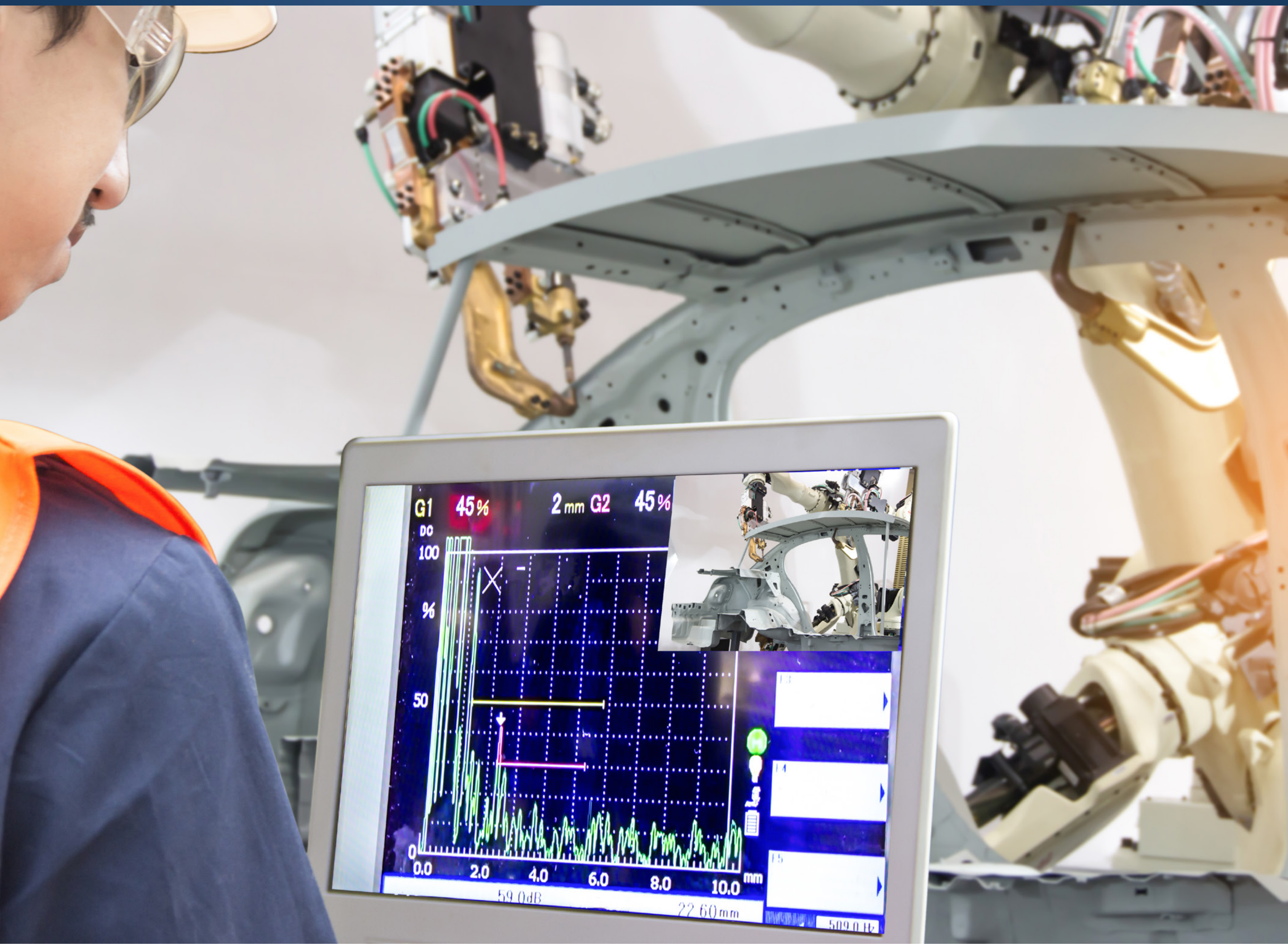
MAGNET

Ohio | Manufacturing Extension Partnership

a NIST MEP Network Affiliate

2020 Ohio Manufacturing Report
Technology, Talent, and Transformation



WELCOME

Dear Friends of Ohio manufacturing,

It is our pleasure to unveil the results of this year's 2020 Ohio Manufacturing Survey, which took place from November 2019 to January 2020. Now in its fourth year, this is by far our largest survey yet, with over 670 companies responding statewide. These companies represent over 128,000 of our state's 700,000 manufacturing workers, with 75% of respondents indicating they were the owner, President, in the C-Suite, or in other senior management roles. Over 93% of survey respondents were from companies with under 500 employees – and 88% were under $100 million in annual revenue – reflecting our state's predominantly small- and medium-sized manufacturing base.

Here are the key insights:

GROWTH

- **Manufacturers in Ohio had a good year in 2019, with the majority (56%) reporting that revenues were up.** At the same time, revenue and workforce growth has slowed slightly compared with 2018.

