

THE CURRENT STATE OF THE GLOBAL MANUFACTURING WORKFORCE IN 2025 AND BEYOND

Managing an engaged and connected workforce
globally amid evolving workforce demand

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THE CURRENT STATE OF THE GLOBAL MANUFACTURING WORKFORCE IN 2025 & BEYOND

How manufacturers are approaching digital transformation and evolving workforce demands

The late-18th-century Industrial Revolution may have changed the face of manufacturing indefinitely, but centuries later, the Fourth Industrial Revolution, or Industry 4.0, is facilitating an unprecedented industrial reckoning, causing new levels of disruption and uncertainty. Underpinned by digital transformation, Industry 4.0 represents the next chapter in digitalization, characterized by unique defining features such as smart factories and manufacturing processes driven by advanced technologies. The industrial sector will significantly benefit from this transformation, but the current rate of change is threatening the survival of many manufacturers.

Manufacturers are facing a perfect storm of challenges they must overcome to remain competitive, including the decentralization of operations, economic uncertainty, changing worker demographics, an ever-widening skills gap, hanging compliance rules, and supply chain issues. These pressures require manufacturers to rethink their workforce management practices in order to overcome obstacles to digital transformation and achieve business objectives.

So, what does this mean for manufacturing leaders and their workforce? We have conducted a comprehensive global study to find out. The State of the Global Manufacturing Workforce in 2025 and Beyond reveals the major challenges, opportunities, and priorities facing the industry. Drawing on survey data collected from 537 manufacturing decision-makers combined with a series of interviews with industry leaders, we have gained rich insights into the requirements of the workforce and what manufacturers are doing and need to do.

In summary, our 2025 survey found that all manufacturers recognize they must adapt and move quickly to address key challenges, including the labor shortage epidemic, reoccurring supply chain disruptions, and shifting customer demands and workforce expectations—standing still is no longer an option. An overwhelming number of industry leaders surveyed (93%) are making changes, either strategic or reactive, to overcome the challenges they face. They are also adopting innovative strategies and technology solutions to remain competitive and navigate the next industrial revolution, Industry 5.0, which focuses on a more human-centric approach to manufacturing and production.

This represents a dramatic shift in transformation efforts and a strengthened focus on change management as leaders move to close the talent management and skills gap, confront labor shortages, and retain employees. This is where modern workforce management comes into play. It is a discipline focused on optimizing business performance while prioritizing workers and treating them as a critical resource.

Our survey findings reinforce the need to prioritize the workforce, specifically shift and hourly workers, as 62% of survey respondents report that over half of their workforce consists of these employees. Effectively balancing the needs of workers with improving business and worker performance is a major consideration for manufacturers, who need the right tools, technologies, and strategies to effectively manage, engage, and communicate with their dynamic workforce.



TOP 5 WORKFORCE TRENDS FACING THE MANUFACTURING INDUSTRY

Key insights from over 500 manufacturing industry leaders define the outlook for 2025 and beyond

Our comprehensive research uncovered key challenges and opportunities facing manufacturing leaders to help outline steps leaders need to take to drive and sustain improved performance. Here are five trends gleaned from our study:

1 Next-gen workforce: Gen Z and millennials are redefining manufacturing workplaces

The global manufacturing industry faces a severe lack of talent, reaching endemic proportions. This has become even more critical in recent years as Baby Boomers continue to exit the workforce. The younger generation is replacing some of these workers but not at a fast enough rate to offset the enlarging skills gap and rising talent shortage. More workers are required, including Gen Z—a generation immersed in technology almost since birth—to shore up talent shortages. Manufacturers must undergo a makeover to prioritize employee-centric strategies and adopt new technology to attract this generation, which has higher technology expectations.

12% Gen Z only represents 12% of
shift/deskless workers

2 The change fatigue epidemic and prioritizing people

Manufacturing leaders must remain agile in the era of Industry 4.0 to thrive, not just survive. A strategic people-centric approach to change management is essential to address this issue. For successful change management to occur, leaders must create a cohesive strategy that enables buy-in from both top leadership and on-the-ground workers. Additionally, leaders need to identify ways to provide a positive employee experience despite disruptions, along with ample learning and development opportunities. These initiatives work to attract and retain the workforce, especially Gen Z, not only reducing change fatigue but optimizing their digital success.

#1 Investment priority is training and
development in the next 3 years

3 Employee engagement starts with authentic communication

To attract younger generations, prioritizing employee wellness and promoting professional growth are growing trends that manufacturers should embrace. Improving employee experience is a next-generation strategic imperative. It requires businesses to adequately map employee work journeys from recruitment, onboarding, training, development, and reskilling to time and schedule management—all seamlessly connected through efficient, authentic communication. Authenticity is key to employee engagement, with employees craving open-door policies and transparent communication, which supports the gathering of employee feedback and attracting new workers, such as Gen Z, and enhances work environments.

32% Plan to invest in communication
and collaboration tools within
the next 12 months

4

Empowering employees through streamlined time management and scheduling

Manufacturing leaders need a modern workforce management strategy that enables their own success and that of their employees. Within the industrial sector, deskless, on-the-ground workers often feel cut off from other managers and workers, but this does not have to be the case. To improve employee engagement and less time keeping frustration, deskless workers need more control over their own time management and working schedule as they seek a better work and life balance.

76% Will invest in a scheduling solution within the next 3 years

5

Compliance remains a top manufacturing concern

Compliance is crucial in manufacturing. It includes following relevant laws, regulations, and standards to maintain legal standing, prioritize safety and quality, build trust, and protect the organization's reputation. Manufacturers that operate globally must strike a delicate balance between safeguarding consistent governance while enabling local execution. Without the right solution, companies struggle with compliance risks, inconsistent workforce policies, and operational inefficiencies that hinder growth.

