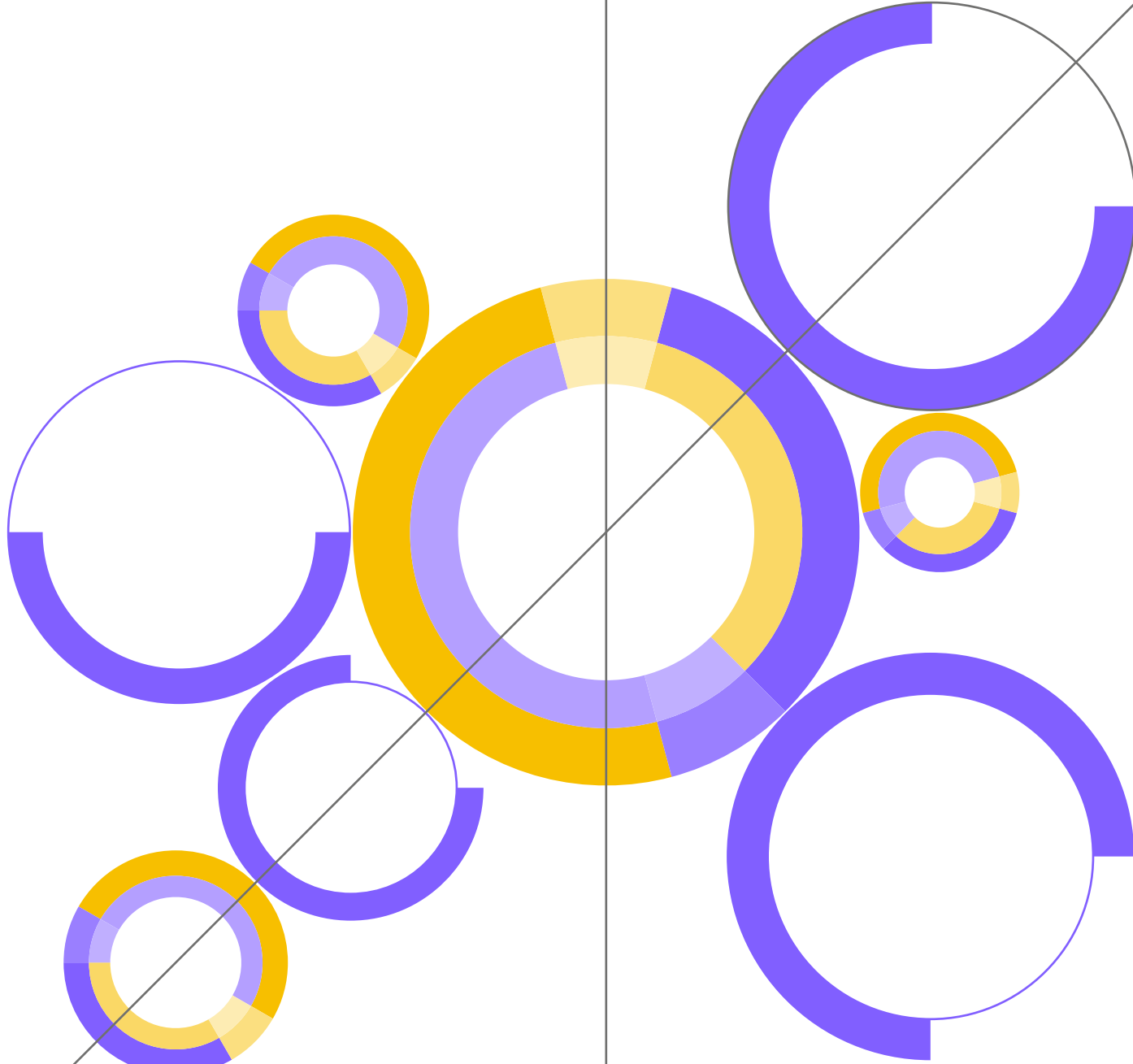# RICOH

Accelerating the Power of Information_ 2025

**Industry report
on technology's impact on
transportation manufacturing**

Preface

In this still recovering global economy, transportation manufacturers face unprecedented headwinds including material and energy costs, supply chain uncertainty and global competition. The tallest hurdle is the talent shortage. In fact, 35% of industry leaders rank finding qualified talent as a top challenge, equal to acquiring new clients.[1]

Despite peak levels of hiring, job openings remain at record highs due to the sheer demand of product. The National Association of Manufacturers reports that 60% of companies are reacting by expanding internal training programs.[2] But the truth is that this alone is insufficient.

At Ricoh, we have been guiding companies through transformation for decades. And while 90% of manufacturers agree that technology is key to improving operations[3], we see that companies that embrace a human-centered approach integrating automation and technology to work with and for workers, rather than replace them, are better positioned for the future.

We bring you our real-world experience, supported by industry research to demonstrate how transportation manufacturers can gain lasting competitive advantage. You'll find all the valuable insights here, in our latest industry report:

Minding the skills gap
How automation answers manufacturing's talent challenge

"The skills gap is as real as it is significant. Fortunately, we see opportunity within reach today. Our industry experts know firsthand how automation can address the skills gaps, revolutionize operations, and drive growth. We believe this isn't about bringing in a single solution or even automating a few processes. Companies must embrace a fundamental shift in how they support their people with tech."

— Carsten Bruhn, CEO, Ricoh North America

2.1MM
UNFILLED
0%
ACTUAL GROWTH
2.5X
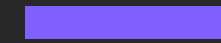TRANSFORMATION GOALS
30%
INCREASE EFFICIENCY
86%
BOOST COMPETITIVENESS

