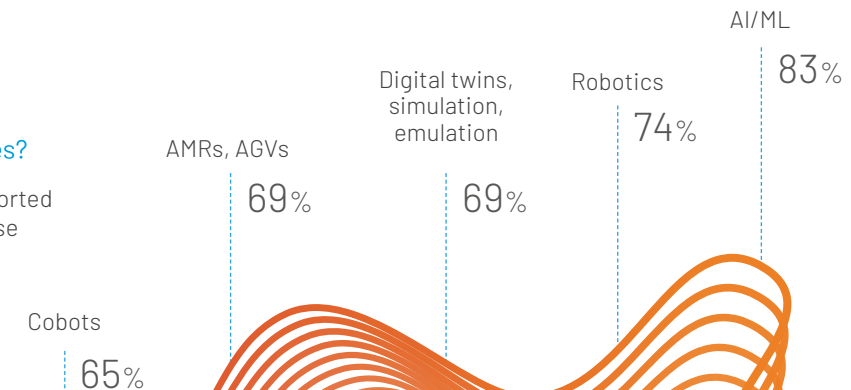
- Improve quality, 46%
- Reduce cost, 40%
- Reduce risk, 36%

To achieve these outcomes, respondents are prioritizing investments that increase flexibility, intelligence, and resilience across operations.

Survey results show strong intent to expanding automation, autonomous material movement, simulation, and AI-driven capabilities, signaling a shift toward technologies that can scale decision-making, adapt to variability, and reduce operational exposure. Rather than targeting single use cases, organizations are investing across complementary technologies to support end-to-end execution.

What is your organization's current status regarding investment in the following industrial technologies?

Percentages reflect those who reported they have already invested and those who plan to invest in the next year.





STATE OF SMART MANUFACTURING REPORT

Defining the next industrial frontier

A new operating model is taking shape across industrial operations, built on intelligence, adaptability, and secure, connected systems. These next 5 capabilities are the core enablers that will transform digital investment into autonomy, resilience, and sustained performance in the execution era.

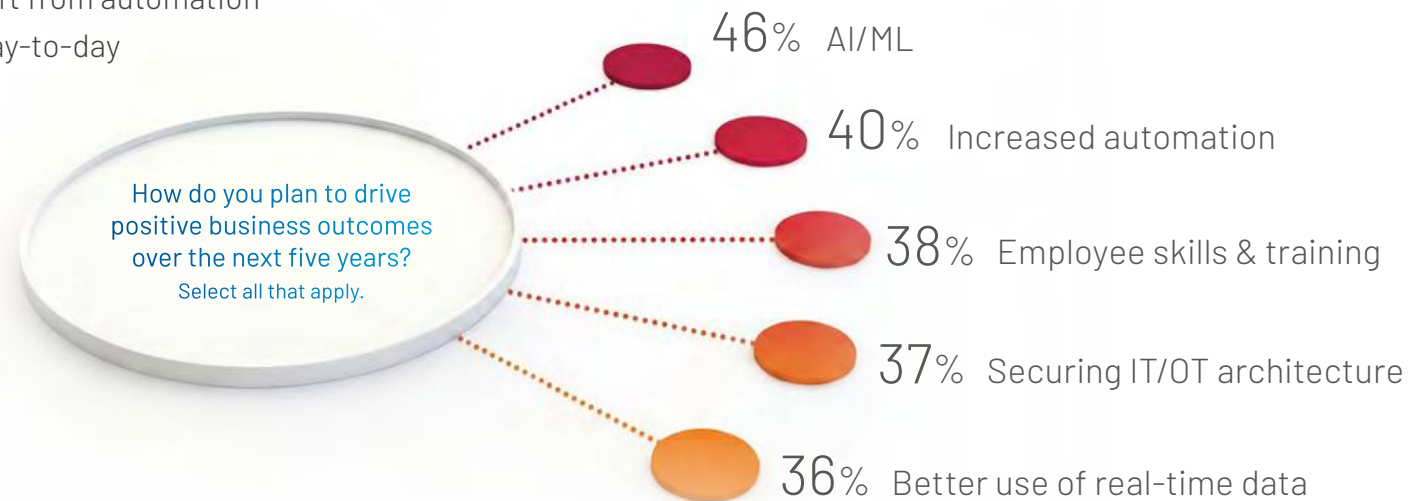
Capability 1: AI & automation are shaping intelligent operations