88% Have identified the benefits of global standardization that aligns to local compliance



LEVERAGE AUTOMATION & INNOVATION TO ATTRACT TECH-SAVVY GEN Z AND MILLENNIALS

The manufacturing industry is facing a hiring and talent crisis at the same time. The industry needs to contend with experienced workers exiting the workforce and it also must adapt to the changing needs of the younger workers replacing them.

According to the joint report by Deloitte and the Manufacturing Institute, this challenge is here to stay, indicating that up to 3.8 million net new employees are needed in America's manufacturing sector over the next decade, yet 50% of these jobs risk staying unfilled.ⁱ Generational disparity further complicates the situation, presenting challenges that threaten the future success and stability of manufacturing.

According to our research data, the number of Baby Boomers and Gen X workers only comprises 27% of the current manufacturing deskless workforce. In contrast, Millennials make up 49% of this population and Gen Z workers make up a mere 12%.

More Gen Z workers will be needed to shore up talent shortages. To address skill gaps and streamline processes, our respondents indicated that they are implementing automation and innovative workforce strategies. However, only 23% said they have already implemented these changes. Over half (51%) said they have made progress but still face challenges in this area, highlighting that the industry is playing catch up in addressing the systemic talent and skill shortage problem.

McKinsey & Company has asserted that manufacturing needs a "makeover" to attract workers, particularly more of the Gen Z generation, to fill the resourcing gap. This workforce demographic, who has been immersed in technology almost since birth, presents challenges but also great opportunities because they have the potential to drive innovation and technology.ⁱⁱ Yet, the older generations cannot be left behind, as the rise of Industry 4.0 and innovation becomes increasingly critical in the industrial sector.

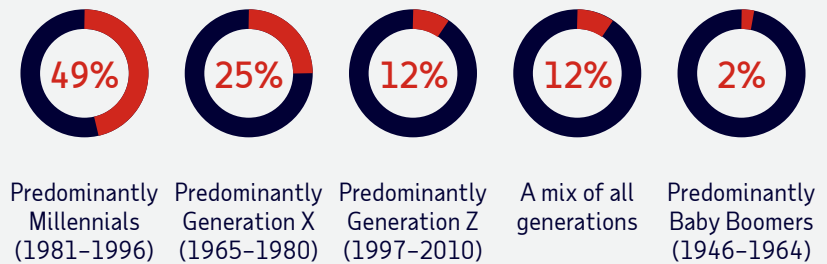


Figure 2: Millennials constitute majority of the shift/hourly paid workforce

"We need to make manufacturing jobs attractive to Gen Z. By achieving social sustainability and limiting negative workplace experiences for workers, we have a greater chance of attaining the right number of workers with the right skills at the right time to support the industry."

—Dr. David Romero, Professor of Advanced Manufacturing, Monterrey University in Mexico and Scientific Vice-Chairman for the World Manufacturing Foundation



Take action

1. **Invest in technology and upskilling** to support both younger and older workers in adapting to innovation and Industry 4.0.
2. **Attract Gen Z talent** by rebranding manufacturing as a modern, socially sustainable career option.
3. **Accelerate automation and workforce strategies** to address skill shortages and meet rising demand.

EXCLUSIVE INTERVIEW

We spoke with Dr. David Romero, a Professor of Advanced Manufacturing at Tecnológico de Monterrey, Mexico, and Scientific Vice-Chairman for the World Manufacturing Foundation. David shares with us his views on the biggest challenges and opportunities for manufacturers when it comes to workforce development, technology adoption, and production innovation.



1 What are the biggest workforce challenges currently facing the manufacturing sector?

The "social sustainability" of manufacturing is a concept I often emphasize. For some regions, like North America, the biggest hurdle starts with skills shortage—not just skill gaps—but the lack of people to be skilled in general, which stems from demographic shifts. We also face skill mismatch challenges; younger generations are drawn towards trendy new fields, leaving roles in traditional manufacturing industries critically understaffed.

Aligning the supply and demand of skilled workers in specific manufacturing industries is increasingly challenging, especially as Generation Z prioritizes work-life balance, sustainability, and making a positive impact on the planet and society. This must be addressed within the manufacturing sector.

2 What are some strategies to address skill gaps and mismatches in manufacturing?

I rely on a framework I call "the CURE" to address these issues. It stands for Cross-skilling, Upskilling, Reskilling, and Expert skilling. This approach allows manufacturing industries to adapt their workforces. For example, cross-skilling lets us transition employees between fields, such as from automotive to aerospace, work mobility and polyvalence. Upskilling helps workers stay current with new methods, tools, and technologies.

3 How are manufacturers adapting to innovation and investing in technology for the workforce?

Manufacturers are starting to use more and more digital and smart technologies to streamline operations and bolster workforce efficiency. For instance, augmented reality, artificial intelligence, and collaborative robotics are advancing across industries, aiding workers with the creation, display, and execution of standardized work instructions for enhancing work efficiency and consistency. These advanced technologies also work to attract Gen Z and a younger demographic.

That said, I see a gap in human resource management. While manufacturers invest heavily in frontline hardware and software innovations for production lines, HR departments are often left without the (people) analytical tools needed to forecast workforce needs or predict skill shortages and gaps. To stay competitive, manufacturing companies must empower their HR departments to think strategically and leverage data-driven insights to create and manage a talent pipeline.

4 How can manufacturers prioritize human expertise alongside technological adoption?

At its core, success lies in empowering people to unlock the full potential of technology. Machines, robots, and artificial intelligence are merely tools; their true value is realized through the creativity, ingenuity, and expertise of those who operate them. When financial resources are limited, prioritizing talent investment over technology is a strategic imperative. While the cost of skilled labor rises over time and technology becomes more affordable, investing in scholarships, advanced degrees, and technical training programs embeds lasting value and supports a future-ready workforce.

