

White Paper

The Top 5 Workforce Trends Shaping the Manufacturing Industry by 2025

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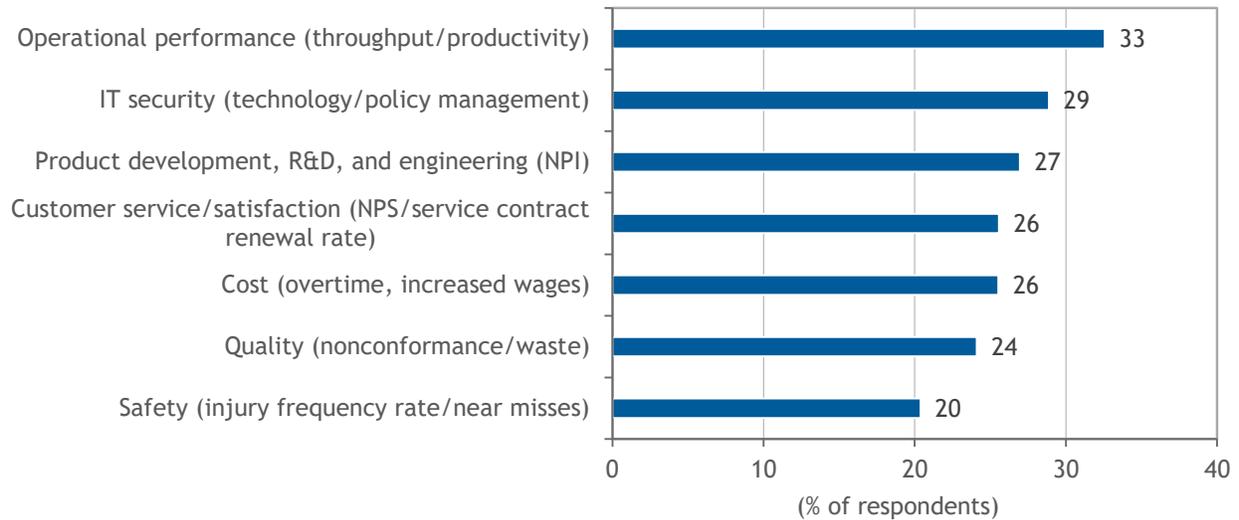
SITUATION OVERVIEW

Talent management is a top concern for most companies, but manufacturing organizations are feeling the pressure more than most. Manufacturers are particularly concerned about talent as they are focused on growth objectives, digital transformation (DX) initiatives, and the drive to build more agility and innovation into the enterprise. In IDC's 2020 *Industrial Talent Management Survey*, IDC found that 45% of companies surveyed are currently understaffed in their high-skilled positions. However, even if current staffing levels were adequate, almost every company is focused on improving its talent levels – 96% of companies stated that talent management is a top priority. One of the key talent challenges for the manufacturing industry is that the average age of the workforce is older than many other industries. As a result, manufacturing experiences more attrition through retirement than other sectors. When these employees retire from the workforce there are knowledge and experience gaps that form that are difficult to fill. This is compounded by the fact that attracting new talent is a challenge as there are fewer younger workers interested in pursuing a career in the industry. This leads to manufacturers facing stiff competition when fighting for limited new talent on the open market.

While possessing the right talent can aid growth and transformation efforts, a lack of talent can negatively impact many areas of a business. In fact, from the same IDC's *Industrial Talent Management Survey*, IDC found that a lack of talent is already having a tangible impact on the industry, with many areas across the business experiencing failures across key metrics. Missed product launch dates, lowered on-time delivery, increased unscheduled asset downtime, and increased mean time to repair (MTTR)/first time fix (FTF) can all result from the skills gap (see Figure 1).

FIGURE 1

Areas Negatively Impacted by Skills Gap



Source: IDC's *Industrial Talent Management Survey*, June 2020

Across each of these areas, the majority of respondents reported a 6-10% negative impact on the associated metrics/KPIs. And, potentially most impactful, manufacturers that are experiencing a shortage in skilled workers reported that their operating margins were lower by an average of 13%. Clearly, manufacturers need to carefully consider how they approach attracting and retaining talent and managing their workforce to ensure success going forward. This new talent focus is leading many to consider what the future of work will manifest in manufacturing. New ways of working – technically, organizationally, and systemically – lie at the heart of what will become normal for the industry over the next few years. What will evolve, and evolve rapidly, are the ways in which manufacturers measure progress and success.