From automation to self-optimizing systems

Artificial intelligence is rapidly advancing operational intelligence

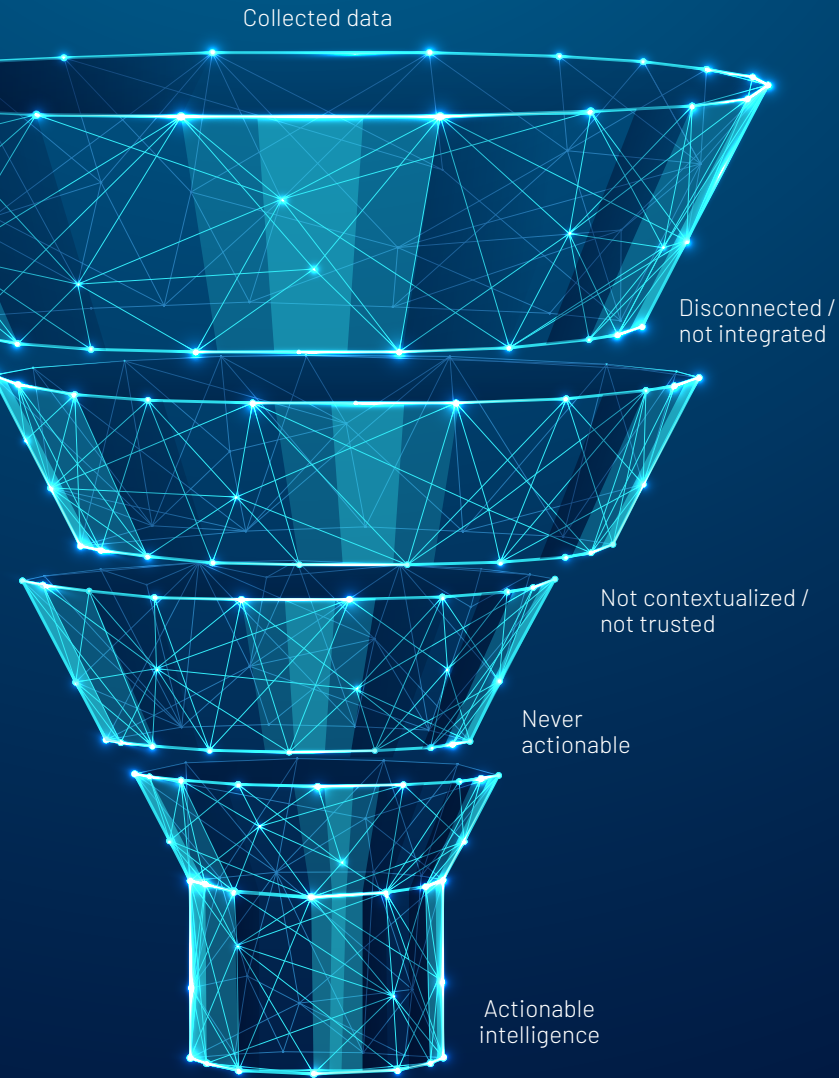
across manufacturing environments. Respondents report widespread plans to use AI and machine learning to support core functions such as quality, cybersecurity, and process optimization – signaling a shift from automation as a fixed capability toward intelligence that augments day-to-day operations and enables more adaptive, self-directing systems over time.

The shift is measurable: One-third of operations today are AI augmented, and respondents report they expect this number to surpass 50% in the next four years.



“By 2027, 50% of business decisions will be augmented or automated by AI agents for decision intelligence. By 2027, organizations that emphasize AI literacy for executives will achieve 20% higher financial performance compared with those that do not.”

Gartner® Press Release, [Gartner Announces the Top Data & Analytics Predictions](#), June 17, 2025
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Capability 2: Operational intelligence is a competitive advantage

Turning data into coordinated action

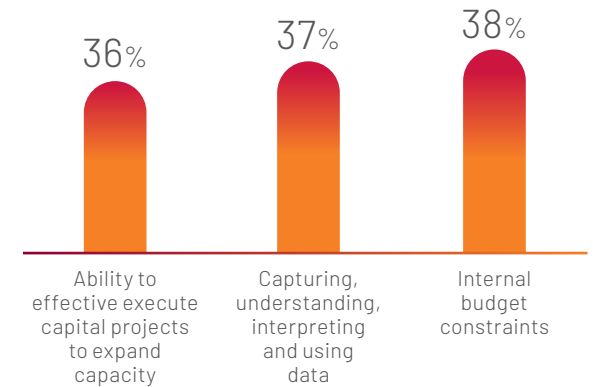
Survey respondents have more data than ever but
only a fraction becomes usable intelligence.