ESTABLISH A CHANGE MANAGEMENT STRATEGY TO IMPROVE EMPLOYEE EXPERIENCE

Manufacturing is evolving at an unprecedented pace, driven by digital transformation, the growing talent gap, complex compliance requirements, and global supply chain disruptions – it is increasingly difficult to keep workers engaged and businesses running smoothly.

While legacy systems and processes may function adequately, organizations often have a “if it’s not broken, don’t fix it” mindset, requiring a stronger impetus to change—a movement driven by the younger deskless workforce. As they demand newer consumer-grade technology and cutting-edge solutions to perform tasks more effectively, manufacturers must keep up and transform or risk losing their skilled workers.

To manage change effectively while reducing change fatigue, manufacturers must consider a robust strategy. In a unanimous response, all our survey respondents (100%) acknowledged the need to implement changes to overcome key industry challenges. And over three-quarters (79%) of respondents said that they have a change management strategy in place. It is clear manufacturing leaders are taking action, and they must continue to do so.

Research has found that 81% of boards have not advanced or been successful in their digital business transformation goals.ⁱⁱⁱ A resistance to change can determine whether a business transformation is successful or not, requiring a two-pronged approach to secure buy-in from top leadership and shift workers for successful change management.

After board support is secured, your people must be prioritized.

In a recent interview we held with Dr. David Romero, Professor of Advanced Manufacturing for the Monterrey University in Mexico and the Scientific Vice-Chairman for the World Manufacturing Foundation, he

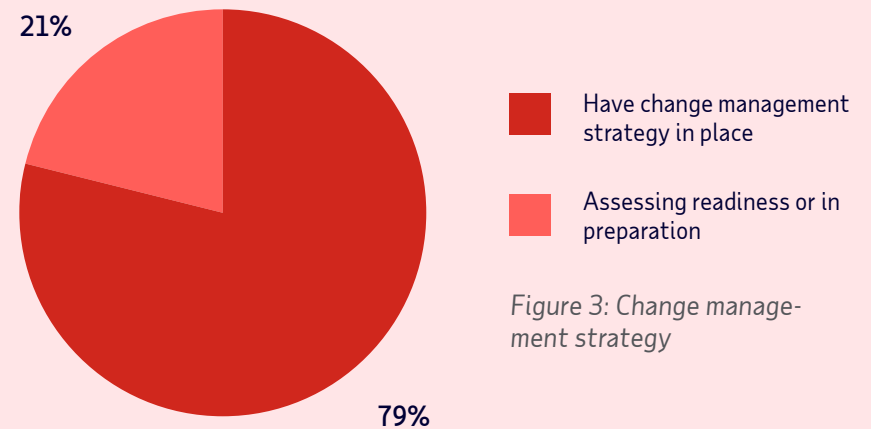


Figure 3: Change management strategy

Top change management priorities/strategies

- 1 Invest in training and development programs
- 2 Communication strategy: stronger internal communication
- 3 Feedback mechanisms using pulse survey, employee engagement surveys, etc

Figure 4: Top 3 change management strategies



said the current skills shortage and an aging manufacturing workforce heighten what has already been a significant challenge in talent acquisition. Qualified talent is scarce and impacts the manufacturer's ability to build robust talent pipelines to recruit skilled workers.

"Manufacturers must shift towards a proactive strategy to help tackle workforce challenges. Assess your position on the domestic market and ask yourself: Is the problem a skills shortage, a skills gap, or a skills mismatch? Each situation requires a tailored response," he said.

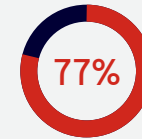
This is further confirmed by our research as the top three change management strategies manufacturing leaders have identified are all centered around improving the employee experience to help close the skills gap.

Change management efforts should be centered on employees to support their success and facilitate talent acquisition, as well as attract the younger generation to help plug the skills gap.

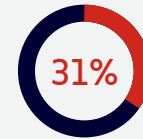
Since training programs rank highly, it is important that deskless workers do not miss out on development opportunities that other workers may receive. To address the skills crisis, 77% of survey respondents indicated they plan to invest in new technology to support new training and development programs within the next three years, with 31% expected to do so within the next 12 months. This is critical in manufacturing, where organizations are striving to address the critical skill gap issue.

Increasingly, the advanced technologies that have enabled efficient, powerful, and sustainable manufacturing processes have also introduced digital solutions that promote greater flexibility, leading to a better employee experience. Companies that invest in modern workforce management technology often experience lower employee turnover rates, translating into significant recruitment, training, and onboarding cost savings. For example, a company with 100,000 employees could save upwards of \$42.4 million annually based on industry averages.^{IV} It is clear that manufacturing leaders understand this as 67% plan on investing in a modern workforce management system in the next 3 years.

Planning to invest in new technology to support new training and development programs



Within the next 3 years



Within the next 12 months

Figure 5: Planning to invest in new technology to support new training and development program

"Effective leadership today revolves around not only championing transformation but addressing change fatigue management. Leaders must acknowledge the anxiety technology can create and actively position it as an enabler rather than a disruptor. Singapore is already setting an example in this regard."

—Ang Wee Seng, Executive Director, Singapore Semiconductor Industry Association



Take action

1. **Invest in training programs and modern technology** to develop skills and improve the employee experience.
2. **Enhance internal communication and feedback mechanisms** to drive engagement and reduce change fatigue.
3. **Foster leadership that champions transformation** and positions technology as an enabler for success.

EXCLUSIVE INTERVIEW

We spoke to a senior leader at INCIT, who emphasizes viewing technology as an enabler rather than a disruptor. By fostering trust and innovation, this perspective empowers workforce development, streamlines AI adoption, and drives sustainability. Learn more about what they had to say about the future of manufacturing and the innovative strategies shaping the industry's evolution.

