

MULTIGENERATIONAL TEAMS IN MANUFACTURING

Industry Trends and Best Practices
for Leveraging Age Diversity

November 2021



TABLE OF CONTENTS

Section 1: Introduction/Executive Summary	1
Section 2: Overview	2
Section 3: Awareness and Trends From the Survey and Interviews	4
Section 4: Best Practices/Recommendations	12
Section 5: Conclusion	19
Appendix	20
Endnotes	22

1. INTRODUCTION/EXECUTIVE SUMMARY

The manufacturing industry is experiencing a pressing, double-edged problem: it struggles with filling new positions, while 5% of the existing workforce is already beyond retirement age—and an additional 20% will reach retirement age within the next decade.¹ As a result of this human capital conundrum, it has become even more important for manufacturing companies to ensure that knowledge transfer, retention and upskilling occur. Multigenerational teams, defined as a collaborative working group made up of employees from different generations, are one of the best ways to accomplish this. The benefits of multigenerational teams include increased diversity of thought; boosted creativity and productivity; and greater mentoring and learning opportunities.

Through a survey of manufacturers and a series of interviews with industry leaders, The Manufacturing Institute—the workforce development and education partner of the National Association of Manufacturers—has researched how the manufacturing industry utilizes multigenerational teams. This report distills those findings and seeks to answer, among other questions: (1) the extent to which companies in the manufacturing sector are changing company policies to retain older workers, (2) the nature of the industry’s concerns surrounding the aging workforce and (3) how companies in the manufacturing sector are using multigenerational teams to benefit their businesses.

To this end, Section 2 of this report provides a review of known patterns for multigenerational teams in various industries. Section 3 uses survey results, interview answers and recent literature to evaluate the degree to which manufacturing firms are utilizing multigenerational teams and the value gained from such teams. Finally, Section 4 relies on further insights obtained from interviews with industry leaders and additional context provided by the survey to explain some best practices for manufacturing firms looking to implement multigenerational teams and retain older workers successfully.

Key findings of the report include the following:

- Our survey found that 78% of manufacturing firms are concerned about generational changes in the workforce—a result that is consistent with views expressed in the MI’s 2019 report on the aging workforce.²
- More than 60% of companies utilize multigenerational teams to enhance innovation and creativity and improve productivity.
- Still, work remains to be done to ensure that multigenerational teams are utilized successfully in manufacturing. While 60% of companies believe they are successfully managing multigenerational teams, 10% believe they are struggling, and 30% are not focused on managing multigenerational teams at all.
- Firms across manufacturing sectors are experiencing some tension between awareness and action. Although a majority of surveyed companies are concerned about the aging workforce, 86% of companies have not developed strategies to recruit and retain older workers.
- Results from the survey and information collected during interviews with manufacturing firms show that those who successfully manage multigenerational teams target knowledge transfer, recruitment and staff feedback to mitigate staff turnover, enhance innovation and boost company morale and motivation.

Overall, manufacturing firms surveyed and interviewed appear aware and concerned about the aging workforce. However, few firms have taken strategic actions to address this concern. Accordingly, firms within the manufacturing sector are likely to find the best practices described in this paper useful in effectively managing a multigenerational workforce, which can minimize the risk of knowledge loss as demographic shifts continue.

1.1 BEST PRACTICES FOR MANAGING MULTIGENERATIONAL TEAMS AND LEVERAGING AGE DIVERSITY AT WORK

Formalize Policies	<ul style="list-style-type: none"> • Offer phased retirement or part-time work to retirees. • Establish a clear system of knowledge transfer with topics to discuss.
Expand the Recruitment Pipeline	<ul style="list-style-type: none"> • Develop nontraditional partnerships to widen the pool of applicants, providing more age and experience diversity on teams. • Build recruitment efforts targeted at more mid-career workers.
Emphasize the Value of Age Diversity	<ul style="list-style-type: none"> • Include age in diversity trainings. • Consider issuing a public statement affirming a commitment to age diversity. • Honor retirees' contributions.
Recognize Employees' Needs	<ul style="list-style-type: none"> • Collect staff feedback on policy changes and solicit input on company improvements.