In fact, 43% of collected data is used effectively. The real competitive divide isn't data collection; it's the ability to connect, contextualize, and act on data across systems.

Operational Intelligence is the architecture layer that makes AI, autonomy, resilience, and workforce enablement possible.

The issue isn't data availability, its operationalizing data consistently and at scale. When data flows reliably across operations, decisions accelerate, performance improves and competitive advantage follows.

What do you see as the biggest internal obstacle(s) to your organization's growth over the next 12 months?



Capability 3: Cyber risk rises with connectivity

Securing systems as operations become more connected

Survey results show as manufacturing operations become more digital and integrated, cyber exposure is increasing across IT systems, enterprise networks, and IT/OT integration points, the areas respondents most often identify as vulnerable. These environments are where data, control, and intelligence converge as organizations scale autonomy and advanced digital capabilities.

Cyber incidents remain the clearest signal that resilience must be designed for scale, not just response. 46% of survey respondents report experiencing a cyber incident in the past year, reinforcing that security is no longer episodic, it is an operational requirement as systems become more digitized, autonomous, and AI-supported.

Resilience depends on visibility, secure and trusted architecture, and the ability to recover quickly when disruption occurs. As manufacturers scale AI, closed-loop control, advanced analytics, and autonomous workflows, one principle becomes clear: Security is the prerequisite for autonomy. Without a secure, integrated foundation across IT and OT environments, advanced capabilities cannot scale safely, and autonomous systems cannot operate with confidence.

“Average annual global risk from OT cyber incidents is \$12.7 billion.”

Dragos & Marsh McLennan
[The 2025 OT Security Financial Risk Report](#)

Where do you believe your organization is most vulnerable to a cyber incident today?

IT systems/enterprise networks

Integration points between IT / OT

Remote access & connected equipment

Workforce awareness training

No.2

Integration points between IT and OT are the most vulnerable to cyber incidents, just behind IT systems/enterprise networks



In Practice

Translating cybersecurity strategy into operational resilience

Church & Dwight's experience illustrates how a unified, risk based approach can strengthen visibility, governance, and resilience across the enterprise.

[Read the full case study](#)

Capability 4: The workforce is being redefined

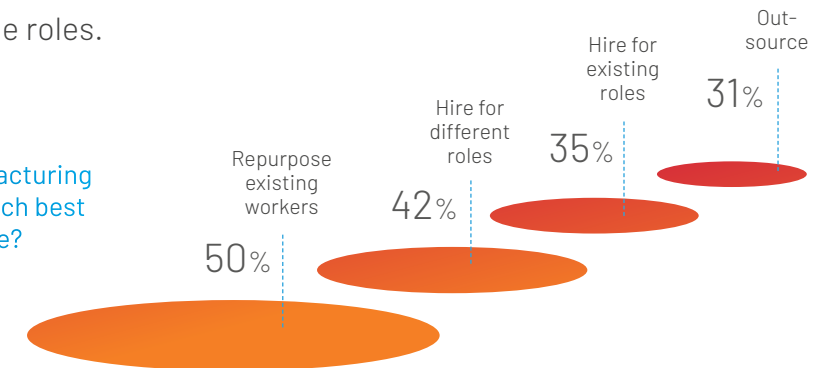
Equipping people for a more adaptive, intelligent future

Manufacturers are actively reshaping roles, reskilling talent and using AI to augment, not replace, their people.

Transformation is already underway with 93% of respondents expecting to reshape their workforce as smart manufacturing advances. This is not incremental change, it's a structural move toward more dynamic, adaptable roles.

Reskilling is now a core capability. Organizations are investing in people to keep pace with technology. Technology drives efficiency, but people drive outcomes. The organizations that succeed will be those that invest as much in workforce transformation as they do in digital capabilities.

By increasing your use of smart manufacturing technology in the next 12 months, which best describes changes to your workforce?
Select all that apply.



The question is not whether AI replaces people, it is whether manufacturers use AI to redesign work, scale knowledge, and improve decisions."

Allison Kuhn
Executive Advisor at LNS Research

Roles are changing — and so are the skills that define them.

Work is being redefined as intelligent systems become part of daily operations. While technical and analytical skills remain foundational, communication and collaboration are rising in importance. This shift is already underway: 40% of organizations reskilled their workforce in the past year.