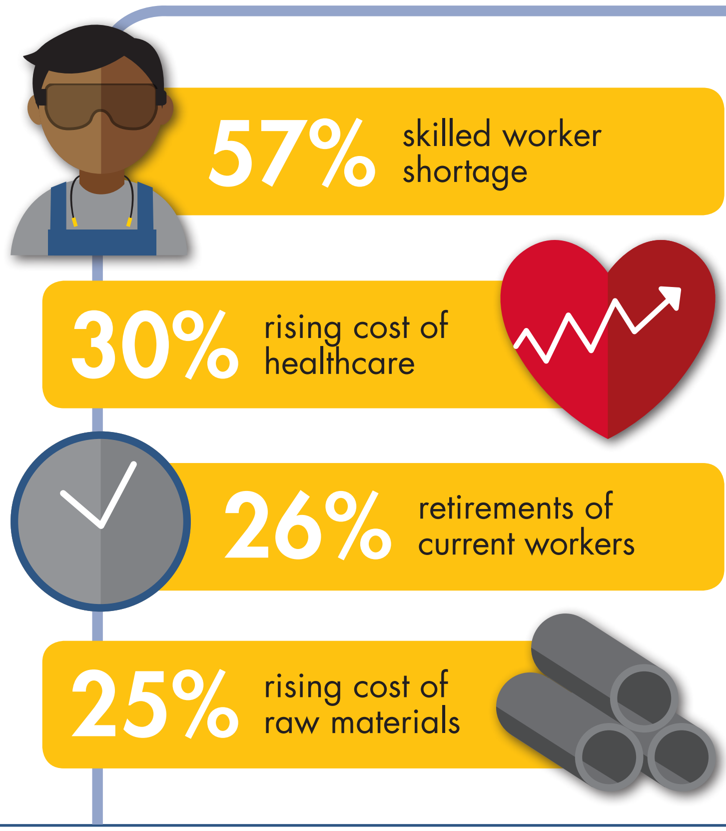
- **Manufacturers are optimistic about growth prospects in 2020.** 72% expect increased revenue, 70% expect profitability to rise, and more than 70% expect to grow their workforce in the next 12 months.

- **Manufacturers' top three priorities for 2020 are:**

  TALENT 63% Retaining and developing current employees, plus attracting new ones

  SALES 49% Finding new customers/improving sales and marketing efforts

  EFFICIENCY 30% Cutting operational costs



What is limiting growth?

Companies are once again ringing the alarm about the shortage of skilled workers. 57% of manufacturing companies say the skilled worker shortage is hampering their growth, nearly twice that of the next-closest challenge. 30% of respondents cited the rising cost of healthcare coverage as limiting overall growth. Companies also indicated they are challenged by retirements of current workers (26%) and the rising cost of raw materials (25%).