FUTURE OUTLOOK

Given many of the challenges of the current manufacturing environment, it is clear that change will need to occur. IDC sees five major workforce trends influencing how the manufacturing industry operates over the next few years.

Trends

- 1. The rising importance of digital skills will change how manufacturers attract, retain, and train employees*

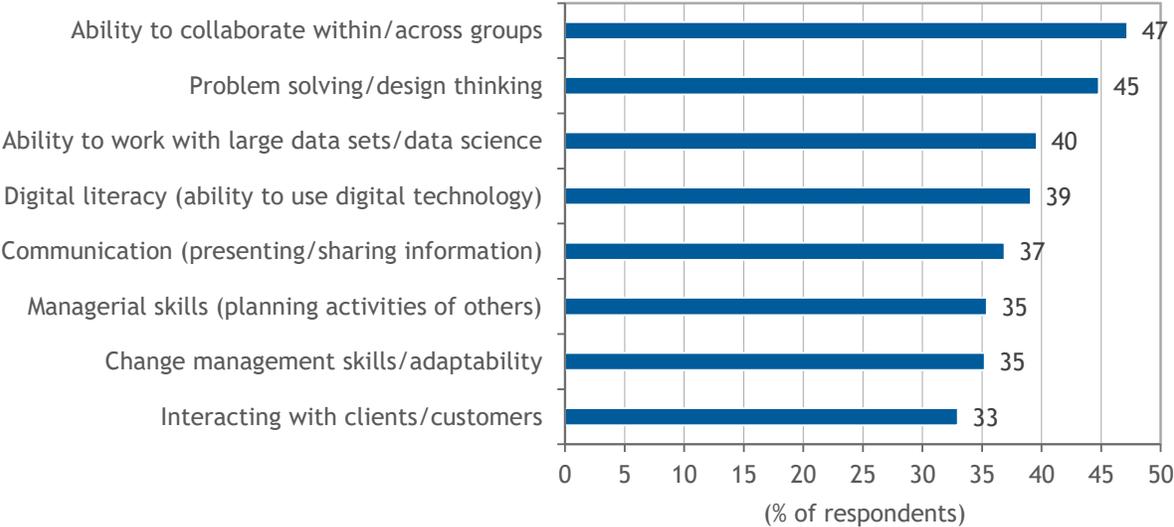
Finding and hiring new employees remains a major challenge for organizations, especially in today's dynamic business environment. If COVID-19 highlights nothing else, it shows how quickly changes can occur. Supply chain disruption, evolving government/regulatory requirements, and shifting production capabilities to meet public demand for goods and services have been ongoing struggles for the industry. The rapid pace of change that is occurring is something most companies are not well

equipped to manage, but this is true even more so for manufacturers. In fact, from IDC's *Industrial Talent Management Survey*, rapid changes in skill requirements was seen as the top challenge faced by manufacturers when trying to find new employees. Furthermore, when a manufacturer hires a recent graduate, it has been cited that their knowledge is too academic and not practical enough for their role in the organization thus requiring further training and development. Manufacturers are realizing change is needed when it comes to talent acquisition and there needs to be more emphasis on employee skill sets rather than formal education achievements. When considering change, the workforce skill sets are most important to consider.

One large materials manufacturer that IDC has spoken with highlights this shift regarding technical positions. At one location, roughly 30% of process/manufacturing engineers did not have formal degrees in 1985. In 2000, there was not a single engineer without at least a bachelor's degree. By 2018, the number had climbed back up to 10%, and while this may seem like a negligible amount, it shows there is a formal and informal shift in college expectations for technical positions. Hiring organizations are also looking to alternative higher education options including technical colleges and trade degrees, both of which are on the rise. Skills shortages are the primary driver; however, many companies are also reevaluating the higher education process and the lack of experience being imparted on new graduates. To help address this, many manufacturers have started forming partnerships with colleges and trade schools to help cultivate the skill sets that are needed by the industry. From IDC's *Industrial Talent Management Survey*, it was found that 42% of manufacturers stated they currently have these partnerships in place, with another 41% planning to form them within the next few years. With a higher focus on specific skills, finding and identifying employees with the right skill sets will be essential to success (see Figure 2).