1 What are some of the biggest opportunities in the sector?

Despite its challenges, the manufacturing sector is ripe with opportunities. AI and big data are game changers. I've seen how predictive analytics and self-healing systems can transform production processes, creating efficiency, and improving decision-making.

AI in manufacturing is still very nascent, but all manufacturing companies must act. Unfortunately, there is no short-term fix to realize AI maturity; it's a journey that requires deep understanding rather than simply focusing on its implementation or discussing its potential. Innovation, like machine learning, automation, and cutting-edge platforms and solutions can not only ensure compliance but improve employee experience. These emerging technologies and AI just need to be wielded successfully and effectively.

2 Are manufacturers adapting to innovation fast enough?

Frankly, the pace of adaptation is uneven. Some organizations have embraced innovation and are reaping the rewards, but many others are still lagging. One of the main issues is that businesses often chase trends rather than focusing on where technology could provide the most value. I advocate for clear, tailored strategies that align with an organization's needs.

For example, when INCIT developed a framework to measure AI maturity in manufacturing, it took us months to get it right. This

framework isn't just a static assessment; it's a roadmap that helps businesses prioritize where to invest. I believe more companies could benefit from this kind of long-term, focused planning instead of rushing after quick wins.

3 How can manufacturers leverage technology while prioritizing human skills?

I feel strongly about this—I often say that technology should complement human expertise, not replace it. These advanced tools, especially AI, act as co-pilots; they accelerate capabilities and improve our processes, but they can never replicate the depth of knowledge and experience that humans bring. There needs to be a collaboration between both and together, humans and AI can accomplish remarkable things that they cannot when isolated.

For instance, capturing the insights of seasoned professionals and integrating those into AI systems can create a powerful synergy. By doing this, organizations ensure that the best of human expertise and technological efficiency combine to drive innovation.

I also believe in embedding learning ecosystems into everyday operations. When employees have access to continuous learning opportunities, they are better prepared for digital transformation. Programs like career conversion initiatives and job redesign provide excellent platforms for equipping talent to thrive in this evolving sector.

4 How can leaders engage their workforce and manage disruptive technologies like AI?

Employees often feel anxious or uncertain about the changes AI brings, and as leaders, it's our job to address these concerns. Leadership is not just about championing transformation; it's about ensuring people feel empowered to be a part of that transformation. Ultimately, I think it's about casting a vision where employees see technology as an enabler rather than a disruptor. This approach lays the foundation for a culture of trust and innovation.

SUPPORT DESKLESS WORKERS WITH TECH THAT MAKES TWO-WAY COMMUNICATION EASIER

Once employee engagement is lost, it is difficult to regain. Industrial sector leaders must attract and retain employees, helping them upskill and have access to training to stay competitive and avoid worker disengagement.

According to Gallup's 2024 State of the Global Workplace study, a staggering US\$8.9 trillion was lost in global GDP due to low productivity and engagement of workers. Although the primary reason was attributed to a drop in management engagement, effective internal communication is critical in this era of change.^v

Aligning different communication preferences with gaps in tech literacy and a dispersed workforce makes it challenging to communicate organizational messages efficiently and effectively. The manufacturing talent pool features hourly employees and deskless workers who can miss important communication, requiring a multi-channel strategy that allows all employees to access updates easily.

In manufacturing, this is critical, as businesses are typically stretched across multiple sites, geographies, languages, and complex processes, making effective communication and collaboration essential for productivity. Open and transparent communication also creates avenues for receiving employee feedback, which is essential for improving working environments.

Our survey revealed that an improved communication strategy ranks high on the priority list as the second in the top three priorities for change management. Yet only 16% currently use communication and collaboration technology. There may be a disconnect now, but that will soon change, with decision-makers indicating they will invest within the next 12 months.



Further, 74% plan to invest within the next three years, highlighting that a significant amount of investing activity is on the horizon.

The research confirms that this is higher up on the priority list than investments in new communication and collaboration tools, which is the second highest rated priority in the next 12 months. Three-quarters (75%) of businesses plan to invest in these solutions within the next three years, highlighting a growing recognition of their importance. Companies are increasingly aware of the value of technology in supporting their deskless workers, which is a vital component in elevating communication and ultimately strengthening their employee value proposition.

Authentic communication, combined with modern workforce management technology, enables manufacturers to enhance employee engagement and streamline messaging, resulting in higher retention rates and helping to attract the more tech-savvy younger generations. However, this requires investments and internal stakeholder support from the top, down to every factory worker, so that that no worker is left behind and that communication is easily accessible for all.



Take action

1. **Invest in multi-channel communication tools** to support all workers, including deskless employees, and stay informed and engaged.
2. **Prioritize transparent and authentic communication** to build trust and improve retention across generations.
3. **Leverage technology to support collaboration** and strengthen the employee value proposition to attract and retain talent.

Investing in future communication and collaboration tools

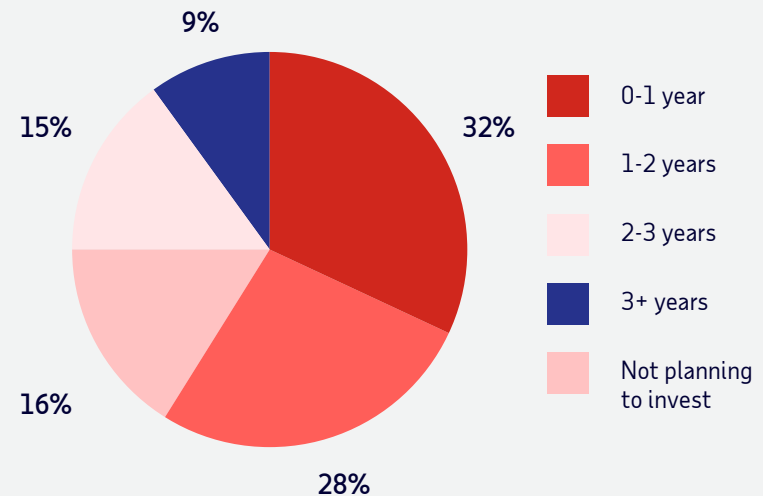


Figure 6: Investment in future communication and collaboration tools

"Creating a sustainable talent pipeline requires attracting talent, particularly Gen Z, by offering meaningful roles that impact society and assuring employees: 'Don't worry; we'll train you, upskill you, and support your career development.'"