WORKFORCE

- **In 2019, Ohio companies grew their workforce (again).** For 2019, 48% of respondents said they grew their workforce 5% or more (vs. 47% in 2018, 44% in 2017, and 32% in 2016).

- **At the same time, companies are being held back because they can't get the right people, with the right skills, in the right jobs.** In Northeast Ohio alone, there are approximately 8,000 open manufacturing jobs in the region today. With those numbers predicted to exceed ten thousand in the next few years, one thing is abundantly clear: Ohio cannot become a leader in advanced manufacturing unless we fix the talent gap.

- **Manufacturers are deeply concerned about finding and hiring skilled workers.** But change is hard: while 71% are improving their processes and 64% are improving their products, only 36% of companies say they are actively innovating the way they recruit and retain their people.

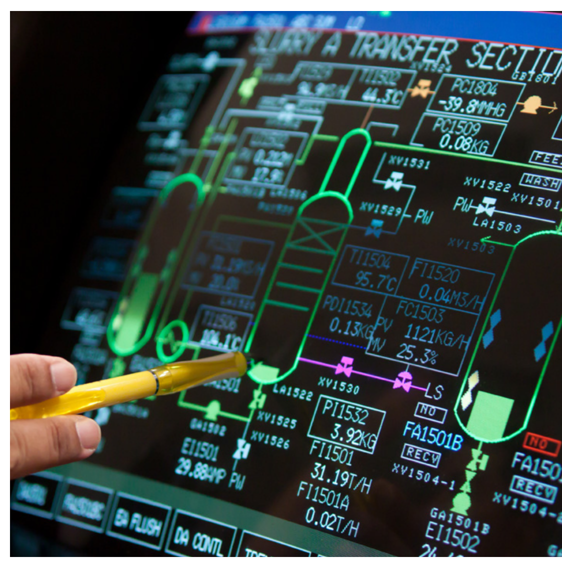
- **To win the battle for talent, we have to fundamentally change the way we deal with people and build winning workplace cultures.** The good news is that 76% of companies say they're actively trying to do this.

INNOVATION

- **The vast majority of manufacturing companies in Ohio report that they are actively innovating in some fashion – 94%.**

- **But 45% of companies did not launch a new product in 2019.** New product launches as a company priority are down 12% since 2017.

- **Innovation actually dropped two spots on the company priority list.** Just 24% of companies listed it as a priority, a 12% drop since 2018, making it only the 6th most important thing companies will focus on in 2020.



INDUSTRY 4.0

- **We are falling behind on Industry 4.0 adoption.** Companies in Ohio—particularly small- and medium-sized—are struggling to find on-ramps into Industry 4.0. The digital transformation journey is just beginning for the vast majority of Ohio manufacturers.

- **Automation and cybersecurity are the most common areas in which companies are beginning to invest.** When it comes to digitizing operations and maximizing the use of intelligent machines with applications such as cobots, smart products, big data, and 3D printing,most companies aren't using these technologies at all, or they're just starting to.

- **Manufacturers are greatly concerned about cybersecurity and hacking, with more than 60% indicating they fear they are at risk as more operations and supply chains are digitized.** The number of companies indicating cybersecurity is hampering their growth doubled from last year.

- **Technology investments are not keeping pace. More than 60% of companies either aren't using or just started using automation, and half of companies say they don't plan to increase capital expenditures on automation.** This signals companies may not be planning for the significant technology investments they need to make now to compete in advanced manufacturing.

- **Adopting Industry 4.0 sits near the bottom of the priority list. For example, only 21% anticipate using more 3D printing in 2020.** This underscores the challenges that small and medium-sized companies face when considering the enormously complex world of Industry 4.0, and highlights the need for support to help them accelerate adoption.

The 2020 Ohio Manufacturing Survey would not have been possible without the tremendous partnership of our local economic development partners, corporate sponsors, and the Ohio Manufacturing Extension Partnership. We look forward to strengthening Ohio manufacturing, in 2020 and beyond!