2. OVERVIEW

2.1 THE AGING WORKFORCE

The United States is experiencing a demographic shift; more Americans are working past the typical age of retirement. According to the Bureau of Labor Statistics, employment of workers over the age of 65 increased by 6 percentage points between 1995 and 2020.^{3,a} In the manufacturing industry, the median age of workers has risen from 40.5 to 44.4 years old between 2000 and 2020.⁴

This pattern of aging within manufacturing's workforce can be attributed to two factors: 1) older manufacturing employees choosing to work past retirement and 2) a struggle to hire younger workers. These two factors, along with the overall aging of the U.S. population due to longer lifespans and lower birth rates, have pushed up the median age of manufacturing workers.

Research conducted for this study, as well as anecdotal evidence from the interviews, reflect these factors. Several of the responding companies have employees from a wide range of ages, with the oldest employee typically being past the typical retirement age. Although a few companies interviewed have implemented policies to retain older workers, a near-majority have struggled to recruit workers to fill job openings, even before the global pandemic brought labor market tightness and volatility. This struggle seems to have resulted in part from perceptions surrounding the manufacturing industry and a heightened emphasis on four-year universities, rather than vocational or trade schools.

2.2 WORKFORCE DEVELOPMENT, RETAINING OLDER WORKERS AND KNOWLEDGE TRANSFER

As the manufacturing workforce ages, companies must confront the reality of numerous upcoming retirements and related challenges or potential complications. For instance, 3.2 million more baby boomers retired in the third quarter of 2020 than in the same quarter of 2019.⁵ At the same time, at the end of the third quarter of 2020, there were 500,000 open job positions in the manufacturing industry.^{6,b} In this way, the manufacturing industry is experiencing a double-edged problem: essentially, older workers are retiring, and not enough younger workers are filling necessary roles.

^a Calculated by taking the number of employed workers 65 and older divided by the total civilian, noninstitutionalized 65 and older population.

^b This number is seasonally adjusted.

Organizations must implement policies to recruit new workers, retain older workers^c and ensure knowledge transfer occurs before important employees retire.

- To remain competitive, manufacturing firms must devote more attention to workforce development, which includes recruiting new workers and upskilling existing workers, especially as the manufacturing sector becomes increasingly technologically advanced. According to a 2019 survey from the MI, 78.7% of respondents reported struggling to fill open positions, and one-third said they were forced to turn down business opportunities due to their inability to find sufficient talent. To address this workforce crisis, nearly 70% of manufacturers have created and expanded internal training programs for their workforce, among other tactics.⁷ Upskilling existing workers also has the benefit of improving employee productivity, promotion opportunities and morale.
- To retain existing employees, manufacturing firms should consider making formal policy changes that incentivize employees to continue working, as well as cultivate an age-inclusive culture. As the manufacturing sector continues to experience a labor shortage, the need to fully leverage current employees is more important than ever, particularly with longer-tenured workers who have significant industry knowledge. According to a 2019 survey from the Conference Board, a business membership and research organization, only 20% of companies highly affected by labor shortages provided new incentives to retain older workers.⁸ In fact, providing new incentives was the least popular retention strategy among surveyed business leaders, but as the workforce continues to age, more companies are expected to turn to this strategy to minimize the pain of labor shortages.
- To minimize knowledge loss when employees retire, manufacturing firms should formalize clear knowledge transfer processes, which can include mentorship and usage of multigenerational teams. Currently, companies often struggle with taking action to address the fact that they risk losing knowledge when workers retire. Researchers from North Carolina State University and Stanford University conducted a survey of 142 risk managers and found that, though 83% of companies classified the risk of losing talent and knowledge due to retirement as equal to or greater than any other labor market risk, nearly 47% of companies were not doing anything to address it.⁹

2.3 MULTIGENERATIONAL TEAMS AND THE AGING WORKFORCE

The manufacturing labor force in the U.S. is already age-diverse. As of 2020, though the majority of the American manufacturing labor force were millennials (ages 25 to 40), the youngest generation (Generation Z) and the oldest generations (baby boomers and the Silent Generation) together make up nearly one-third of the manufacturing workforce.¹⁰ Manufacturing firms must effectively manage this age diversity, given the impending retirement of baby boomers and the relatively small share of Generation Z entering the manufacturing workforce at the moment—but they can also leverage it to drive key business objectives.