—**Dr. David Romero**, Professor of Advanced Manufacturing, Monterrey University in Mexico and Scientific Vice-Chairman for the World Manufacturing Foundation

EXCLUSIVE INTERVIEW

We had the privilege of speaking with Ang Wee Seng, one of APAC's foremost semiconductor experts, who offered valuable insights into the manufacturing sector's future. He highlighted strategies to support the workforce, emphasized the importance of collaboration in driving success, and underscored the critical role of human intervention alongside advancements in AI.



1 What are the biggest workforce challenges and opportunities currently facing Singapore's semiconductor sector?

The semiconductor industry faces significant challenges due to ongoing volatility, economic uncertainty, and supply chain disruptions, which have created a ripple effect, causing many businesses to reevaluate their growth plans and delay investments. These conditions have heightened anxiety across the sector, emphasizing the importance of foresight and adaptability.

However, beyond these challenges, there is a significant opportunity for ongoing transformation. Volatility forces us to collaborate in ways we haven't before. It highlights how countries traditionally outside the semiconductor realm, such as Hungary and Indonesia, are now joining the ecosystem. This broadens the supply chain's reach and creates resilience through diversification. By focusing on advanced technologies, workforce upskilling, and strategic global partnerships, Singapore is positioning itself not just to overcome current challenges but to lead the charge in creating a more resilient and innovative semiconductor industry for the future.

2 How is Singapore leveraging its ecosystem, including government initiatives and global partnerships, to tackle workforce challenges and support its semiconductor R&D ambitions?

The semiconductor industry is addressing significant workforce challenges, including a lack of interest among young talent and misconceptions that it is a "sunsetting" sector. However, the growing global demand for semiconductors has sparked renewed interest, amplified by Singapore's strong ecosystem where government, industry, and schools collaborate to prepare future-ready talent. Educational institutions are aligning with industry needs, prioritizing skills like AI and intelligent manufacturing, while proactive planning ensures the workforce remains relevant amid rapid advancements.

I see collaboration as a pivotal driver in this transformation.



3 How can manufacturers best leverage technology while prioritizing the importance of human skills?

Leaders must understand that technology serves as a complement, not a replacement, to human expertise. Nurturing our talent needs to be on the national agenda. I often say that technological disruption is, in many cases, human disruption. For instance, AI should be viewed as a co-pilot that significantly accelerates human capabilities, rather than as a threat to jobs.

Companies that empower their workforce by integrating learning ecosystems into day-to-day operations will be successful. Remember, the value of this industry lies not just in the chips we produce, but in the collective innovation driven by people with the right tools and support systems.

4 Finally, what is your overall outlook for the sector over the next 12 months? Who will be the winners?

Despite being a small nation, Singapore's semiconductor industry has always been strong. Singapore began its journey in the semiconductor industry with the establishment of National Semiconductor's assembly and testing facility in 1968. While global economic volatility persists, there's also significant resilience and opportunity. For Singapore, we continue to prioritize collaboration across the sector, which is a critical success factor.

As for the winners in the next year, they will be those who can innovate while remaining adaptable. Companies that integrate AI, align workforce skills with future demands, and invest in R&D will reap the rewards. Singapore's inherent strengths in connecting industry, government, and education give us a unique edge. Our role as a connector and innovation hub means that we aren't just competing—we're helping shape the future of global manufacturing along with our regional neighbors.



SCHEDULING FLEXIBILITY BENEFITS BOTH EMPLOYEES & EMPLOYERS

Manufacturing leaders require a modern workforce management strategy that enables not only their success, but that of their employees. It is crucial to alleviate timekeeping frustration by providing better scheduling management so that employees remain engaged and achieve a better work-life balance.

Offering scheduling flexibility is foundational for successful workforce management in practice and one that delivers a strong digital transformation ROI. Modern, robust, and cloud-based time and attendance solutions can be a game-changer for HR managers, allowing them to ditch manual entry and spreadsheets to effectively plan their resources and offer employees flexibility.

Gains are noteworthy: for example, manufacturing organizations who have implemented scheduling and forecasting solutions have seen benefits and savings ranging up to \$52.7 million for companies with one hundred thousand employees.^{IV}

The decision makers we spoke with acknowledge the importance of scheduling flexibility as a critical functionality of their workforce management software, with 76% indicating they will be investing in this area in the next 3 years, highlighting its essential role in the workplace. These new solutions feature self-service tools and flexible scheduling to improve and adapt their employee value proposition in response to modern workforce challenges.

Modern workforce management tech investment priorities for time management and scheduling

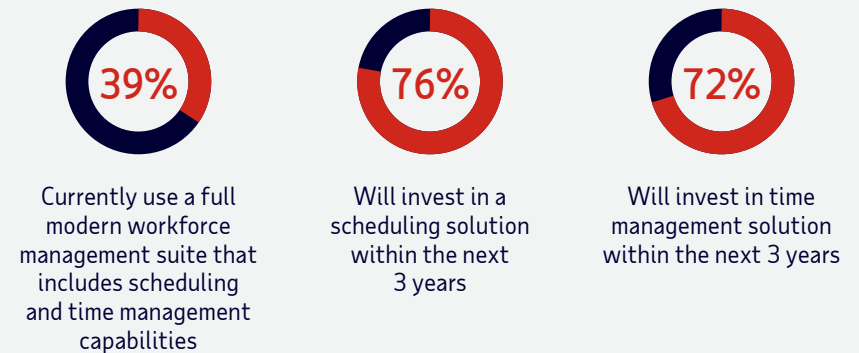


Figure 7: Schedule and time management solutions



Time management and scheduling rank among the top technology investment priorities for the next two years, underlining their importance for future growth. Looking ahead, 72% of organizations are planning investments in time and attendance systems, and 76% are prioritizing scheduling modules. These efforts aim to promote scheduling that improves fair labor distribution, leading to happier, more engaged employees.