[1] Gartner Digital Markets, *2024 Tech Trends in Manufacturing: Insights to Attract and Retain Software Buyers*, December 2023
[2] EY/Manufacturing Institute, *How Adaptive Skills Can Play a Pivotal Role in Building the Manufacturing Sector of the Future*, 2022
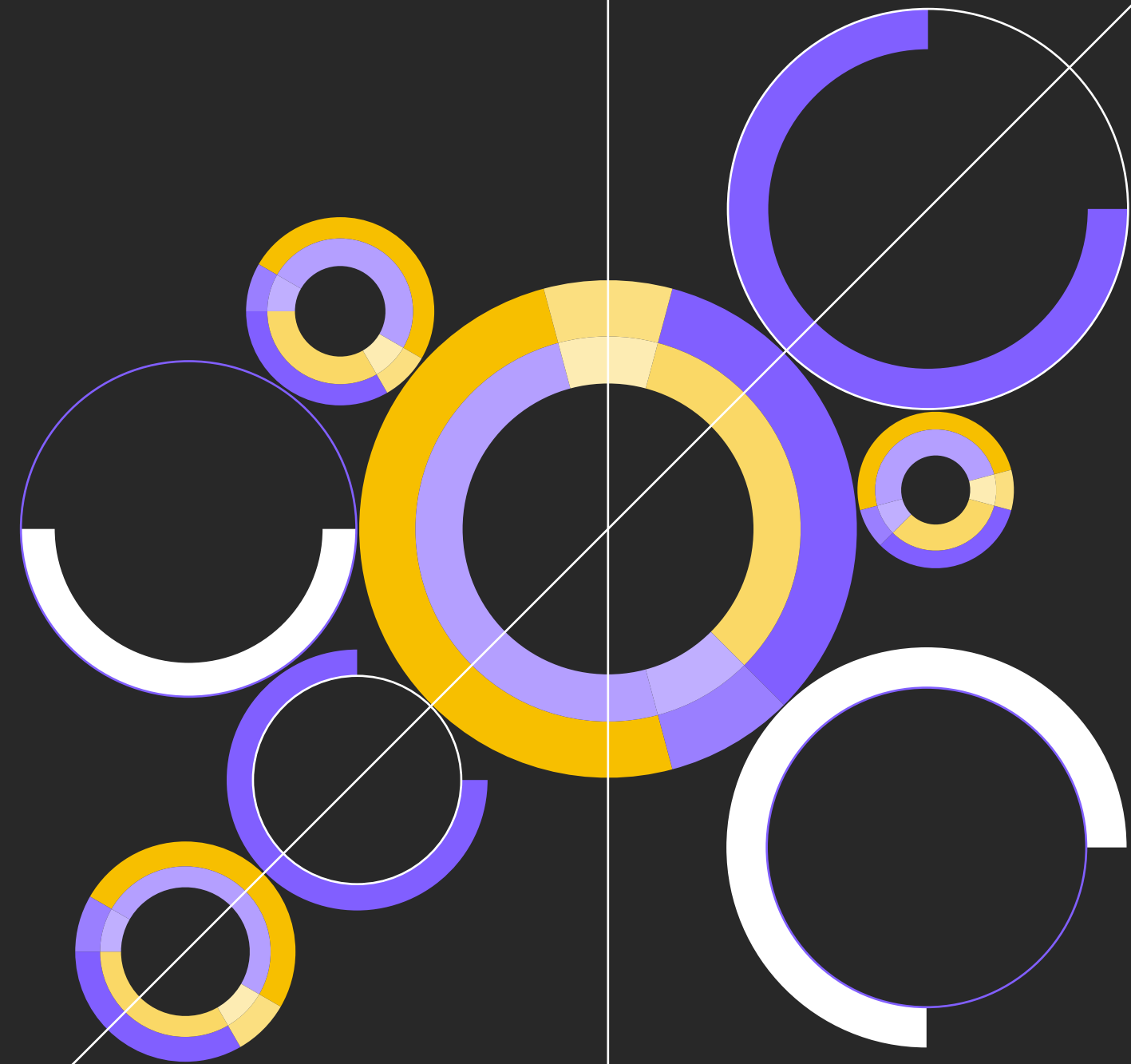[3] IDC, *Future of Work Conversation on Manufacturing in 2024*, January 2024

Minding the skills gap

2,100,000

Unfilled manufacturing jobs by 2030*

* EY/Manufacturing Institute, *How Adaptive Skills Can Play a Pivotal Role in Building the Manufacturing Sector of the Future*, 2022

Defining an industry's skillset gap

1. Limited access to skilled workers

While there is historically low unemployment across the entire job market – 3.7% – the Bureau of Labor Statistics reports an even lower figure in the manufacturing sector at 3.2%.[4]

2. A lack of talent with the needed skill mix

Eighty-two percent of manufacturing leaders say that their organizations need innovative solutions to invest in their workforce's careers.[5]

3. Quickly changing needs

Seventy-four percent of manufacturing leaders agree that the skills are changing rapidly – and they struggle to stay ahead.[6]

You're likely feeling the pain of the skills gap. And so are your employees, with 52% saying they want to participate in an upskilling program.[7]
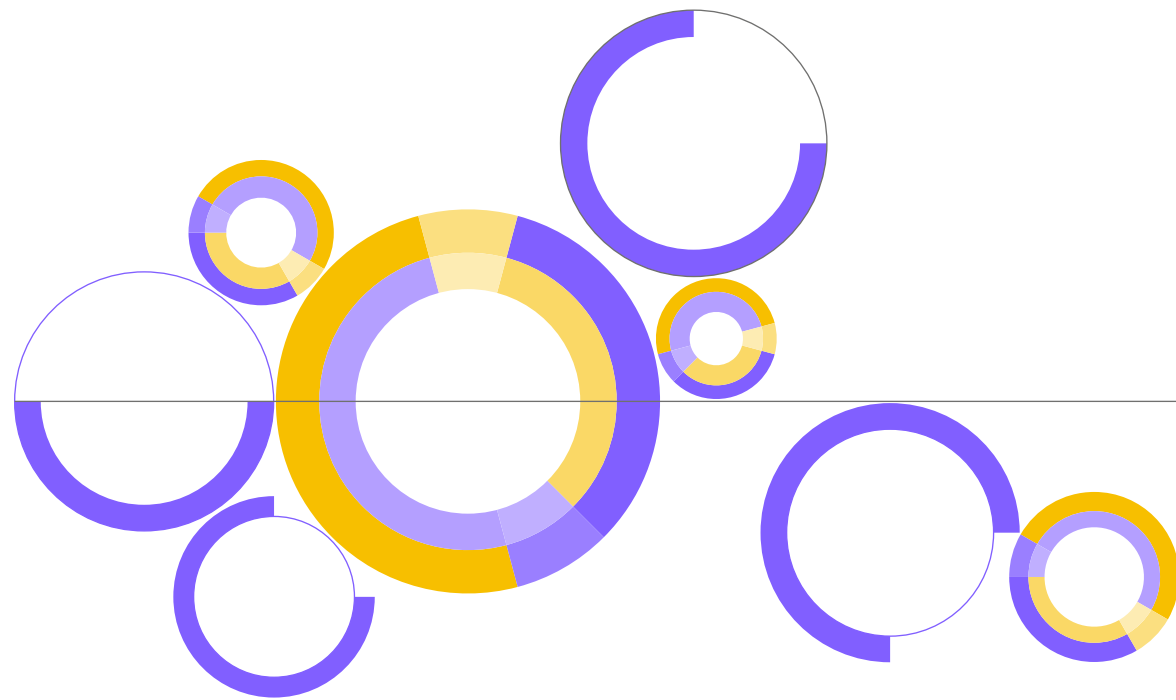
The cost of a slow or half-hearted response

You wouldn't ignore warning indicators on a piece of equipment. Yet, many companies are ignoring warnings about recruitment, retention, and automation adoption. At best, some are reactive. At worst, others are non-responsive. Either way, companies could face workforce liabilities and weakened global competitiveness.

The failure to invest in workforce development exacerbates existing skills gaps. It also weakens retention efforts as workers feel themselves falling behind. In a competitive job market, workers will always choose employers who invest in them and their skills. While each manufacturer should look out for themselves first and foremost, it's important to remember you're part of a manufacturing community. With widespread unfilled positions, there is broad scale reduced production capacity and missed innovation opportunities. This can cause customers or entire industries to seek alternatives from global suppliers.