Generation	Birth Year	2020 Overall Labor Force Makeup	2020 Manufacturing Labor Force Makeup ^d
Baby Boomers and Silent Generation	1928–1964	23.9%	25.5%
Generation X	1965–1980	20.4%	23.3%
Generation Y/ Millennials	1981–1996	44.1%	43.6%
Generation Z	1997–present	11.6%	7.6%

^c In February 2021, another [survey](#) by the MI found that nearly one-third of respondents were encouraging possible retirees to continue working in their current roles as a means of addressing the skills gap.

^d Percentages are calculated using [Bureau of Labor Statistics data](#). Because the data are reported in age groups that do not neatly line up with the years listed for each generation, baby boomers and older are ages 55 and older, Gen X is 45 to 54 years, Gen Y is 25 to 44 years and Gen Z is 16 to 24 years.

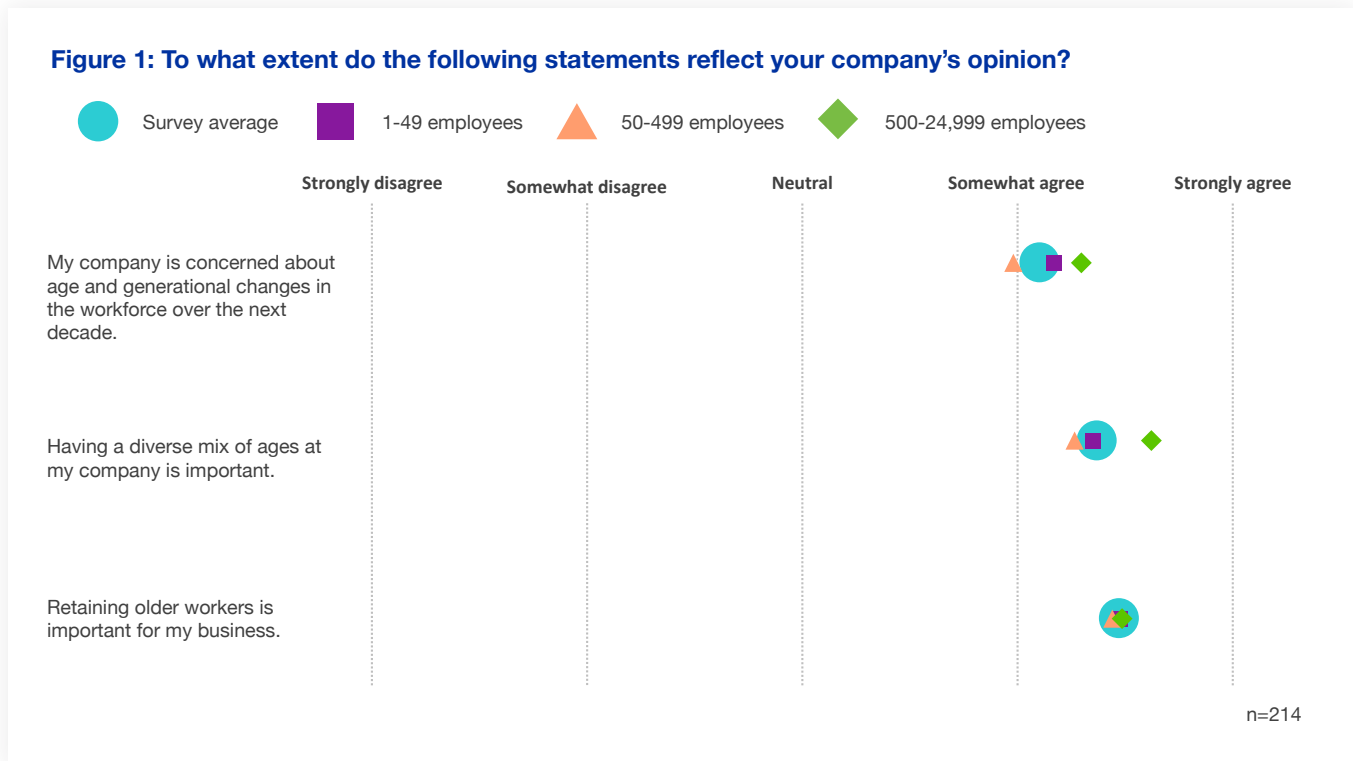
A review of the existing literature on multigenerational teams reveals surprisingly little information related to generational differences' impact on the performance of multigenerational teams.¹¹ The need for a U.S. and manufacturing-focused study became further evident during the literature review for this report. Through a survey of 214 companies of various sizes and industries and a series of interviews with 16 manufacturing industry leaders, AARP and the MI hope to assess the degree of awareness surrounding generational changes and explore the ways in which companies are implementing policies and utilizing multigenerational teams successfully.^e