1. **Employees are empowered to manage their availability.**
2. **Match schedules against updated labor forecasts to meet coverage demands.**
3. **Assign talent to tasks based on skills and operational needs.**

Moreover, 31% of companies appreciate how scheduling empowers employees by allowing them to control their shifts, initiate shift swaps, and manage their time off. Adopting these technologies is not just beneficial—it is essential for a motivated and efficient workforce.

In terms of top-rated time management benefits, the manufacturing leaders zeroed in on benefits that focused on business optimization and cost savings.

The data is clear—decision makers are focused on employee experience and providing workers with independence, convenience, and elevated control over their schedules. They understand that these factors significantly contribute to effectively managing and engaging with them. Additionally, the HR leaders we spoke to know that combining these practices with software designed for business optimization will future proof their organizations and also offer cost savings.

Top-rated scheduling benefits—all focus on employee experience

- 1 Provide options for employees to manage their availability and plan time off
- 2 Monitor schedules against updated labor forecasts to ensure coverage meets demand
- 3 Have the ability to identify and deploy talent based on skills and operational needs

Figure 8: Top 3 scheduling benefits

Top-rated time management benefits—all focus on business optimization and cost savings

- 1 Reduce administrative overhead with self-service and full automation of attendance and pay rules
- 2 Reduce payroll leakage with accurate time capture and automate payroll calculations
- 3 Diminish unplanned overtime costs

Figure 9: Top 3 time management benefits



Take action

1. **Empower employees with self-service tools** to manage their shifts, swap schedules, and request time off with ease.
2. **Implement cloud-based scheduling systems** to optimize labor distribution and align tasks with skills and operational needs.
3. **Automate attendance and payroll processes** to reduce errors, cut admin time, and control unplanned overtime costs.

EXCLUSIVE INTERVIEW

As a Program Manager for Artificial Intelligence at techUK, Usman Ikhlag offers a uniquely valuable perspective. His hands-on role places him directly at the intersection of strategy and on-the-ground implementation, enabling him to understand the practical challenges and opportunities manufacturers face deeply.



1 What are the biggest workforce challenges currently facing the manufacturing sector in EMEA?

The manufacturing sector in EMEA is currently navigating several workforce related challenges. One of the most prominent is the growing skills gap, with many employers struggling to find workers equipped with the technical expertise needed to support modern, technology driven manufacturing processes. This is further impacted by the loss of skilled talent to international opportunities, as professionals seek roles abroad that offer competitive growth prospects.

The ageing workforce is another concern, with many experienced employees nearing retirement. Without effective succession planning and knowledge transfer, organisations risk losing valuable expertise and operational continuity.

At the same time, there is an opportunity to modernise the sector—showcasing manufacturing as a dynamic, tech driven field to better engage the next generation of talent.

Advanced manufacturing is driven by innovation, sustainability, and advanced technologies. By actively telling this story, we can inspire students and early career professionals to see it as a place for long term, meaningful careers.

2 And what are some of the biggest workforce opportunities in EMEA?

EMEA is entering a pivotal era of technological transformation. With advancements in AI, robotics, and data-driven systems, there is a tremendous opportunity to upskill and reskill the existing workforce. Rather than seeing this as a challenge, it should be framed as an exciting pathway for employees to future proof their careers and remain at the forefront of innovation.

By embedding continuous learning into workplace culture, employers can build stronger, more adaptive teams. Supporting employees to build AI literacy and digital fluency is key, not only to ease concerns around labour market disruptions but also to empower workers to thrive alongside these technologies.

We are also seeing a rise in highly automated facilities, sometimes referred to as “dark factories,” particularly in parts of Asia and Europe. While these developments are often associated with full automation, the reality is more nuanced. As these systems become more advanced, there is a growing need for skilled human oversight, including roles in systems management, maintenance, programming, and quality assurance.

3 In your experience, how are manufacturers embracing innovation and adopting AI in EMEA? Are they adapting fast enough?

2025 is widely regarded as a landmark year for AI adoption across enterprises. Industrial AI is a revolutionary technology that offers many benefits, ranging from process automation to supply chain resilience. However, adoption within industrial settings, particularly in advanced manufacturing and research and development intensive sectors, may lag behind overall enterprise expectations. According to a recent Thomson Reuters report (2024), industrial AI is most commonly applied in areas like energy management and predictive maintenance, with only about

21 percent of respondents stating that industrial AI is being used today.^{viii} It is clear that more action is required to realise the full potential of AI technologies in advanced manufacturing.

While progress is promising, continued collaboration between technology providers, governments, educational institutions, and industry players will be vital to accelerate adoption. These partnerships help close knowledge gaps, facilitate practical implementation, and ensure innovation delivers sustainable value.

Many manufacturers have already begun investing in pilot programs, forming innovation hubs, and rethinking operational models. With ongoing support and cross sector cooperation, the region is well positioned to meaningfully advance its digital transformation journey.

4 How can leaders develop their workforce and engage their people, especially in light of disruptive technologies in EMEA?

Leadership during periods of disruption requires clarity, empathy, and a strong strategic vision. To prepare their workforce for emerging technologies such as AI, leaders must first establish a clear roadmap that connects innovation to business goals and communicate it transparently across the organization.