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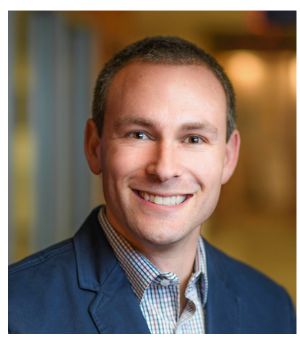

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MAGNET THANKS OUR 2020 OHIO MANUFACTURING SURVEY COMMUNITY PARTNERS

DEEP DIVE: GROWTH

- **Almost 60% of Manufacturing companies say revenues are up over last year.** Good news on the surface, but this is actually a 10 percentage point drop over last year, when almost 70% of companies reported the same growth. In a concerning new development, 19% of companies said they saw decreasing revenues in 2019, almost double that of 2018, when just 10% reported decreasing revenues.

- **This growth is mostly due to sales, but market conditions have clearly softened.** Though 60% of respondents indicated they had found new customers, and 49% said they had improved sales to existing customers, only 27% of companies attributed their growth to improved market conditions (versus 51% last year). In other growing areas, 17% more companies this year entered new markets than last year, and 18% more companies innovated new products that are producing results. For the almost 20% of firms who reported a year-over-year decline more than 50% blamed challenging market conditions or tariffs/foreign competition.

- **82% of companies report that their workforce stayed the same or grew.** Almost 40% reported workforce growth of more than 5%. (That growth has dropped from last year by 7%.) This indicates revenue and workforce growth seem to have slowed a bit in the sector.

18%

more companies than last year launched new products that are producing results

- **Manufacturing companies are cautiously optimistic about growth prospects in 2020.** On a macro level, optimism was exactly the same as last year, with 35% of companies expecting an economic expansion in 2020. Companies expecting an economic contraction or recession actually dropped from 17% to 12%, as 72% expect increased revenue, 70% expect profitability to rise and more than 70% expect to grow their workforce in the next 12 months. The anticipated backlog of orders, inventory levels, and new orders all remained flat from last year, with strong optimism across the board.

- **More than half of companies have a strategic plan to chart their growth, excellent news since transformation and value creation rarely happen by accident.** However, that also means that 45% of companies have no strategic growth plan. Additionally, only 10% of respondents indicated planning is a 2020 priority for their companies. Leaving value creation to chance is a significant missed opportunity.

Manufacturers' TOP 3 Priorities for 2020

63% Talent

49% Sales

30% Efficiency

- **Most companies attribute their growth to improving their sales process.** Respondents indicated finding new customers (almost 60%), improving sales to existing customers (49%) and entering new markets (48%) were driving growth. Just 11% said they had benefited from finding new workers or recent de-regulations in their industry.

- **The biggest government regulations that are negatively impacting the sector are reported as healthcare and tariffs.** 40% of companies believe that import tariffs imposed by the U.S. have decreased profits in the last 18 months; only 3.5% said they increased profits.

- **Companies are once again ringing the alarm about the shortage of skilled workers.** 60% of manufacturing companies say this is the number one thing hampering their growth above all else. The cost of healthcare coverage and the rising costs of raw materials round out the top three things that are hampering growth. In fact, healthcare costs are significantly hampering the growth of companies from $0 to $5 million at a rate almost double the average (19% vs.10%).

DEEP DIVE: WORKFORCE

- **In 2019, Ohio companies grew their workforces (again).** For 2019, 48% of respondents said they grew their workforces 5% or more (vs 47% in 2018, 44% in 2017, and 32% in 2016). Looking into 2020, 39% of companies expect to grow their workforces 5% or more. These companies report having over 5,000 open positions in aggregate, with the average respondent having 8.9 current job openings, significantly more than last year's average of 6.3. As one would expect, however, these companies have limited HR support: 58% of companies under $15 million (or under 50 employees) have one or fewer full-time human resources professionals.