FIGURE 2

Skill Sets Most Sought After



Source: IDC's *Industrial Talent Management Survey*, June 2020

According to IDC's *Industrial Talent Management Survey*, the top-most sought-after skill is the ability to collaborate. This aligns with the fact that successful DX projects span the entire value chain. From design, across the supply chain, on the plant floor, and out in the field – the ability of employees to collaborate across these groups must be the priority. Collaboration is important when it comes to building shift schedules and ensuring a company has the resources needed to meet demand. Having a collaborative environment where employees are able to exchange shifts with others allows for schedules to be maintained while allowing for employee flexibility. More broadly, collaboration is important to give workers the feeling that they have a voice and can help with continuous improvement efforts. Another key component of the hiring for critical skills is linked to exploiting the amount of data being generated. From IDC's 2019 *Vertical IT Survey*, 91% of organizations ranked data as a competitive advantage, but only 24% are able to fully maximize the value of their data – the ability to analyze large amounts of operational and labor data will be crucial for the future workforce. Modern business applications, however, are more frequently offering out-of-the-box analytical tools that make it much easier to consume data and interpret it to support decision making. The insights offered by effective use of data help make an organization more efficient while also facilitating better employee experience.

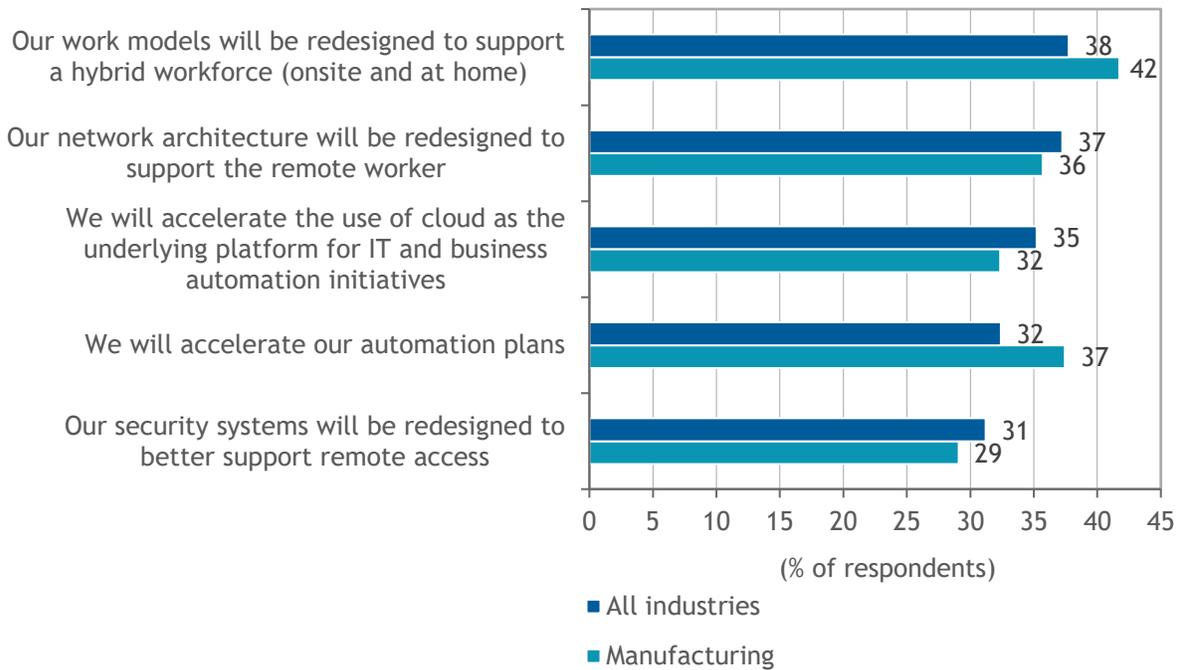
Not only are the skills needed to transform changing, but the technology needed to compete is changing as well. As more digital technology is incorporated on the plant floor, in the back office, out in the field, or in the products themselves, change management can be challenging for many manufacturing employees. While older workers are more likely to have years of experience and expertise to fall back on when solving a problem, the use of digital tools has not been a large part of it. On the other hand, the younger workforce that is starting to enter the industry have more experience using digital tools in their day-to-day lives and are well suited to take advantage of the new capabilities enabled through digital technology. Bringing in new workers that possess digital aptitude should become a top hiring priority across manufacturing. As well, it is key that the organization upskill the existing workforce to build a broad base of digital literacy across the enterprise. The barrier for entry for individuals lacking digital skills has been lowering, as technology providers have realized the importance of intuitive and easy-to-use tools. However, as manufacturers continue to modernize their plants/locations, develop smart products, and engage with consumers through new channels, the importance of digital skills will only rise. Assessing the digital literacy of the current and future workforce must become part of the employee management process. Those manufacturers that make this a priority early will set themselves up for long-term success in the digital economy.