Capability 5: Competitive differentiation

Capabilities that distinguish higher-performing organizations

Performance is no longer determined by who has technology — nearly everybody does. Respondents report a number of factors are all necessary in conjunction to achieve a competitive advantage. Technology, a skilled workforce, innovation, speed, and product quality were reported as top challenges to outpacing competition in the next year — underlining the importance of alignment across strategy, people, and platforms.

In every region, respondents reported adopting and using **AI as their number one strategy to manage external obstacles** to success. Beyond that, the regions have different priorities that reflect distinct regional pressures.

Across the globe,
adopting/using **AI**
ranked **No. 1** for
mitigating external risks

How is your organization
mitigating external risks?
Select all that apply.

North America

- hiring new or different types of talent or up-skilling existing talent
- consulting with experts on regulatory/compliance issues

Latin America

- evaluating critical suppliers

Europe, Middle East and Africa

- increasing Research & Development innovation
- managing cyber-security risks with security controls & counter measures

Asia Pacific

- digitizing business through technology adoption & automation

STATE OF SMART MANUFACTURING REPORT

The path forward: insight to execution

Insight creates opportunity, but execution creates results.
This section outlines a practical path to turn intelligence
into sustained operational performance.

8 steps to drive value and achieve success

1 Prove value vs. technology

Technology works. Find and prioritize specific digital use cases that solve manufacturing and operational issues.

3 Plan for scalability

To deliver desired outcomes at scale, plan for the optimal set of technologies with integration to the existing backbone. Focus on common work processes across the enterprise.

5 Learn, iterate and improve

Long-term planning helps, but inflexibility can mean missed opportunities. Keep an eye on your digital vision while learning and adjusting your strategy and execution to build on proven value as it emerges.

7 Define and apply governance

Protect sustained value. Embrace new ways of working, including adherence to process and data standards.

2 Investments with a short-term payback

Transformations stall when ROI is slow. Build rapid, steady flow of value to drive adoption and self-funding.

4 Foster enterprise collaboration

Siloed solutions are a dead end. Enterprise (OT/IT) digital connectivity and collaboration unlock exponential value.

6 Communicate progress and success

Momentum matters. Spread the word beyond the impacted group to build and maintain excitement for what's possible.