- **Companies are being held back because they can't get the right people, with the right skills, in the right jobs.** With an estimated 8,000 open manufacturing jobs in the region today, one thing is abundantly clear: Ohio cannot become a leader in advanced manufacturing unless we fix the talent gap.

- **No matter their growth prospects, an alarming number of manufacturers (57%) rank attracting skilled workers as their #1 challenge hampering their growth.** That number has risen steadily each year: from 45% in 2016, to 50% in 2017, to 53% in 2018, and finally to 57% this year. The shortage is also affecting certain companies acutely: respondents reporting a significant negative impact continues to grow, from10% in 2016 to 21% today.

- **Manufacturers are deeply concerned about problems finding and hiring skilled workers.** But only about one-third of companies are actively innovating the way they recruit and retain their people. This is further exacerbated in small companies for whom HR is far less likely to be a dedicated function involved in the senior management team compared to larger companies.

- **To win the battle for talent, we have to fundamentally change the way we deal with people and build winning workplace cultures.** The good news is that 76% of companies say they're actively trying to do this. The not so good news….this has dropped since last year, at a time when it should be increasing.

- **Even though there's much more work to be done, companies are taking steps to retain current employees and attract new talent…**offering more flexible work hours (84%), increasing salaries (81%), providing more coaching and mentoring (80%), actively working to improve their company cultures (76%), and offering more technical training (74%).

- **Manufacturers recognize they need to hire from new populations, in new ways.** Companies are actively recruiting women (71%), people of color (70%) and veterans (60%).

- **Companies report the three biggest challenges they face in hiring qualified candidates continue to be the same:** lack of commitment, lack of the right skills or education, and lack of applicants.

- **Current open jobs range from engineers to executives, from skilled production workers to welders, from sales and marketing to supervisors.**

Employers are more in need of workers with technical training and experience than those with 4-year college degrees.

- **Overall, employers say they are more in need of workers with technical training and experience than those with 4-year college degrees.**

- **In the next three years, 87% of companies report that up to 15% of their workforce will retire.** And 40% of companies aren't doing anything to actively transfer knowledge from veteran workers to younger workers. Add that to the current and growing skills gap and it's a potential crisis in the making that we need to address.

- **Too many companies are lacking in HR leadership.** Now, more than ever before, they need a senior leader with the ear of the C-Suite and a professionalized HR function to win the race for talent. And less than 49% have this.

- **A variety of retention practices are used. To increase retention, 87% are using rotational programs, 83% of companies are offering more flexible work schedules, and 81% are increasing salaries.** 40% of respondents indicated they plan to launch formal training programs in 2020.

- **Certifications and credentials represent a significant opportunity for manufacturing recruiting practices.** When asked about common certifications (Green Belt, Six Sigma, MSSC/CPT, NIMS, AWS, and PMP) manufacturers overwhelmingly showed indifference. Only Six Sigma (6%) and Green Belt (5%) had any influence on hiring. Through the work of Workforce Connect, the Manufacturing Sector Partnership for Cuyahoga County, MAGNET will work with manufacturers to better understand and utilize certifications as a measure of talent and potential for an aspiring employee.

- **Hiring strategies largely remained the same year over year, and continue to be focused on traditional sources such as employee referrals, internet job postings, and staffing agencies.** 88% use employee referrals, 83% job postings, 62% use staffing agencies, and 44% work with high schools and 37% work with community colleges.

DEEP DIVE: INNOVATION

- **The good news…the vast majority of manufacturing companies in Ohio report that they are actively innovating—94%.** More than 50% of companies report they launched a new product in the past year.