2. Hybrid and flexible work models will remain across the industry, impacting workforce recruiting, retention, and collaboration processes

Since the onset of the great disruption brought on by the COVID-19 pandemic, all industries have had to wrestle with reinventing themselves and the ways in which they work. It's no secret that remote work had never been a widely adopted practice across the manufacturing industry prior to COVID-19. In fact, IDC research showed that pre-COVID-19, 2-12% of the manufacturing workforce would primarily work from home (WFH); in May 2020, that number went up to 54%. Research from September 2020 shows that the WFH portion went down to 28%, with manufacturers estimating that the ongoing contingent of remote workers will level to around 20% post-vaccine. It is important to note that there are various types of positions in manufacturing and not all roles can be shifted to remote or hybrid work; there will always be a need for plant floor workers for the foreseeable future. Wherever the number ultimately settles is not as important as the fact that a hybrid workforce (some onsite and some WFH) is here to stay. In fact, the top impact of COVID-19 on future operations cited by manufacturers is the acknowledgement that work models will need to permanently change to support a hybrid workforce (see Figure 3).

FIGURE 3

Permanent Change as a Result of COVID-19



Source: IDC's COVID-19 Impact on IT Spending Survey, Wave 12, September 2020

Most manufacturers have lacked investments in technical resources to enable remote work or hybrid work (going between remote and onsite facilities), and consequently there have been many growing pains over the past year or so. Like any business, manufacturing employees, whether on the plant floor or working from home, need to stay connected to be most effective. The ability to collaborate is an essential skill and one of the most highly sought after for new manufacturing employees. To foster collaboration, information needs to be accessible from anywhere on any device in a secure way. The good news is that technology can be relied upon to help make collaboration easier and enable remote employees to become more effective.

An essential first step is providing real-time visibility into operational data as well as analytical tools that help employees make decisions. This needs to be provided to all employees and especially those that work remotely so that they can respond more quickly to rapidly changing business conditions. In addition, manufacturers should utilize collaboration tools that allow global teams to work together in real time. Providing these tools and shifting to a digital way of communicating, working, and learning is standard practice among executives but also needs to be made available to the rest of the organization. All functional areas need to be considered when it comes to collaboration – product development, supply chain and warehousing, manufacturing operations, sales and marketing, and field service. Other steps manufacturers have taken to be successful include standardizing and enforcing a remote worker policy across the organization, utilizing technology resources such as web conferencing and live chat to ensure employees can stay connected with virtual teams, and accommodating potential shifts in goals or requirements associated with remote work.

The potential risk of not embracing hybrid work models is also important to consider. For an industry such as manufacturing that struggles to lure in the younger workforce, the flexibility that hybrid work models offers can potentially help with recruitment and retention. This point was highlighted during a recent manufacturing roundtable that IDC participated in, with one director of IT sharing that "if our company doesn't embrace hybrid work it puts us at risk. Our competition can hire people beyond geographical barriers while I am still restricted in where I can search. Also my employees don't want to waste time commuting if they don't have to; I feel we may lose talent very fast if we don't shift to remote work options." Manufacturers that accept hybrid work models are here to stay, and those that put the right processes and technology in place to support them will find themselves in a better position to respond, whether it is in support of future disruption or changing workforce demands.