Proactiveness delivers measurable results

98% Manufacturers who develop workers' digital skills are more likely to retain high performers[8]

2.7X Higher retention with workforce development and skills training[9]

86% Believe automation will have a positive or highly positive impact on cost-per-unit[10]

[4] U.S. Bureau of Labor Statistics, *Transportation Equipment Manufacturing: NAICS 336*, July 2024
[5, 6, 7] EY/Manufacturing Institute, *How Adaptive Skills Can Play a Pivotal Role in Building the Manufacturing Sector of the Future*, 2022
[8, 9] Manufacturing Institute/Deloitte, *Taking charge: Manufacturers Support Growth with Active Workforce Strategies*, 2024
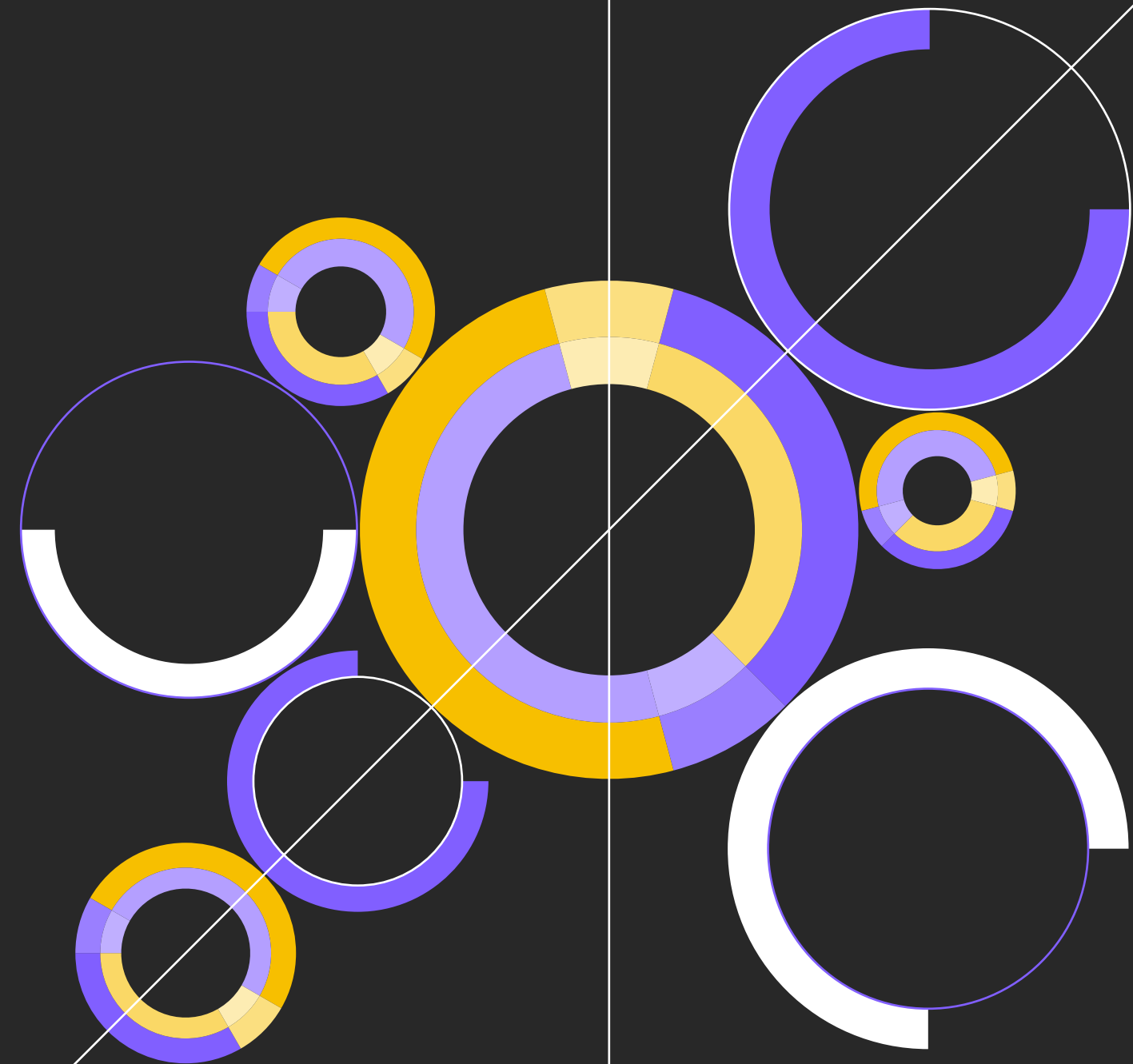[10] McKinsey, *Unlocking the Industrial Potential of Robotics and Automation*, January 6, 2024

Growth is what's missing
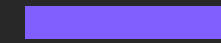
0%

Actual growth in U.S. sectoral output for all workers from 2013-2024.*

Automation on autopilot? Not quite.

To counter the effects of stagnant growth, talent issues, inflationary and competitive pressure, many companies have begun to accelerate digital transformation and embrace automation. But overall, the industry has not made what we consider adequate or significant progress given when we consider that output growth has been pegged at zero percent for nearly a decade. Start with the low hanging fruit, taking an area where many other industries have made great progress – document digitization. In manufacturing, 70% still enter data manually[11] wasting up to three hours per day for 76% of office workers[12]. Overall, we believe you will see the familiar story of tech early adopters versus tech laggards in transportation manufacturing. And there will be no mystery as to who wins this game.

Many dip a toe, few take the plunge

More than half of all U.S. manufacturers have implemented some type of automation or robotics into their process. Integration however, not simply implementation, is the indicator of success. It is also a measure of how committed an organization is to their future. How so? For some, limited adoption is about "checking boxes." For others, it is a sign they lack clarity on strategic direction or the capability to transform solely with in-house resources. A fully integrated digital stack is how to extract value greater than the sum of the parts.

Automation beyond the industrial unit

Transportation manufacturers should look beyond the "obvious" areas such as production lines, quality control, supply chain management, and maintenance. There are also substantial gains in the front and back offices where marketing, finance, procurement, HR, customer experience and sales groups benefit from automated processes. The commonality across these disciplines? Sustainability (human resources and energy resources) and a need for greater productivity, which has fallen for at least four consecutive years according to the US Bureau of Labor.

