



Manufacturers eyeing growth

It is unusual to see positive economic indicators paired with historic labor and supply chain challenges. But this is the trajectory for US manufacturing in 2022 emerging from the pandemic. The recovery gained momentum in 2021 on the heels of vaccine rollout and rising demand. As industrial production and capacity utilization surpassed pre-pandemic levels midyear, strong increases in new orders for all major subsectors signal growth continuing in 2022.¹ Deloitte projections based on the Oxford Economic Model (OEM) anticipate GDP growth in manufacturing of 4.1% for 2022.² As capital expenditures rise, a combination of high business valuations, strong earnings, and low-cost debt may also encourage companies to add technology capabilities, gain share, and expand in new markets with M&A. Policy initiatives and infrastructure investment have the potential to contribute to manufacturing's recovery.

However, optimism around revenue growth is held in check by caution from ongoing risks. Workforce shortages and supply chain instability are reducing operational efficiency and margins. Job openings—at more than twice the gap to reach pre-pandemic employment levels—hover near all-time highs at more than 800,000.³ Sourcing bottlenecks and global logistics logjams are likely to remain challenges in 2022 along with cost pressure and inflation risk. Steel, aluminum,

and other commodity prices have surged amid shortages.⁴ Adding to this mix are risks from COVID-19 variants, cyberattacks, environmental challenges, and higher corporate tax rates. The industry can expect elevated uncertainty from a range of potential disruptors globally.

Business agility can be critical for organizations seeking not only to operate through the turbulence from an unusually quick economic rebound but to compete in the next growth period. Manufacturers with higher digital maturity before COVID-19 had an advantage to some extent with greater resilience, as did those that accelerated digitalization during the crisis.⁵ Today, digitalization spanning smart factory initiatives to enterprise transformation and e-commerce can be vital for a more sustainable and competitive future in manufacturing. Eighty-six percent of manufacturing executives we surveyed report they are somewhat or very positive on business, up from 63% in 2020. As leaders look not only to defend against disruption but strengthen their offense, there are five important trends to consider for manufacturing playbooks in the year ahead.



About the Deloitte survey

To understand the outlook and perspectives of organizations across the energy, resources, and industrials industries, Deloitte fielded a survey of more than 500 US executives and other senior leaders in September 2021. The survey captured insights from respondents in five specific industry groups: chemicals and specialty materials, engineering and construction, industrial products, oil and gas, and power and utilities.



Workforce shortage

Preparing for the future of work could be critical to resolving current talent scarcity

Record numbers of unfilled jobs are likely to limit higher productivity and growth in 2022, and last year we estimated a shortfall of 2.1 million skilled jobs by 2030. Talent scarcity is compelling more manufacturers to consider raising pay. Although the industry has historically had a higher baseline wage for production workers, some competing industries are increasing wages faster than manufacturers.⁶ As digitalization transforms manufacturing work, automation of recurring tasks could help to blunt some of the labor shortage's impact. Organizations may also have more incentive to "pull forward" future-of-work strategies by re-architecting work, rethinking the composition and capabilities of the workforce, and adopting flexible and innovative workplace strategies.

To attract and retain talent, manufacturers should pair strategies such as reskilling with a recasting of their employment brand. Shrinking the industry's public perception gap by making manufacturing jobs a more desirable entry point could be critical to meeting hiring needs in 2022. In our survey, 38% of executives report that attracting new workers is their top priority for the production workforce in 2022, followed by retention (31%) and reskilling (13%). Reputational harm from a history of moving jobs to lower cost regions or outsourcing remains a generational challenge for some manufacturers to overcome. The industry may need to deploy creative solutions to improve workforce perception and experience. Placing a spotlight on modern facilities, advanced technologies, career mobility, well-being, and purpose can further attract new entrants, re-entrants, and those reconsidering employment changes.

Engaging with a wider talent ecosystem of partners to reach diverse, skilled talent pools could also be essential to offset the recent wave of retirements and voluntary exits.⁷ More manufacturers are revisiting requirements for candidates, considering ways to make online and in-person application easier, and expanding outreach to systemically disadvantaged groups. As partnerships, workforce development programs, and reskilling all remain important, efforts for diversity, equity, and inclusion (DEI) are increasingly a business imperative. More organizations are adding leaders to advance their DEI journey from a focus on meeting representation targets to creating more inclusive environments where diverse talent can build careers.⁸

Manufacturing executives may need to balance goals for retention, culture, and innovation. Remote work for office workers was one of the early successes for business continuity in the pandemic and has changed the minds of many employees and employers. Hybrid and flexible work models will likely continue to evolve. As flexible work is taking root in offices, manufacturers should explore ways to add flexibility across their organization in order to attract and retain workers. Organizations that can manage through workforce shortages and a rapid pace of change today can come out ahead.