Flexibility is just as important for employees who aren't able to work remotely. It will be imperative for manufacturers to create ways to support flexible work for the frontline plant employees as well through adaptive scheduling practices – for example, taking into account shift preferences, making it easy for employees to swap shifts or request time off to accommodate a personal commitment. These are all steps that manufacturers can take to enable more flexible work models while improving employee satisfaction.

3. Manufacturers will accelerate their investments in automation and knowledge management tools to reduce the impact of experienced employees leaving the business

In general, the steps that manufacturers are taking to address their workforce challenges can be broken down into four main areas:

- **Finding and attracting talent.** Identify skills needed to support DX initiatives, streamline the hiring process, and improve the organization's attractiveness as a workplace.
- **Developing and retaining talent.** Cultivate internal talent through training and certification, pairing experienced/less experienced staff, rotation programs, employee satisfaction initiatives, and career development road maps.
- **Outsourcing.** Determine what parts of the process can be done by a third party, identifying where partnerships can fill gaps.
- **Utilizing technology.** Knowledge management systems, collaboration tools, automation of low-value work/manual processes, and tools that enhance productivity will play a critical role in filling the skills gap.

While all areas need to be addressed, the role of technology will be one of the most important areas to consider to help address the talent problem. In particular, automation and knowledge management tools are currently a top priority for manufacturers, with plans to continue this focus over the next few years (see Figure 4).

FIGURE 4

Importance of Automation and Knowledge Management



Source: IDC's *Industrial Talent Management Survey*, June 2020

An overreliance on manual and inefficient systems/tools has been a stumbling block for many organizations, manufacturers in particular. This reliance on outdated technology leads to increased costs, wasted time, data inaccuracies, decision latency, limited traceability, poor communication, and a lack of process standardization. Automating low-value work (manual tasks/data collection) is where most manufacturers have already started from a technology perspective. The speed and complexity of industrial operations are increasing faster than ever before, and manual processes are holding organizations back. A clear example of where this has become important is the scheduling of shifts/employees. Many manufacturers still use Excel to build out their schedules, and while Excel can handle basic needs, the growing complexity and rapid pace of change being experienced across the industry have led many to rethink their approach. Through automation and the use of technology, supervisors can now automatically schedule labor to meet production demand. Also as the availability of labor or demand fluctuates, schedules can be updated in real time while adhering to any company/union/regulatory scheduling mandates. Eliminating manual type of work frees up workers, allowing them to focus on higher-value activities to further drive improvements. However, it will also be important for manufacturers to turn to knowledge management systems, in conjunction with collaboration tools, to allow experienced workers to share their tips and tricks with newer workers so that the latter will learn from their more experienced counterparts.

Having a system in place to capture, manage, and share best practices will help onboard new employees more rapidly. While the younger generation of workers possess the digital skills manufacturers desperately need, there is still a lack of tribal knowledge. Providing the ability to access and absorb this knowledge will help these less experienced employees become more effective in a faster time frame. More importantly, knowledge capture systems help dampen the impact of losing knowledgeable/mature employees. Expertise continues to leave manufacturing at alarming rates, whether through retirement or career changes. The retirement of older employees, who tend to hold senior positions, will occur no matter what a company does. When these experienced workers leave a company, many see the quality of their products and services suffer as a result. Boeing felt this when it

fell so far behind on deliveries of the 737 model that it had to rehire retired mechanics and inspectors on a temporary basis just to correct errors and meet production goals. This is only a short-term fix though – you can only convince workers to come out of retirement for so long, no matter how much you increase wages. If a company has no way to capture this knowledge before it leaves the business, it puts itself at risk.