It's undeniable – there's headroom for growth in manufacturing

62%
Have plans to implement robotics and automation within a year[13]

15%
See automation as a primary objective for data projects[14]

11%
Have completely automated machinery performance and servicing management[15]

[11, 14, 15] Manufacturing Leadership Council, *Data Mastery: A Key to Industrial Competitiveness*, June 2024
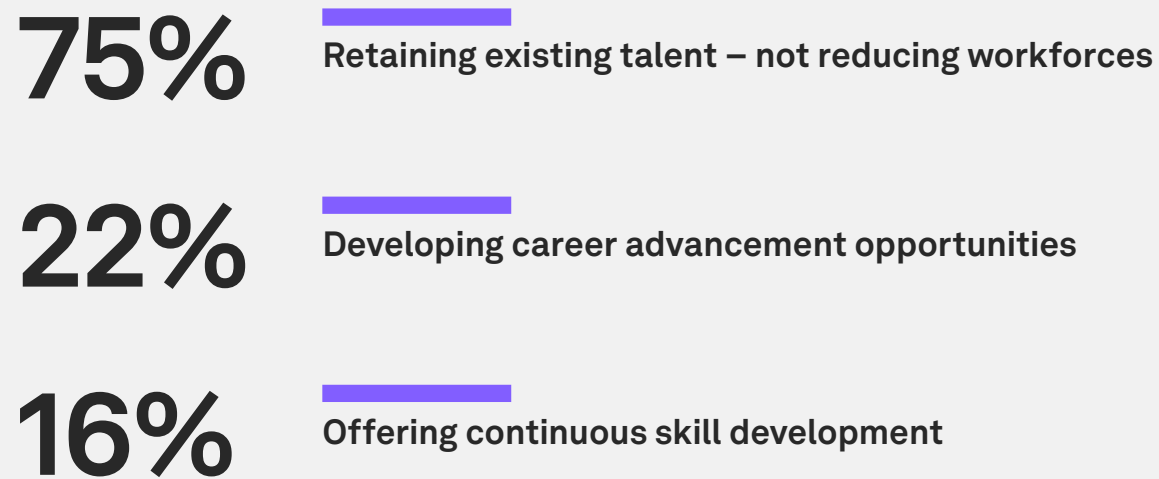[12] Quadient, *AP Automation by the Numbers: 10 statistics to know*, July 5, 2023
[13] Deloitte, *2023 Manufacturing Industry Outlook*, 2022

Does more adoption mean a human-less factory?

Automation is not the "job-killer" many worry about. The undeniable truth is that humans possess critical thinking and problem-solving skills that AI cannot replicate. OK, conversely, does this mean the solution is to clean house and replace existing workers with new digital-savvy employees? No, that isn't optimal either. Why? Because while current workers may not have all the knowledge needed to function with evolving tech and equipment, they have the process knowledge that will ensure digital investments work toward intended goals. Knowledge transfer is already on the back foot due to talent attrition, with more than 36% of the manufacturing workforce quitting in 2023 and taking critical know-how out the door.[16]

Robots aren't replacing all workers and the proof is that many manufacturers' top priorities are still focused on the people[17]

75%
Retaining existing talent – not reducing workforces

22%
Developing career advancement opportunities

16%
Offering continuous skill development

A new way to navigate the skills gap

What's needed is a tiered approach: bring in new workers to teach (and learn from) existing staff, as well as adopt a holistic point of view that enables all workers to "interface" with new technologies and digital solutions. One framework designed to bridge the gap is augmented connected workforces, a strategy where companies meld intelligent technology, workforce analytics and skill augmentation into one cohesive approach, not implementing by piece-meal. A chief benefit is that company leaders demonstrate support to leverage workers' experience while taking their well-being into account. It empowers and motivates people to develop skills, grow into different roles and proactively solve problems. These are the markers of a powerful workforce.

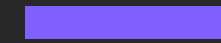## How to launch an augmented connected workforce

Transition all offline processes to digital to eliminate a bifurcated workforce. Take action based on how gaps affect company priorities. Keep the digital experience human-centered – the tech must support people, not the other way around.

[16] McKinsey, *Automation and the Talent Challenge in American Manufacturing*, July 1, 2024
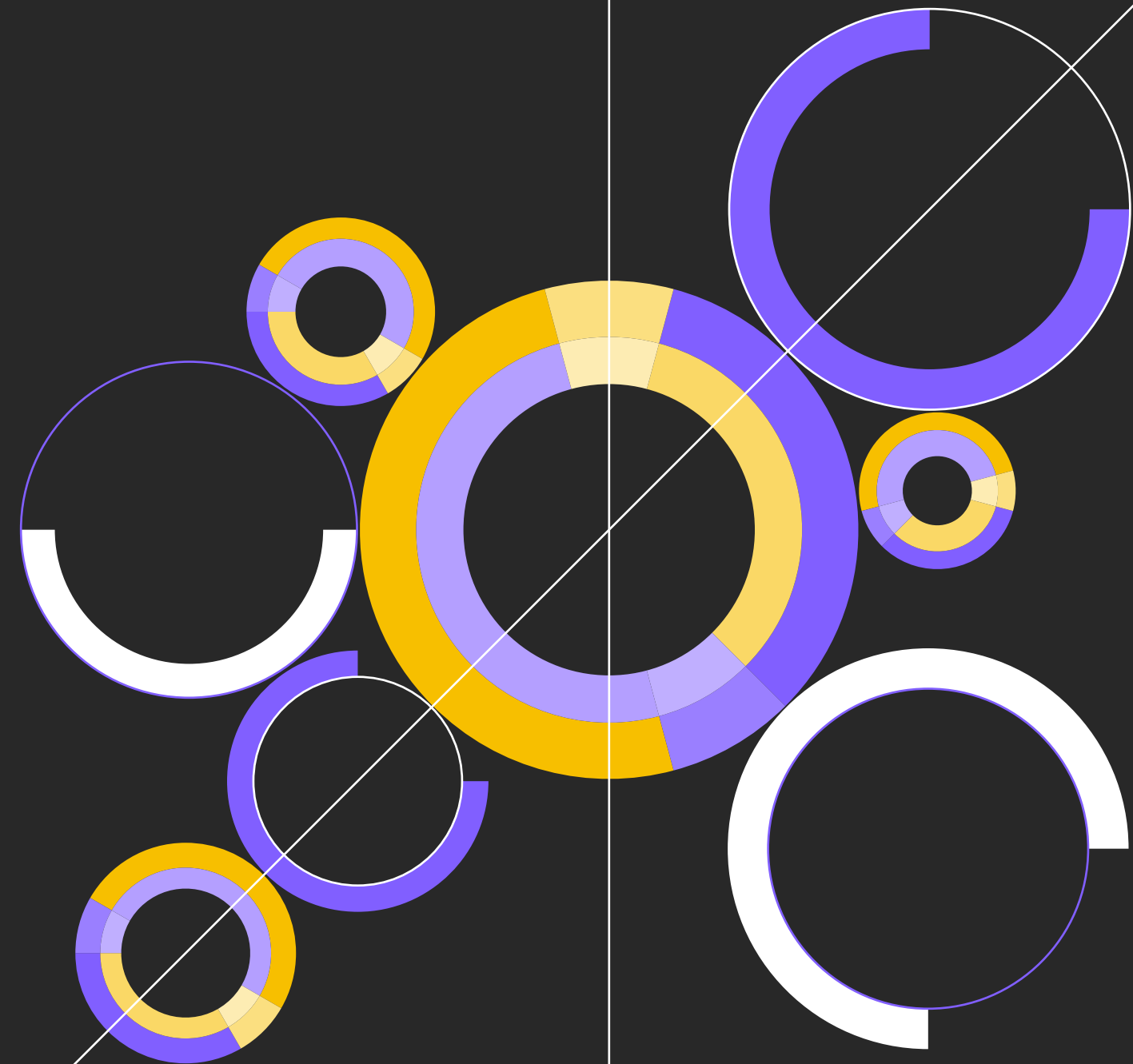[17] Deloitte, *2023 Manufacturing Industry Outlook*, 2022