- **Innovation is not growing fast enough to fuel future competitiveness.** In fact, by some measures, innovation is actually declining. 45% of companies did not launch a new product in 2019. New product launches are down 12 percentage points since 2017. Fewer companies each year focus on innovation as their core business strategy (22% in 2018, 18% in 2019, and 14% in 2020). Launching new products as a company priority has dropped from 36% of companies in 2018 to 24% in 2020. R&D spending is flat year-over-year, with 75% of respondents spending less than 5% of their sales on R&D. Innovation – cited by just 24% of companies as a priority—actually dropped two spots on the company priority list, making it only the 6th most important thing companies will focus on in 2020.

- **Larger companies are doing more to innovate across their businesses.** The vast majority of small companies are innovating in just one or two ways (average of 1.9), while companies over $100 million in annual revenue are innovating in three or four ways (average of 3.6) across products, processes, workforce, and more.

- **Almost 60% of those doing product innovation say they are adding new technology into their products, which is a smart investment since Industry 4.0 technologies such as the Internet of Things, Big Data, and Connected Machines are demanding this.**

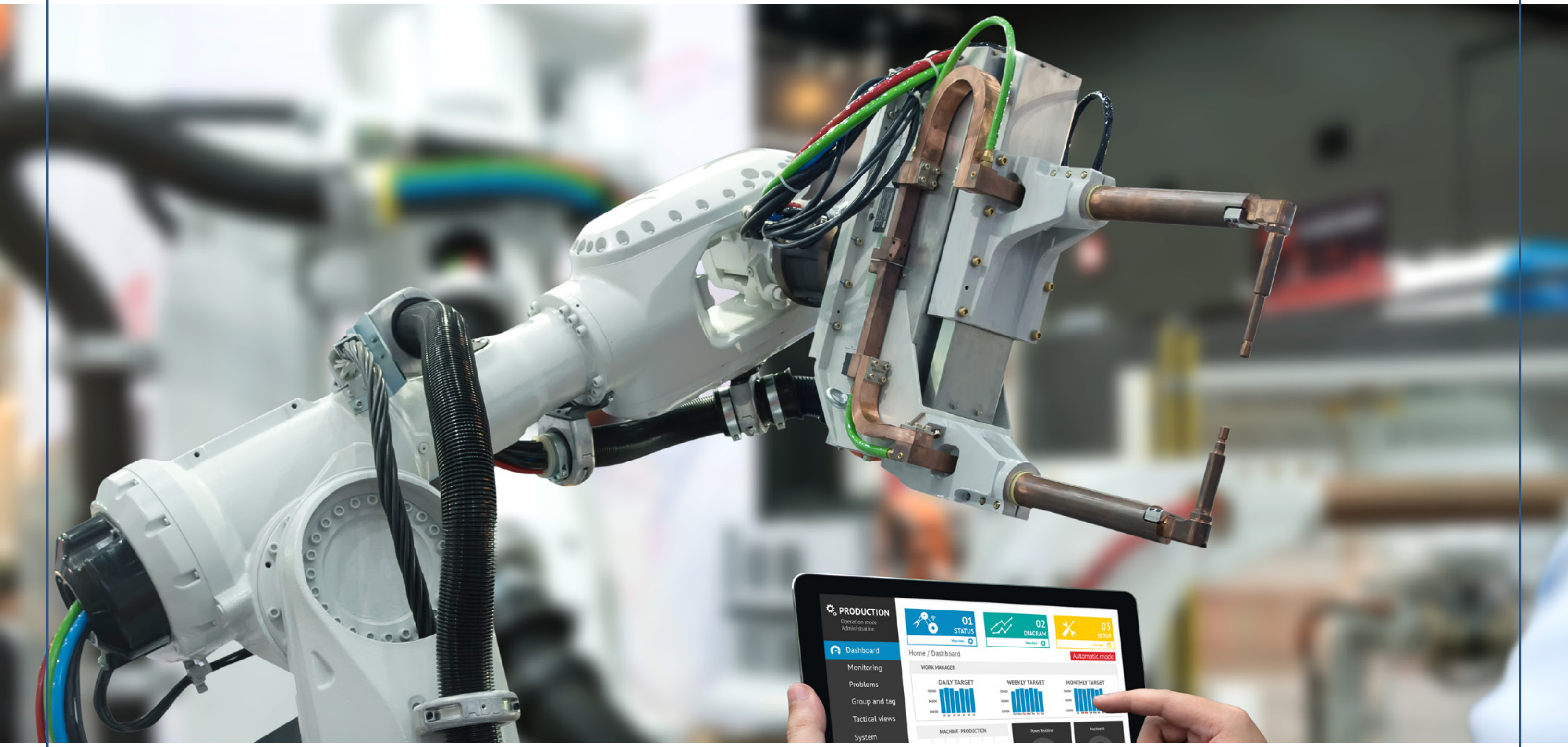
- **More than 75% of companies say they plan to spend less than 5% of sales investing in new product research and development in 2020.** This is about the industry average – but worth noting that manufacturing lags behind most other industries in this regard. With the Industry 4.0 revolution looming it may be time to boost R&D investments to fuel more innovation and increase competitiveness.