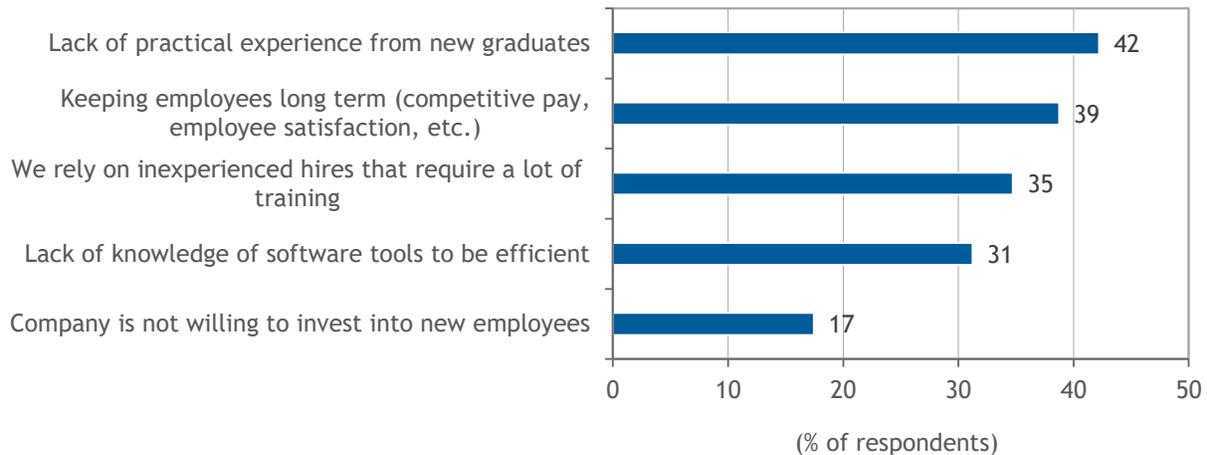
There is inherent value in intelligent human capital management and workforce management systems in the practice of augmenting knowledge management across the enterprise. Such intelligent systems can help identify and locate workers who have the critical knowledge and skills needed at a particular point in time. Having access to historical employee performance data and individual performance metrics, all served to benefit the enterprise in achieving its goals.

4. Manufacturers will shift their workforce strategy to go beyond bottom-line savings and consider how to serve employees better

Given the nature of the industry, it is not much of a surprise that most manufacturers take their efficiency/cost operational mindset and apply it to their workforce strategy. While from a short-term perspective, the bottom line may improve the long-term impact on employee satisfaction is important to consider. It remains a challenge across the industry keeping new employees long enough to teach them the necessary skills they require. This leads to problems in meeting customer demands and an overworked staff experiencing low morale. Ignoring employee satisfaction can also create an environment where high performers rotate out of the door at a high rate, increasing employee turnover costs. High turnover was the second-biggest challenge cited by manufacturers for new hires once they come onboard (see Figure 5).

FIGURE 5

Top Challenges Post-Hire



Source: IDC's *Industrial Talent Management Survey*, June 2020

While cost will always be important to manufacturers, especially in low-margin segments, there are companies that have realized that greater value can be realized by focusing more on the employee experience.

There are many ways that manufacturers can cultivate the talent they do have by improving the employee experience. The most obvious and utilized action is through regular trainings and certifications, on processes themselves but also training for new technology. To further train the workforce, apprenticeship and rotation programs are starting to be adopted more by manufacturers to teach new hires the skills they need, with over 40% of manufacturers currently utilizing these programs and an additional 40% planning to implement them within the next two years. Employees that are more confident in their ability to carry out their jobs well are more likely to be happier performing those jobs. In addition, by tracking an employee's performance on these skills, a manager will have a better idea how progress is being made and potential areas to improve upon in the future. A simple best practice, but one that is often lacking in many manufacturers, is providing clearer paths for employees to build and grow their career. Clarity around advancement opportunities can build employee morale, performance, and loyalty. Another important step that manufacturers need to take is to have a formalized employee experience and engagement program. The majority of modern enterprises have begun to expand upon the annual employee satisfaction survey to encompass more frequent employee touch points, all with the goal of having highly engaged workers. A well-engaged workforce is a productive and committed workforce.

The old model of isolated training and development is quickly being replaced with one of offering learning in the flow of work to keep pace with changing requirements. Companies that have started to shift their strategy and have found success in the transition have focused on the following:

- Building a culture of transparency and empathic leadership to foster innovation, employee engagement, brand recognition, and profitability
- Focusing on outcomes first and building in key behavioral indicators (KBIs) that can be monitored and managed
- Empowering employees to shape their work by providing tools to gather and implement suggestions for where and how to implement the automation and training needed to improve engagement
- Empowering managers by training them to lead hybrid teams, ensuring they have not just process and policy expertise but core leadership skills that see past procedural parameters
- Ensuring team members are informed and not isolated by providing two-way communication and collaboration tools that ensure all employees can get and give essential information/feedback

By having a closer connection with employees, companies will be better able to identify employees who are likely to thrive and those that are likely to leave. This will allow a manufacturer to continue to drive bottom-line improvements such as productivity or efficiency while also building a committed workforce.