Humans make automation work

2.5X

Manufacturers are more likely to reach transformation goals when putting humans at the center*

* EY/Manufacturing Institute, *How Adaptive Skills Can Play a Pivotal Role in Building the Manufacturing Sector of the Future*, 2022
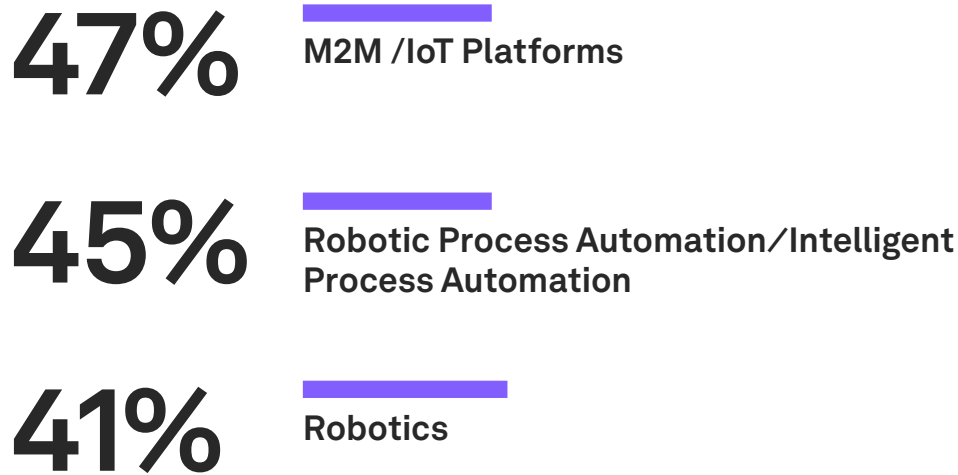
How to address the mission critical challenge

When we ask manufacturing leaders to describe their optimal workforce, the answer always includes this non-negotiable: workers today must be able and willing to take on new capabilities, not once but continually. There is no finish line, it's a continual climb. Because if innovation is the fuel that keeps manufacturing exploring new paths, adaptability is the oil that makes the machine run smoothly. Another requirement – the ability to make decisions more quickly, taking guidance from the explosion of data-driven insights. It's estimated that there will be a 500% increase in data points between now and 2030 that can help improve factory efficiency and productivity.[18] This combination of capability and mindset allows companies to create productive, proactive workplace environments with a positive impact on culture.

Culture matters throughout the organization

To improve operational efficiency, companies must adopt a comprehensive approach to automation that addresses both current challenges and future needs, paying attention to "their humans and their hardware." In fact, 79% of respondents say that both knowledge of smart tech and communication/teamwork are critical skills that are currently missing from their workforce.[19]

Top 3 areas for investment for EOVC manufacturers between 2023 and 2025[20]

47% — **M2M /IoT Platforms**

45% — **Robotic Process Automation/Intelligent Process Automation**
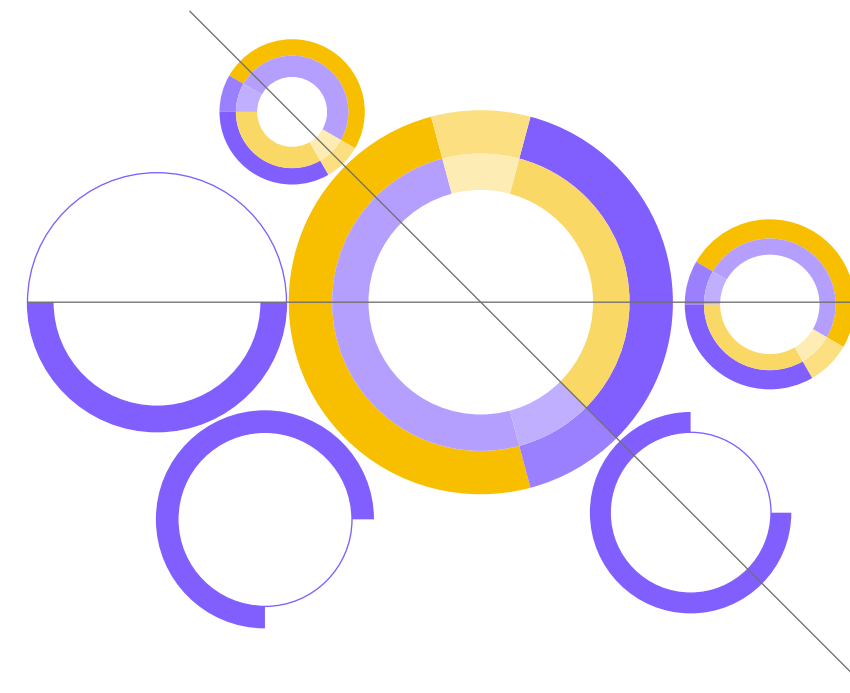
41% — **Robotics**

Automation as a collection of solutions

We see automation as a suite of technologies, including robotics for repetitive tasks, AI for predictive maintenance and IoT for real-time monitoring. Together, these solutions and others can significantly improve efficiency, cost reduction, and overall productivity. It also enhances employee engagement by reducing mundane tasks and allowing them to focus on more high-value activities.

So, who will win?

Companies that recognize that employees are the key and help them adapt by investing in reskilling and technology. And what's the win-win? Increased employee retention, engagement and satisfaction when workers feel that they are not being left behind. But at the moment less than 40% of employees who want adaptive opportunities have access to employer-supported training.[21]

Adaptive skills are professional skills or personal characteristics that allow people to competently enhance their skills to match changing needs. These valuable skills can be created through training and education and can significantly accelerate transformation by tackling the skills gap head on. For the 65% of leaders who agree or strongly agree that the jobs are changing quicker than the skillsets, investing in adaptive skills can hold the promise of competitive advantage for both employers and their employees.[22]

[18] Manufacturing Leadership Council, *Data Mastery: A Key to Industrial Competitiveness*, June 2024
[19] Rockwell Automation, *9th Annual State of Smart Manufacturing Report*, 2024
[20] IDC, *Manufacturing in the Americas Q2 2024 Update*, June 2024
[21, 22] EY/Manufacturing Institute, *How Adaptive Skills Can Play a Pivotal Role in Building the Manufacturing Sector of the Future*, 2022