Building trust in technology is key. At the same time, it involves creating inclusive environments where employees are empowered to be part of the change through training, innovation programs, and open dialogue.

Ultimately, the most forward thinking leaders are fostering cultures of curiosity and continuous learning, where people feel supported

5 Finally, what is your overall outlook for the sector over the next 12 months in EMEA? Who will be the winners in EMEA?

The outlook for manufacturing in EMEA over the next year is cautiously optimistic. While analysts are divided, some anticipating moderate growth and others predicting faster acceleration, there are encouraging signs. Expected interest rate cuts from the European Central Bank and the Bank of England could boost investment and stimulate demand across the sector.

Particularly in areas like advanced manufacturing and AI, countries such as the UK and France are attracting increased foreign direct investment, supported by strong R&D ecosystems and government initiatives. The region's well established AI hubs and skilled talent pools make it a natural destination for innovation driven growth.

The winners will be those who invest in both technology and talent. Organisations that take proactive steps to modernize, reskill, and build resilient operations will be best placed to thrive regardless of how fast the external environment shifts.



THE RIGHT COMPLIANCE TECHNOLOGY ALIGNS GLOBAL STANDARDS WITH LOCAL REGULATIONS

In the manufacturing sector, the scope of potential non-compliance has broadened, driven by supply chain risks, data breaches, and meeting evolving regulatory standards. This has made adhering to laws, regulations, and industry standards increasingly complex.

Meeting regulatory compliance in manufacturing is challenging and tedious due to the constantly changing industry regulations and standards that differ across sub-sectors and geographies, especially when most manufacturers still use spreadsheets for their data entry even in compliance!^{vi}

Businesses that fail to meet global and local regulatory requirements face severe penalties, and even legal action. Manufacturing leaders recognize this as a priority, and those operating across international borders know they need a scalable global solution that breaks down these borders and adapts to local regulations to improve compliance.

That's why a majority of our survey respondents acknowledge the need for a robust, scalable compliance framework and the benefits of adopting relevant technological solutions to support their compliance efforts. Over three-quarters (88%) of manufacturing decision makers understand the benefits of global standardization that aligns with local compliance.

Manufacturing leaders know this is an area that must be addressed, yet less than half (39%) of those surveyed feel they have a technology stack that enables them to balance global workforce standardization with local compliance, aligning with labor laws, union regulations, company policies, and regional procedures.



In fact, our respondents ranked dynamic scheduling for a centralized, flexible system that aligns labor deployment with global supply chain demand as the top benefit of using payroll and scheduling solutions.

Systems that assist with simplifying and automating compliance are cost-effective and also play a crucial role in enabling real-time monitoring and reporting. This capability is essential for manufacturers as they adapt to changes in regulations and maintain continuous compliance. Data-driven insights gained from these systems can inform strategic decisions, enhance operational efficiency, and reinforce a culture of compliance within the organization.

In an industry where fines can average \$30,000 per violation, automating compliance can not only prevent potential fines that could run into hundreds of thousands or even millions of dollars, and it can ensure help your business is safe reduce risk from harm as compliance continues to evolve and change .^{vii}



Take action

1. **Adopt scalable compliance technology** to align global workforce standards with local labor laws and regulations.
2. **Automate compliance monitoring and reporting** to reduce risks, prevent costly fines, and adapt to regulatory changes.
3. **Leverage data-driven insights** to enhance decision-making and create a compliance-aware workforce culture.

Does your technology stack allow you to balance global workforce standardization with local compliance, aligning with labor laws, union regulations, company policies, and regional procedures?

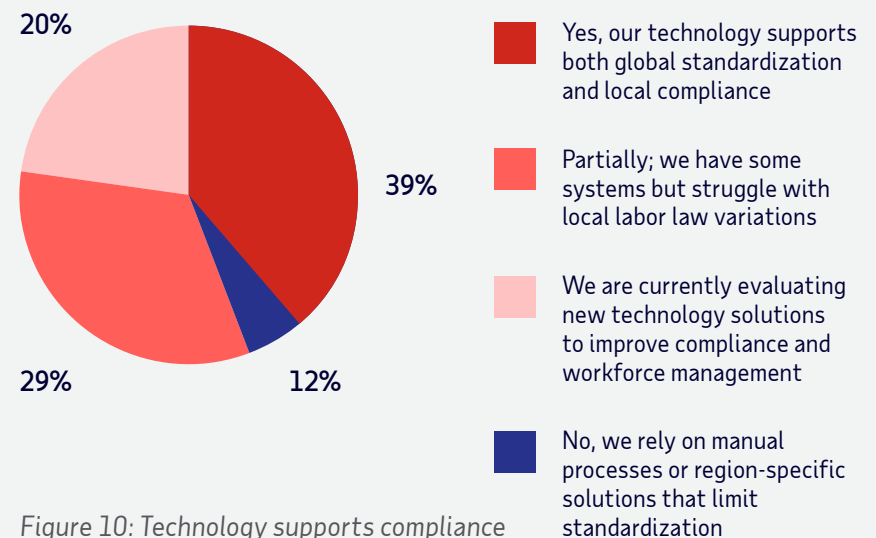


Figure 10: Technology supports compliance

“Compliance is complex in the semiconductor industry, but companies that empower their workforce by integrating learning ecosystems into day-to-day operations can foster a compliance-aware workforce culture. To survive, this must become a standard practice.”

—Ang Wee Seng, Executive Director, Singapore Semiconductor Industry Association

WORKFORCE 4.0: LEVERAGING INNOVATIVE SOFTWARE TO FUTURE-PROOF OPERATIONS

Industry 4.0, through emerging technologies and cutting-edge innovation, continues to drive transformation in manufacturing, but their people cannot get lost along the way. Strategic planning is required to manage change fatigue and support employees, so they remain engaged through innovative technology and modern workforce management solutions.