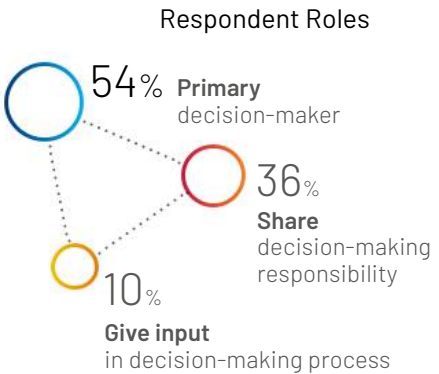
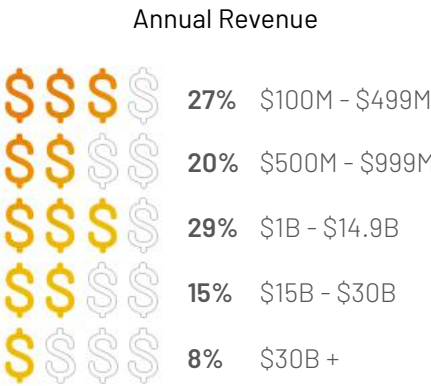
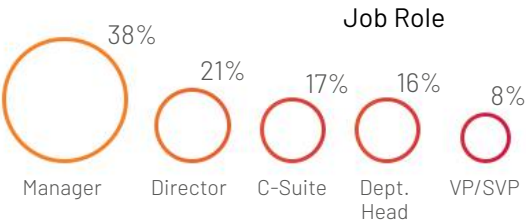
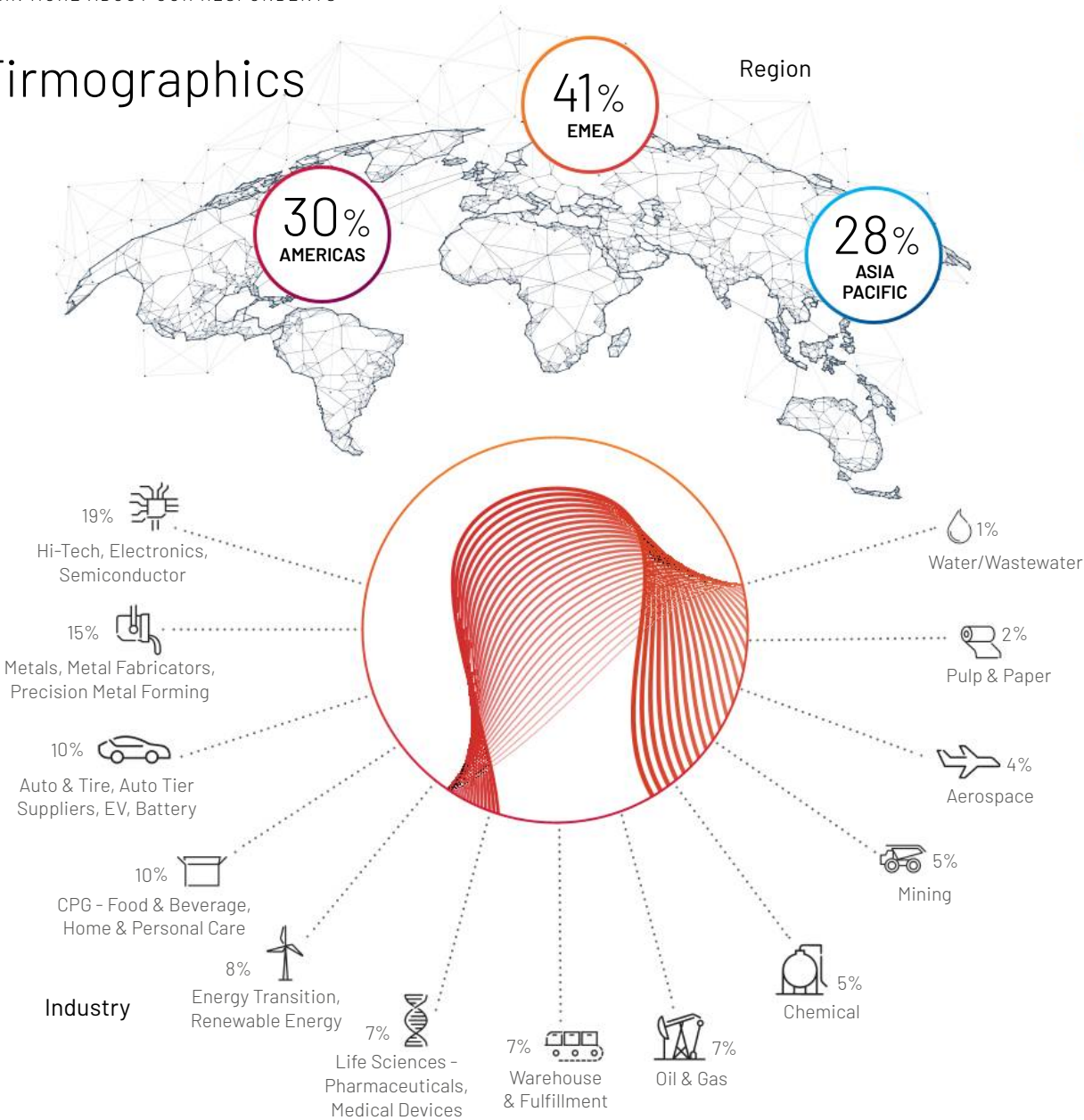
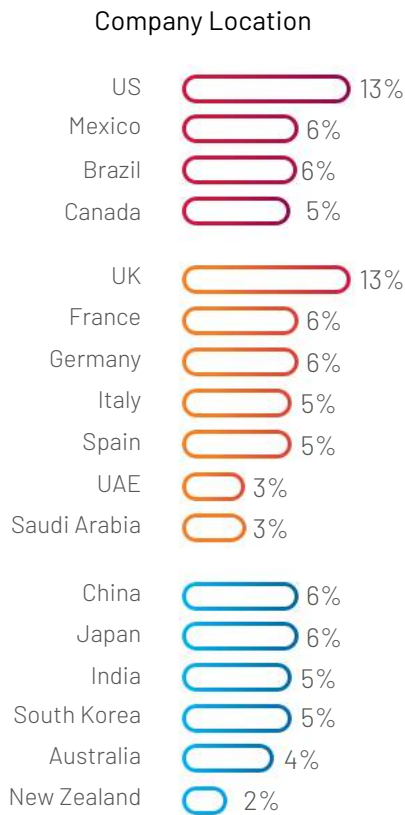
8 Equip and champion people

To get ROI from digital, empower people beyond introduction of new technology. Skills and mindsets that support new ways of working are key to success and driving self-service.

STATE OF SMART MANUFACTURING REPORT

Learn more about our respondents

Demographics and Firmographics



Turn insight into execution
Join us for expert analysis for this year's results.

Connect with us.    

rockwellautomation.com

expanding **human possibility**

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