We're Innovating…Maybe…

When it comes to Ohio's manufacturing innovation, it's a mixed bag.

THE GOOD NEWS	THE BAD NEWS
94% report they are actively innovating in at least one area	Only 14% focus on innovation as a core business strategy
78% report they innovated in two or more ways across their business	Innovation was 6th on priority lists, cited by only 24% of companies
47% innovated new products that are increasing revenue	45% did not launch a new product in 2019, down 12% since 2017

INDUSTRY 4.0



- **Industry 4.0 is changing virtually everything we make and how we make it.** And it's driven by disruptive technology: automation, cobots, augmented reality, artificial intelligence, the Internet of Things (IoT), 3D printing, sensors and the list goes on. We have a stark choice to make. We can either lead or be left behind. We firmly believe Ohio can lead in advanced manufacturing—but we must act now.

- **Productivity is one of the major impacts of this new technology.** Productivity has been increasing every year for decades and will continue. For example, of those companies who grew 10% this year in revenue, 36% did not grow their workforces as well. This is still a net increase in the number of people in manufacturing, but not at the rate of revenue growth which indicates meaningful productivity increases alongside the addition of employees.

- **We are falling behind on Industry 4.0 adoption.** Companies in Ohio—particularly small and medium sized ones – are struggling to find on-ramps into Industry 4.0. The digital transformation journey is just beginning for the vast majority of Ohio manufacturers.

- **Automation and cybersecurity are the most common areas where companies are beginning to invest.** When it comes to digitizing operations and maximizing the use of intelligent machines with applications such as cobots, smart products, big data, and 3D printing, most companies aren't using these technologies at all or they're just starting. And there's been very little growth in Industry 4.0 adoption since 2018.

- **Automating machines on the production floor is by far the most common technology manufacturers have started profiting from….**and that's still only 15% of companies.

- **However, more than half of companies increased their use of automation signaling they are investing in the future and beginning to use at least some of the digital and emerging technologies presented by Industry 4.0.**

- **And automation on the production floor is growing…** jumping a full 10% since last year's survey.

- **Automation is feared by many as code for "reducing people."** But most companies report using it to augment the current workforce and increase productivity—not replace people. The majority, 84%, use it to augment the productivity of existing employees.

- **The other Industry 4.0 area where companies are taking decisive action is on beefing up cybersecurity.** Most companies report taking smart actions such as training, hiring expert consultants, and doing penetration testing. While 65% of respondents have provided risk awareness training for employees, only 35% conduct regular cybersecurity audits.

- **Manufacturers are greatly concerned about cybersecurity and hacking (more than 60%).** Many companies fear they are at risk as more operations and supply chains are digitized. This is the top concern for the third year in a row.

- **Technology investments are not keeping pace.** More than half of companies don't plan to increase capital expenditures on automation. This signals companies may not be planning for the significant technology investments they need to make now to compete in advanced manufacturing.