Leaders acknowledge that their approach to challenges like labor shortages, supply chain disruptions, changing customer demands, and workforce expectations has been reactive and needs improvement. However, many still face significant challenges, underscoring the mission-critical need to rapidly integrate solutions that help overcome these obstacles for manufacturing success.

Smart manufacturing and an agile team are required to weather the storm of continuous change, as these key essentials will separate the winners from the losers in the industry. Change management remains a critical area to address, requiring leaders to adopt a robust people-first approach to limit change fatigue and keep the workforce engaged.

The current labor shortage and talent gap have made industrial leaders prioritize training and development, earmarking budget essential to onboard, upskill, and reskill workers to help meet core business objectives. Technology can be leveraged to support these initiatives and transformation.

Examples include automating compliance steps, such as accurately tracking time and attendance, scheduling in accordance with labor laws, managing certifications and training, and assisting with proper recordkeeping. These solutions transform workforce management, allowing leaders to support their teams in achieving greater efficiency and compliance. It reduces the chance of manual errors and provides streamlined documentation.



Our survey shows that decision makers are investing in time management technology to address compliance, identify and deploy talent based on skills and operational needs, and meet worker coverage demands. They view this solution as a foundation for building better employee experience and are adjusting their investments to reflect its prioritization.

As Ang Wee Seng, the Executive Director of the Singapore Semiconductor Industry Association, said, "Innovation isn't just an option; it's a necessity in this industry." And he is right. Yet, innovation adoption does not happen on its own; it requires buy-in from leadership and their workforce because advanced capabilities depend on the people who make up the manufacturing workforce, particularly deskless and shift-based workers.

To equip employees for success, organizations must invest in and implement improved workforce management solutions that can enable further innovations. With advanced, operationally focused communication tools, large organizations can work to remove barriers between diverse demographics within the workforce, unlocking streamlined communication, operational efficiency, optimized productivity, and improved engagement levels.

The significant talent gap and worldwide generational shift in workforce demographics require a proactive solution-based approach to address today's most pressing manufacturing challenges. Future-proof manufacturers will prioritize these strategies to attract new talent and embrace the diversity of technological preferences and work styles while remaining compliant. Training, retaining, and effectively managing the workforce are vital for cultivating a resilient workplace where manufacturers remain competitive.

It is critical to adopt systems that make the worker's life easier. Solutions that offer employees scheduling flexibility and autonomous time management are emerging as powerful tools to support seamless timekeeping and address worker expectations. These systems can support an improved work-life balance and deliver a tangible reduction in labor costs, resulting in a win-win scenario for both employees and the organization.

With almost half of new businesses, including manufacturers, failing to stay open in the past five years, leaders must adopt this innovative approach to workforce management, requiring them to shift from a reactive to a proactive approach while adopting the latest solutions that allow them to automate tedious tasks and empower their workers. Modern manufacturers recognize that the only way is forward.

OUR METHODOLOGY

WorkForce Software, an ADP company's "The State of the Manufacturing Workforce in 2025 and Beyond" was created through consultation with international manufacturing leaders to assess the manufacturing industry's preparedness and capability in managing and engaging the workforce of today.

This report draws on virtual interviews and anonymous surveys. Our research is based on qualitative methods via one-on-one virtual interviews with a range of leading manufacturing and human resources executives at several companies across the sector. The interviews were conducted over virtual video chat so that we could gain a personal view and detect underlying motivations, beliefs, attitudes, and feelings on a range of areas and subjects. The surveys were conducted anonymously to maintain that fair and objective data was gathered.

We asked the following questions

1. What percentage of your manufacturing workforce are shift / hourly paid workers?
2. How would you classify the age demographics of your shift / hourly paid workforce?
3. How has your business evolved over the past two years in response to key industry challenges such as labor shortages, supply chain and operational disruptions, automation scalability, and changing workforce expectations for flexibility and self-service tools?
4. Which of the following workforce management modules does your organization currently use?
5. When thinking about some of the recent industry challenges around industry 4.0 , labor shortages, decentralization of operations, and workforce experience, what HCM technologies are you looking to invest in in the future, and in what timeframes—select all that apply:
6. Does your current technology stack enable you to balance global workforce standardization with local compliance, ensuring alignment with labor laws, union regulations, company policies, employee agreements, and regional business procedures?
7. What do you consider to be the main benefits of using HCM technology to help maintain compliance?
8. How has the manufacturing industry evolved its approach to employee value proposition (EVP) in response to workforce challenges? (select all that apply)
9. What do you consider the top 3 benefits of utilizing a scheduling solution?
10. What do you consider the top 3 benefits of utilizing a time management solution?
11. What are the biggest people challenges you are facing in the year ahead?
12. How are you managing change with your people and the transition to new working models and What are the biggest people challenges you are facing in the year ahead?



ABOUT WORKFORCE SOFTWARE, AN ADP COMPANY

WorkForce Software, an ADP company, is the #1 rated workforce management solution for large, global employers and the first to deliver integrated employee communication capabilities. The ADP WorkForce Suite adapts to each organization's needs—no matter how unique their pay rules, labor regulations, and schedules—while delivering a breakthrough employee experience at the time and place work happens. Enterprise-grade and future-ready, the ADP WorkForce Suite is helping some of the world's most innovative organizations optimize their workforce, protect against compliance risks, and increase employee engagement to unlock new potential for resiliency and optimal performance. When your employees include deskless or hourly workers, unionized, full-time, part-time, or seasonal, the ADP WorkForce Suite makes managing your global workforce easy, more efficient, and more rewarding for everyone. For more information, please visit workforcesoftware.com.

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Learn how the ADP WorkForce Suite's modern workforce management solution can help you improve operational performance and deliver a breakthrough employee experience.

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