The blueprint for future success

30%

Projected increase in workers efficiency by 2026 because of automation*
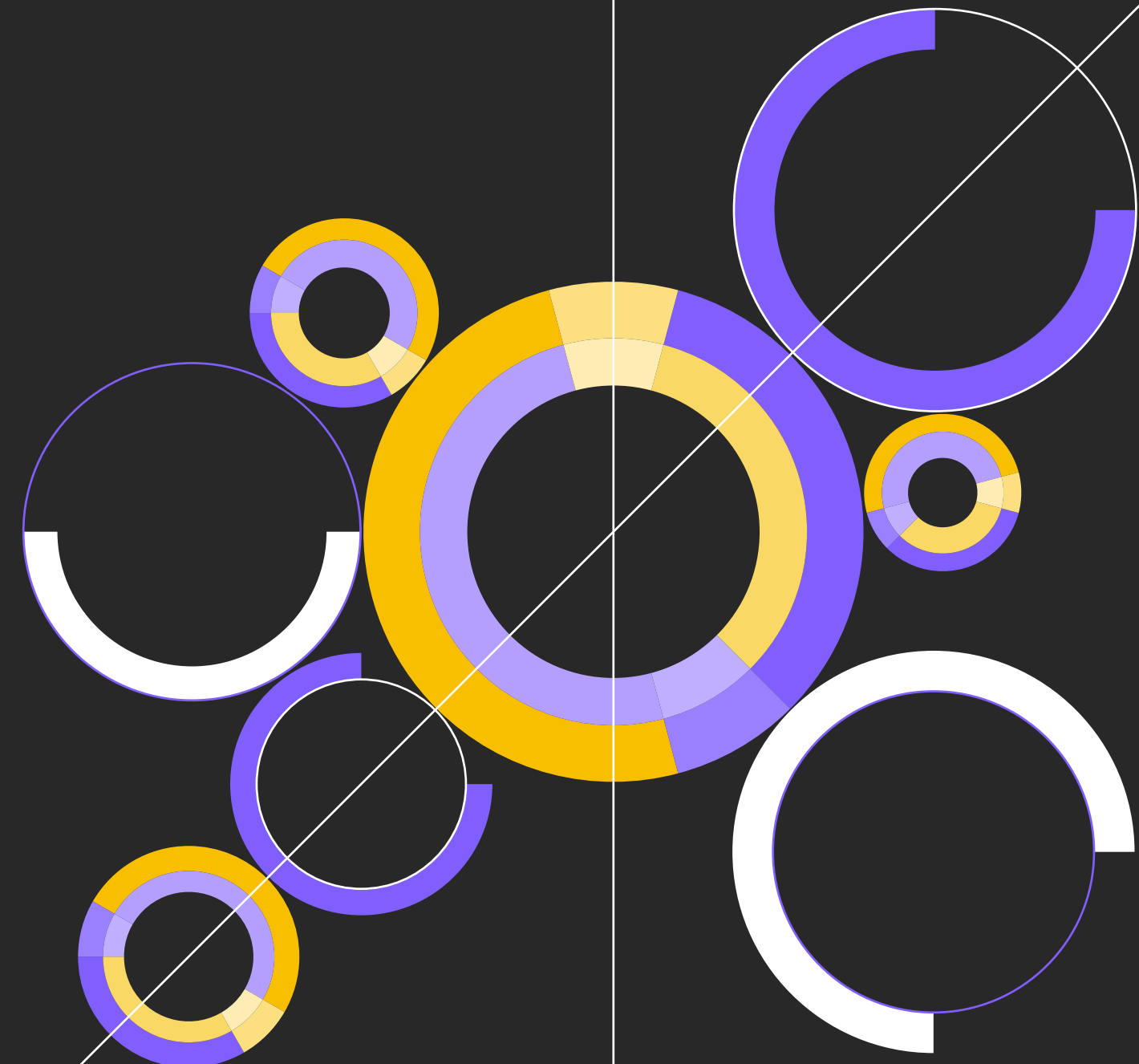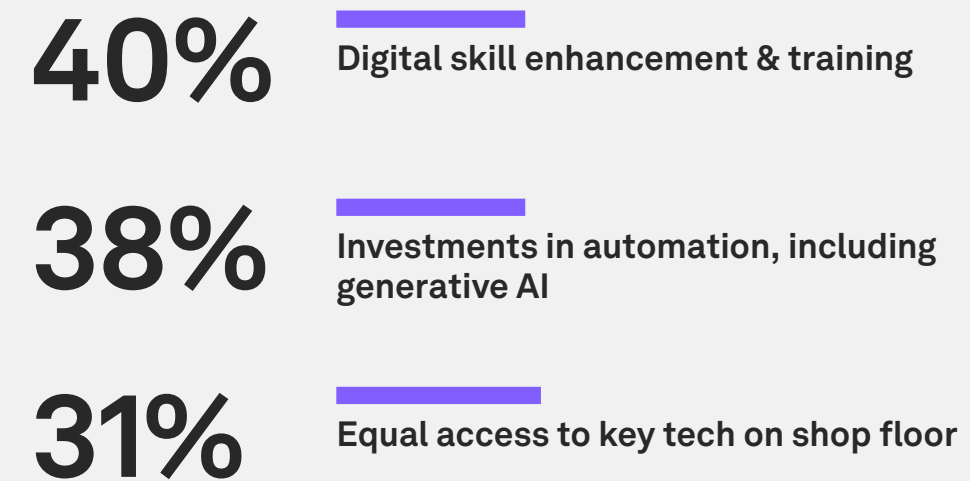
Preparing now for the payoff ahead

Every manufacturer we work with or talk to wants to see enhanced business outcomes immediately. The good news is that there is verifiable proof that automation is currently bringing the results many seek. While improvements are critical to maintain pace today, we believe that the work done now will pay greater dividends down the road as the gap increases between digitally enabled organizations and laggards.

While many manufactures are early in their transformation journey, 32% of them who have successfully adopted automation cite cost savings as a major business outcome, while 31% experience revenue gain. And one quarter see increased profits.[23] These gains are not limited to production areas and can be felt across the organization from front office to back office.

Considering the desire to increase revenue or cost savings as quickly as possible, we see that leaders expect to continue their commitment to tech skill training, investments in automation, and democratizing access to shop floor technology in the near term.

The investments manufacturers say will still matter in 18 months[24]

40% Digital skill enhancement & training

38% Investments in automation, including generative AI

31% Equal access to key tech on shop floor

Ultimately, the best route to automation ROI is seeing transformation as a full-organization endeavor, front and back offices, in addition to the factory floor. In addition to building new skills across the organization, success will come from accepting completely new roles as essential to manufacturing. Overall, there is positive alignment between what we see as the necessary mindset shift and what companies are willing to do.