5. Technology adoption/maturation will continue, enabling new ways to drive productivity and performance improvements as well as operational agility

As manufacturers progress toward the goal of embracing the future of work, it is important to realize the opportunity for technology to transform operations. Collaboration technology such as audio/video teleconferencing, live chat applications, virtual meeting solutions, and internal wikis are all being considered by manufacturers to allow employees to work together regardless of where they are. Given the siloed nature of manufacturing, connecting disparate data sources and applying analytics will be a key component to identifying inefficiencies and driving improvements across the enterprise. In fact,

analytics are ranked as the second-most utilized technology enabler among manufacturers to improve workforce performance.

However, technology to address the unique needs of the workforce continue to mature and grow in adoption. Workforce management technology offers performance-based tools to enable employees at all levels of the business, from corporate management to those on the shop floor. Operational agility can be achieved by leveraging demand-based scheduling to align available/qualified employees with shifting production requirements. Functionality such as absence management tools proved to be critical during COVID-19, as manufacturers were able to redeploy employees to cover shifts when employees called out sick, limiting downtime and improving resiliency. In addition, workforce management technology can be proliferated through mobile devices, making it easier for workers to complete their tasks and stay connected. Workforce management technology allows manufacturers to better engage employees, control labor costs, increase productivity, and minimize compliance risks – important not only to overall operational excellence but also for responding to the unique demands of COVID-19 and supporting the future of work in manufacturing.

The only constant is the fact that things will change. Organizations need to be positioned to rapidly adjust to a changing world as well as work, compliance, and geopolitical events. Modern technology is needed to ensure that organizations stay nimble and agile.

Being able to make effective decisions in a shorter time frame is what is now essential to success. Mobile devices and applications are powerful enablers to arm your employees with the data they need to make the most informed decisions in the fastest time frame. Also technology now allows a company to ingest and analyze unstructured data like image, speech, and text and turn it into valuable insights and best practices. However, artificial Intelligence (AI) represents a large area of untapped potential; AI-based automation can flip decision making from human led all the way to machine controlled (see Table 1).

TABLE 1**AI-Based Automation**

Human Led	Human Led, Machine Supported	Machine Led, Human Supported	Machine Led, Human Governed	Machine Controlled
Human analyzes and produces insights using limited technology	Human analyzes and produces insights using a portfolio of tools	Machine analyzes and produces insights with human review	Machine analyzes and produces insights without human review	Machine analyzes and produces insights
Human decides based on experience and rules	Human decides based on optimized machine prescriptions	Human decides based on machine prescriptions	Machine decides within a framework of human governance	Machine decides
Human acts or executes	Human acts or executes	Human acts or executes with machine oversight	Machine acts or executes with human oversight	Machine acts or executes

Source: IDC, 2021

AI will be able to help guide employees in their tasks, improving productivity and allowing employees the ability to shift their focus to higher-value tasks. AI will also empower decision makers with the timely and contextualized information they need to make rapid and effective decisions. For example, now AI has made it possible to determine employee flight risk, which offers management the opportunity to take action before valuable talent leaves the enterprise. For an industry like manufacturing that has struggled to keep new employees long term, the benefits of early action to retain talent can't be overlooked. Technology solutions have continued to mature, and there is no need for a manufacturer to continue to rely on manual or legacy systems. Manufacturers that have already adopted these types of technologies have seen the benefits, and the industry as a whole will need to do the same to maintain the pace of digital operations.

CONCLUSION

Employees are the backbone of any organization; a company's success hinges on its ability to maximize the potential of the workforce. For manufacturers, it is even more critical as talent is currently in short supply and will only become scarcer if the status quo remains. Like many industries, manufacturing is being forced to rapidly retool to accommodate the interconnected nature of automation, work culture, and the platforms needed to enable new ways of working. Manufacturers have shown that changes in operations, work models, and people management are all within their capability to pivot when the need arises. Manufacturers that focus on changing how they manage their workforce and the technology needed to maximize performance will set themselves up for success by 2025 and beyond.

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