Supply chain instability

Manufacturers are remaking supply chains for advantage beyond the next disruption

Supply chain resilience has been a thread through our recent outlooks, and the challenges are acute and still unfolding.⁹ There is no mistaking that manufacturers face near-continuous disruptions globally that add costs and test abilities to adapt. Purchasing manager reports continue to reveal systemwide complications from high demand, rising costs of raw materials and freight, and slow deliveries in the United States.¹⁰ Transportation challenges are likely to continue in 2022, including driver shortages in trucking and congestion at US container ports.¹¹ As demand outpaces supply, higher costs are more likely to be passed on to customers.

Root causes for extended US supply chain instability may include overreliance on low inventories, rationalization of suppliers, and hollowing out of domestic capability.¹² Supply chain strategies in 2022 are expected to be multipronged, according to our survey, including 41% of executives who report their companies will further add or diversify suppliers in existing markets. Fifty-three percent of surveyed organizations plan to enhance data integration for supply-and-demand visibility and planning. Manufacturers are likely to continue to seek an upper hand by integrating operational data for more transparency and insight in operations. For example, centralizing a manufacturing control tower can bring together data from different facilities, production lines, and equipment and visualize dependencies on suppliers and effects on logistics.¹³

Digital supply networks and data analytics can be powerful enablers for more flexible, multitiered responses to disruptions. The risks from not “connecting the dots” through available data can be significant: A lack of supply chain integration could stall smart factory initiatives for 3 in 5 manufacturers by 2025.¹⁴ Beyond the data, reshoring of components or even final assemblies are likely to pick up steam as global sourcing and low-inventory models continue to diverge. Rising wages and transportation costs globally make nearshoring or onshoring more competitive at the same time that organizations look to avoid a repeat of 2020-21. Twenty-four percent of manufacturing executives surveyed are considering moving operations closer to end customers in different regions in 2022. Some manufacturers already in the process of localizing supplier networks in response to tariffs may redouble efforts.¹⁵ The United States-Mexico-Canada Agreement is likely to continue to drive nearshoring from China to Mexico.¹⁶

Along with trade, policymakers may further support domestic supply chains. The White House’s 100-day supply chain review in 2021 recommended initiatives and investments to strengthen resiliency in supply chains for semiconductors, large-capacity batteries, critical minerals, and pharmaceuticals. A second installment expected in early 2022 is likely to evaluate supply chains for defense, public health and biological preparedness, information and communications technology, energy, transportation, and agriculture and food production.¹⁷



Smart factory initiatives

Acceleration in digital technology adoption could bring operational efficiencies to scale

Manufacturers looking to capture growth and protect long-term profitability should embrace digital capabilities from corporate functions to the factory floor. Smart factories, including greenfield and brownfield investments for many manufacturers, are viewed as one of the keys to driving competitiveness.¹⁸ More organizations are making progress and seeing results from more connected, reliable, efficient, and predictive processes at the plant. In 2022, 45% of manufacturing executives surveyed expect further increases in operational efficiency from investments in industrial Internet of Things (IIoT) that connect machines and automate processes.

Emerging and evolving use cases can continue to scale up from isolated in-house technology projects to full production lines or factories, given the right mix of vision and execution. For example, one heavy equipment manufacturer has been accelerating convergence of “man, machine, and method” by optimizing performance using sensors to track assets and connecting its machinery to the cloud to enable real-time insights on maintenance.¹⁹ Others have been transforming brownfield facilities with IIoT, robotics, automation platforms, and AI-enabled tools to support production.

US manufacturers have room to run with advanced manufacturing compared to many competitors globally. The number of industrial robots as a share of manufacturing workers in the United States is below countries like Korea, Singapore, and Germany.²⁰ Half of executives we surveyed expect to increase operational efficiency in 2022 through their investments in robots and cobots. Investment in artificial intelligence technologies is also expected to see a compound annual growth rate (CAGR) above 20% through 2025.²¹ Discrete manufacturing is among the top-three industries expected to invest most heavily in AI, primarily in quality management and automated preventive maintenance use cases.²²

Advanced global “lighthouse” factories showcase the art of the possible in bringing smart manufacturing to scale. Foundational technologies such as cloud computing enable computational power, visibility, scale, and speed.²³ Industrial 5G deployment may also expand in 2022 with advances in technology and use cases. One global equipment manufacturer has invested in multiple private 5G networks to enable automation and intelligence on factory floors as well as to support connected products. Use cases for mobility, such as communication with automated guided vehicles and mobile robots, are likely to complement other edge-computing applications, such as quality monitoring, to increase factory efficiency.²⁴