A key next step for leaders is to create a five year – and beyond – roadmap to begin envisioning automation technology in every function of the business. It's going to take new skillsets, new roles and a re-focus on priorities.
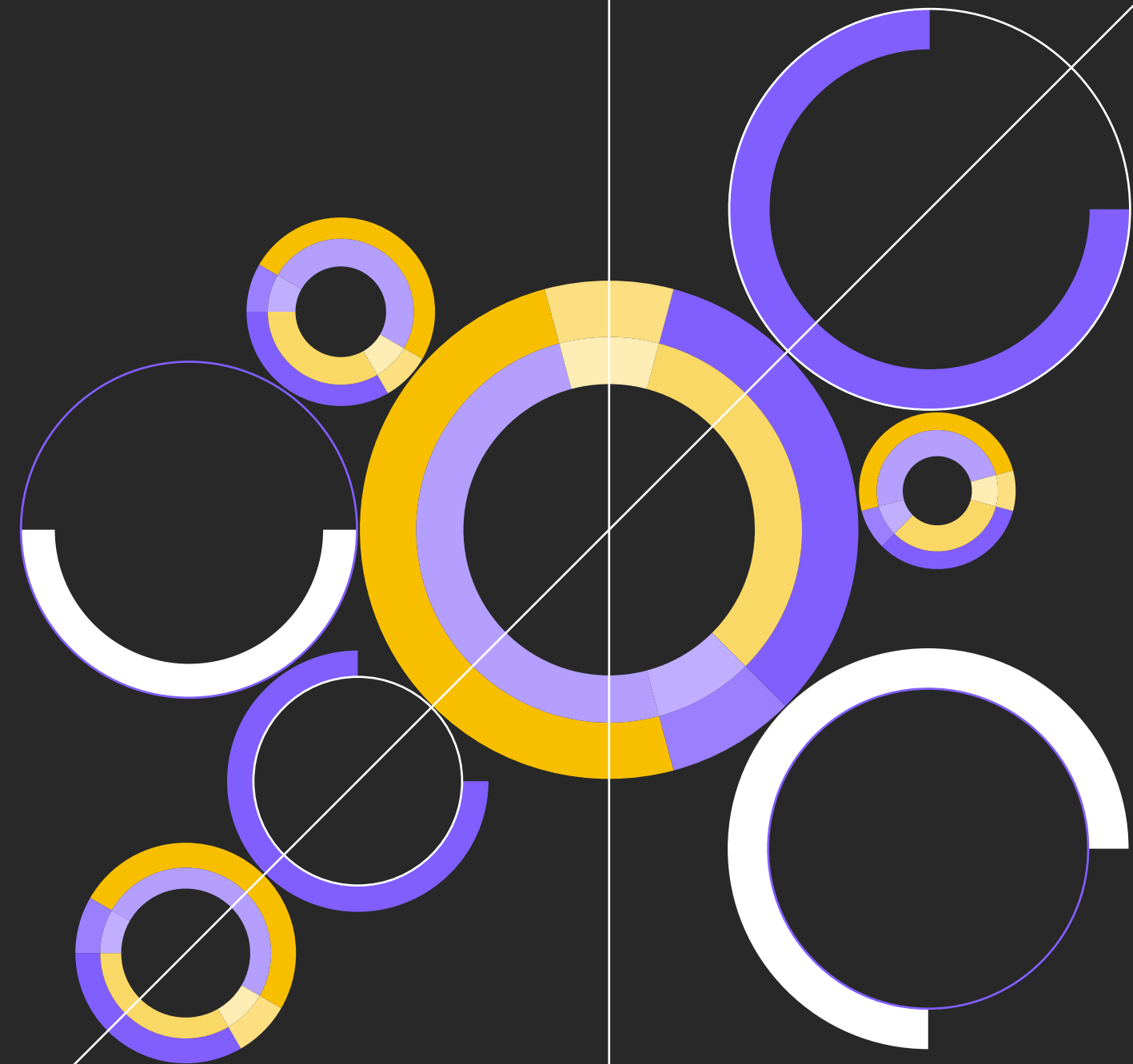
[23,24] IDC, *Future of Work Conversation on Manufacturing in 2024*, January 2024

Data connects workers and automation
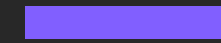
86%

Manufacturers who believe they can boost competitiveness with data*

* Manufacturing Leadership Council, *Data Mastery: A Key to Industrial Competitiveness*, June 2024

The front-office multiplier effect

Your client-facing groups – sales, marketing and customer support – cannot work independently from the rest of your organization. In fact, they exist in service to your production areas. This means that they need more accurate knowledge of what's happening on the factory floor. When data is shared, all groups have the visibility they need to work to the top of their capability. When data and processes are shared, you enable far greater production synergy as well as human synergy, a feeling of being part of one machine.

Currently, many manufacturing organizations are automating administrative tasks, customer service, and data management to streamline operations and improve accuracy. One study shows that front offices have seen a 30% increase in Robotic Process Automation.[25]

Where automation is in motion today up front

Real-time customer response

When product specifications, inventory data and other information flows freely between the factory and front and back offices, sales teams can answer questions more quickly and accurately. This helps customers move quicker and confidently through their buying decisions.

Automated approvals and exception workflows

There may be hundreds of decisions that must be made throughout a work shift, but not all of them must be made by a worker. AI and machine learning powered by the facts of your business operations can free your teams to focus on the important tasks that machines cannot do.

Enhanced sales processes analysis

With richer on-hand information, sales personnel can better adhere to the venerable rules of sales: listen and understand customer challenges, know the product, build relationships, and introduce adjacent or unconsidered needs.

Digital document management

How much of the 70% of data still entered manually is slowing your organization down? How many errors are made? Digital document management transforms information into data that can be collected, analyzed and shared nearly instantly. This enables resiliency, enhanced work-from-anywhere protocols and streamlined compliance.

Automated lead nurturing

Between the "handoff" of a prospect from marketing materials to a sales experience, automation can keep potential clients more engaged, warming up leads before a sales professional swoops in with their personal touch. More and more buyers appreciate this softer sell technique, empowering them to feel in control.

The front office is setting the automation standard

30% — Companies that have met more than half of their front-office automation goals[26]

50% — Organizations with automations in 4 or more departments[27]

226% — Growth in automated customer support & operations processes in 2023[28]

[25] Automation Anywhere, Top 5 Automation Use Cases for the Front Office, August 19, 2022
[26, 28] IDC, The Crucial Role of Automation in the Customer Experience, July 12, 2023
[27] Workato, Work Automation Index 2024, 2023

Transformation from the factory floor up

A long way in the rearview mirror, the pandemic still tells us why smart tech adoption is a priority in manufacturing today: companies that developed greater digital maturity showed greater resilience to the crippling effect of supply chain challenges through better visibility and problem-solving skills. Today, these transportation manufacturers can pivot faster than those with limited digital capabilities. We've all seen how implementing solutions like automation, robotics and IoT devices can enhance production efficiency and reduce downtime, and proactively guard against unforeseen, unpredictable global forces.

The synergistic effect – floor workers plus automation

Automated digital workflow

By capturing necessary data and creating digital workflows, workers on the floor can help reduce their repetitive motions and stay focused on value-added tasks. Without digitization, data remains inaccessible, greatly reducing its transformative power. But by 2026, IDC predicts that half of major companies will empower their operational systems with Generative AI to better collect data, identify opportunities and deliver real-time awareness to operators. This could further improve efficiency by 5%.[29]

Robotics

Robots that can perform repetitive tasks with high precision can eliminate worker strain and burnout, while improving quality and reducing production time. Add IoT sensors to the mix and you have real-time data for predictive maintenance that could reduce line downtime by 25%.[30]

M2M/IoT platforms

Every manufacturing company today has a multitude of machines and platforms handling various tasks. By connecting and nurturing these machines, companies build a more capable, resilient production machine operation. Other benefits include real-time data generation and capture, better forecasting visibility, and predictive maintenance.