- **Companies don't believe adopting Industry 4.0 is a priority.**It sits near the bottom of the priority list. This spans technologies: only 21% anticipate using more 3D printing in 2020, only 7% are using robots effectively, and only 10% are creating web-connected products. This underscores the challenges that particularly small- and medium-sized companies face when unravelling where to start in the enormously complex world of Industry 4.0—and the need for support to help them accelerate adoption.

THE MANUFACTURING SECTOR PARTNERSHIP

Led by a dedicated team of 14 manufacturing executives, the Workforce Connect Manufacturing Sector Partnership for Cuyahoga County is tackling a talent gap in manufacturing in our region that has persisted. Seeded by the Workforce Funders Group and facilitated by MAGNET and the Greater Cleveland Partnership as co-intermediaries, the sector partnership is working to aggregate the needs and voice of industry across Cuyahoga County. This initiative is also working closely with the Ohio Manufacturers Association to coordinate and share best practices across the entire state.

Workforce Connect Manufacturing Sector Partnership

Greater Cleveland Partnership

The manufacturers set a vision to become the manufacturing education capital of the U.S. by investing to unlock a diverse and skilled workforce. Three core strategies were developed, which were then broken down into 6 action teams. These action teams are comprised of over 25 manufacturing companies, over 30 workforce agencies, education partners, and philanthropic entities. The action teams are currently coordinating the launch of pilot activities to solve specific gaps or recruit specific target populations, including high school students, individuals returning to the workforce from incarceration, and seasonal employees looking to transition into the great career paths in manufacturing. There are also initiatives underway to recruit instructors from industry to support our education partners, as well as engage more companies in earn-and-learn programs to upskill their incumbent workers.

MAGNET'S EARLY COLLEGE, EARLY CAREER PROGRAM

Today, a critical question faces Northeast Ohio: How do we as a community help high school students access high-demand careers, a more affordable pathway to college, and gain the high-demand skills that lead to successful careers?

Started through pioneering funding from the Cleveland Foundation, and supported today by local philanthropy, MAGNET is answering this question through a revolutionary youth apprenticeship program. The Early College, Early Career (ECEC) program has four essential objectives:

1. Raise awareness about manufacturing careers, especially among inner-city youth
2. Develop successful pathways for students that combine education and work into a long-term, lucrative career
3. Produce more skilled workers for our region's workforce
4. Reinforce and grow connections between manufacturing businesses and the Cleveland community

By building awareness in 9th and 10th grades, conducting skills training at local community colleges in 11th and 12th grades, then moving students into paid internships in 12th grade, ECEC promotes economic inclusion, increased career readiness, social equality with economic opportunity to all, and revitalized local communities through increasing employment and prosperity. Along the way, students earn college credit from our well-regarded community college partners (currently Tri-C and LCCC), manufacturing certifications, and even job offers. Upon graduation from high school, students will have the option to continue their education, continue working at their companies, or do both simultaneously.

ECEC is designed to fill local manufacturers' long-term workforce pipeline in an easy, cost-efficient manner. Advantages to participating in ECEC include:

• Higher employee retention and a long-term pipeline of workers
• A young, skilled workforce already familiar with your company and its operations
• A steady pipeline of people year after year
• Investment in your local community and school systems

Contact MAGNET today to start the conversation about partnering with MAGNET's ECEC program!

MISSION STATEMENT

The mission of MAGNET is to play a vital role in growing the manufacturing sector in Northeast Ohio, thereby creating more vibrant communities, increasing economic inclusion, and building a stronger middle class in our region. Since 1984, MAGNET has offered a wide range of hands-on consulting services to manufacturers as part of the national NIST Manufacturing Extension Partnership (MEP) and Ohio MEP. These services, which include product and process development, marketing and sales support, and lean/operations consulting, help companies grow locally while competing globally.

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