Cybersecurity

Rising threats are leading the industry to new levels of preparedness

High-profile cyberattacks across industries and governments in the past year have elevated cybersecurity as a risk management essential for most executives and boards. Surging threats during the pandemic added to business risk for manufacturers in the crosshairs for ransomware. Most US manufacturers report phishing or ransomware security incidents in the past 12 months.²⁵

Eighty-two percent of manufacturing executives we surveyed expect their organizations will invest more in cybersecurity in 2022, with nearly one quarter budgeting at least 10% more than in 2021. An expanding attack surface from the connection of operational technology (OT), information technology (IT), and external networks requires more controls. Legacy systems and technology were not purpose-fit for today's sophisticated network challenges. Remote work vulnerabilities leave manufacturers even more susceptible to breaches.

As insider threats are also rising with workforce displacements, cybersecurity inside and outside organizations is increasingly vital. More leaders in OT are likely to designate point persons responsible for cybersecurity procedures, readiness, and reporting, but there is no question cybersecurity is also a firmwide responsibility.²⁶ Zero-trust security measures requiring authentication and limiting access can be part of prevention. Vigilance requires retooling, employee training, and oversight within and across departments.²⁷

Manufacturers should look not only at their cyber defenses, but also at the resiliency of their business in the event of a cyberattack. Eighty-five percent of executives in our survey expect their organizations will invest more in prevention in 2022, while 56% of those surveyed anticipate more for detection and 29% plan to allocate more for areas of response. Cybercriminals can cause harm beyond intellectual property theft and financial losses, using malware that now ties in AI and cryptocurrencies. They can also shut down operations and disrupt entire supplier networks, compromising safety as well as productivity. A patchwork of regulations for different industries could be consolidated under the current administration's "whole-of-nation" approach to protect critical infrastructure.²⁸ The potential for additional oversight is likely to prompt more industrials to rethink preparedness for crisis response.



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ESG investment

Manufacturers are likely to bring more resources and rigor to advancing sustainability

The fast rise of environmental, social, and governance factors is redefining and elevating sustainability in manufacturing as never before. One-third of total assets under management in the financial asset advisory industry will likely be ESG-dedicated assets by 2025.²⁹ Cost of capital can be tied to ratings on ESG, making it a priority for organizational financial health and competitiveness. As investors, boards, customers, employees, and policymakers continue to focus on ESG, more attention on industry actions and reporting is expected in 2022. Ninety-five percent of manufacturing executives we surveyed expect their organizations will invest more in ESG areas in 2022 than in 2021.

Along with the focus on reporting on performance, as with earnings, manufacturers are likely to continue to increase engagement with a wider set of stakeholders through disclosures. For instance, the social factor—with emphasis on the organization's role in community engagement, worker health and safety, and equity, among others—has seen momentum recently. Two-thirds of manufacturing executives we surveyed expect more investment in this social area as part of sustainability priorities in 2022. Expectations for reporting on DEI metrics in manufacturing will likely continue to rise. Board diversity, while progressing slowly, is also showing some momentum. To attract talent and appeal to workforce expectations, most manufacturers are making ESG efforts more visible.

Depending on a manufacturer's end markets, environmental accountability is increasingly a focus. To develop and deliver against net-zero or carbon-neutral goals, more organizations are dedicating or redesigning sustainability roles and initiatives and quantifying efforts and results around energy consumption. With increasing attention on disclosures relating to climate impact, more industrials are likely to operationalize or communicate environmental commitments in areas of product design, sourcing, production, distribution, and after-market.³⁰

The fast-evolving ESG landscape may require close monitoring in 2022 for manufacturers. Many organizations are complying voluntarily within a complex network of reporting regulations, ratings, and disclosure frameworks. But regulators globally are also moving toward requiring disclosure for more nonfinancial metrics. Proactive approaches may help manufacturers stay ahead of the change and create competitive advantage.

Turning risks into advantages may be key for manufacturers to stay ahead

Manufacturers are building back fast despite significant headwinds. Industry and market trends are likely to further accelerate organizational changes in 2022. Adapting strategies for the future of work, supply chain resilience, and digital maturity can help manufacturers keep pace and drive performance amid strong economic demand. Bold moves may further shape the competitive landscape, as a positive outlook for a new year leads some companies to think big. But recent experience should also remind manufacturers of the importance of executing with agility, including efforts that start small and scale fast to create value.

To maintain margins and capture growth, manufacturers should navigate elevated risks near term while advancing sustainability priorities for the longer term. In many cases, the here-and-now challenges can create an advantage tomorrow. The extraordinary levels of business uncertainty in the past couple of years may have honed instincts to expect the unexpected, but manufacturers have also acquired greater resiliency to sustain momentum and competitiveness.

Let's talk



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