Robotic process automation (RPA)

RPA can bring significant cost savings by trimming the need for manual labor, reducing costly errors that inhibit efficiency, reduce waste and smooth out labor shortage gaps.
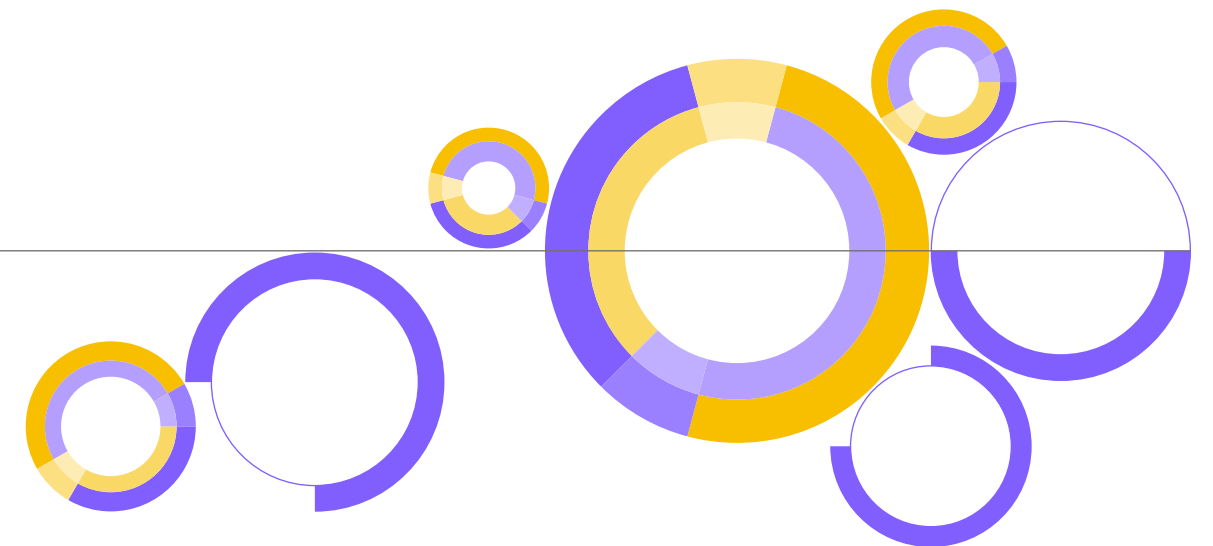
[29, 30] IDC, *Manufacturing in the Americas Q2 2024 Update*, June 2024

Closing the loop – automation in the back office

Data, devices, deployment and delivery – keeping the back office humming

Data analysis

Eighty-six percent of manufactures believe that they can boost their competitiveness through the effective use of data.[31] How? We see success when AI is used to analyze financial data that detects anomalies and generates insights and automates HR systems to manage employee records and payroll.

Device monitoring

By automating data feeds from your devices, you have continual production and maintenance information collection and analysis. When potential issues are detected, workers can be alerted to proactively schedule repairs, maintenance or consumable replacement.

Application deployment

Application deployment is a necessary task, but not always one that needs active human attention. Automation can reduce the time and effort required to configure an application for each department's or user's needs. This can free IT staff to focus on projects or tasks that require their higher-level problem-solving skills

Logistics and inventory management

Automation and robotics can optimize supply chain operations, streamline fulfillment and improve delivery times. For example, robotic picking reduces manual worker process and errors through vision systems and advanced tech like proximity sensors.

Smart lockers

Smart lockers can be paired with other technologies to deliver flexible workspace storage and asset management solutions where companies need an alternative to hand-delivered goods or when they need traceability for those goods.

The back office is seeing rapid and sustained growth with digital solutions

29% — Reduction in cost per invoice when using automation for invoice processing[32]

20-30% — Reduction in fixed costs by simplifying back-office end-to-end processes[33]

5-10% — Increase in customer satisfaction[34]

[31] Manufacturing Leadership Council, *Data Mastery: A Key to Industrial Competitiveness*, June 2024
[32] Stampli, *The High Costs of an Inefficient Back Office*
[33, 34] McKinsey, *Optimizing Front- and Back-Office Services in Advanced Electronics*, August 18, 2022

How process automations pays off: results we're bringing Ricoh customers

Speeding up workflows at Ferrari North America

The Challenge: Ferrari North America needed to optimize purchasing across key business functions. Multiple groups were handling procurement, but lacked a streamlined system for issuing, routing, and approving purchase orders.

The Solution: Ricoh built a custom application that pulls supplier and account data from Ferrari's general ledger to automatically generate and route purchase orders for approval, then saves them to the ledger. Approved requests trigger an email with a unique purchase order number.

"The application gave us absolute accountability for our business groups in terms of what they were requesting and why."

— **Scott Grissom, Chief Financial Officer at Ferrari North America**

The Results: Approvers now use a custom dashboard to manage submissions, eliminating the need to send purchase orders to the CEO or Italy. The streamlined process improves transparency, speeds approvals, and keeps business units moving forward.

Protecting a major aerospace manufacturer's information assets

The Challenge: To safeguard valuable intellectual property, an aerospace manufacturer needed to secure its mailroom. Sensitive information was at risk of falling into foreign competitors' hands, exposing the company to ITAR/EAR fines and reduced competitiveness.

The Solution: Ricoh automated the entire mailroom process to deliver secured mail service that tracks destination, addressees and electronic signatures, with all data stored in a secure database. The addition of analytics software gathers data and identifies trends.

The Results: The manufacturer now has a compliant, state-of-the-art process that matches the rigor of their other manufacturing standards. Not only protecting their IP but saving $25,000 monthly.

$25,000 monthly savings

Keeping a global robotics company focused on growth

The Challenge: A rapidly growing robotics company needed to standardize customer service protocols, reduce costly in-person support, and integrate with their homegrown CRM.

The Solution: Ricoh standardized procedures, provided 24/7 global support, integrated helpdesk services into the CRM, and trained staff.

The Results: A massive reduction in equipment downtime. Level 1 incidents are resolved in under 10 minutes, and level 2 in less than an hour, improving customer experience with a 50% reduction in incidents. The company saved money without needing to build a new CRM, allowing staff to focus on core priorities.

50% reduction in escalation incidents

RICOH

Stronger, smarter, more resilient

For manufacturers, the stakes have increased. There's more to gain, and there's more at risk. The labor shortage is the single most significant risk factor, one that will not work itself out without strategic thinking and proactive application of smart technologies. Automation will be a crucial driver of efficiency, cost savings, and competitiveness. When implemented effectively and holistically with workers in mind, it will help leaders stay ahead of the curve.

We are accelerating the power of information in manufacturing today.

Accelerating systemic change.

Accelerating operational efficiency.

Accelerating human-centered technology.

For manufacturing this means that we are accelerating the...

Power to leverage automation.

Power to optimize organization-wide operations.

Power to create an adaptive workforce.

That's how we accelerate the power of information.

Ricoh, turning information into advantage

At Ricoh, we're revamping how businesses around the world collect, use and share information. To us, there's no such thing as too much information. And there is no such thing as too many ways to unlock its power. Partnering with our clients, we're harnessing the insights within information to help teams work more collaboratively. It's how we're using technology to unleash the full power of people.

Our team of transportation manufacturing experts is ready to help transform your information into greater competitive advantage.