3. AWARENESS AND TRENDS FROM THE SURVEY AND INTERVIEWS

3.1 AWARENESS VERSUS ACTION

“The benefits of a multigenerational workforce are mentoring, experience, diversity of thought, knowledge and problem-solving. When we put teams together, we deliberately put different generations together. They play together very nicely in our experience.”
 – Craig Souser, President and CEO, JLS Automation

Manufacturers are generally aware of age-related issues and are interested in the benefits of age diversity in the workplace. In this new survey, 78% of respondents agreed (including 42% who strongly agreed) that their company is concerned about age and generational changes in the workforce over the next decade. Eighty-six percent of respondents agreed (including 54% who strongly agreed) that having a diverse mix of ages at their company is important. For comparison, when similar survey questions were asked in 2019, 78% of respondents said they were aware and concerned about the aging of the manufacturing workforce, with 41% somewhat concerned and 37% very concerned. Despite the passage of two years, the same share of respondents is concerned about the aging workforce, suggesting the issue has neither received much more attention nor been addressed in a meaningful way.



^eFor characteristic breakdowns of companies interviewed and surveyed, please reference the appendix.

Manufacturers are largely still figuring out how best to approach generational shifts in the industry. A very sizable percentage of companies (86%) have not developed strategies to recruit and retain older workers, and the majority (62%) of companies do not track—i.e., internally monitor—instances of age discrimination. Only about one-fourth (28%) of responding companies regularly collect feedback from employees on age-related employment issues (e.g., benefit preferences, retirement perspectives, training needs, culture and inclusion). Finally, just 15% of all responding companies have issued a public statement affirming their commitment to age diversity, and that figure is only slightly higher (18%) for companies who agreed that “having a diverse mix of ages at my company is important” when asked earlier in the survey.

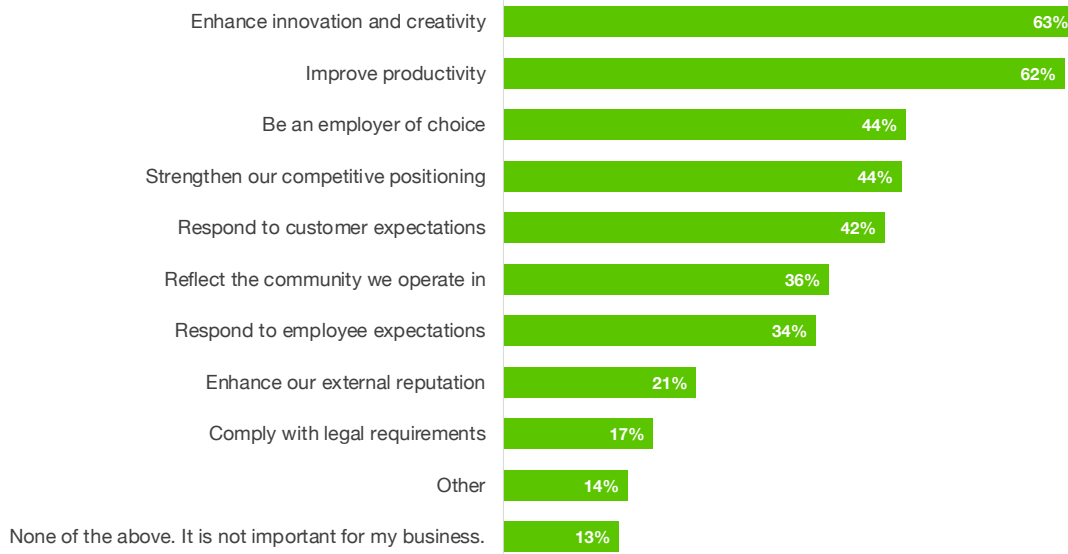
In the same vein, 68% of companies reported that they do not offer training to workers or managers about working with different generations. Larger companies are more likely to offer this kind of training, which may be indicative of resourcing issues that would preclude a smaller company from offering such training. Sixty-two percent of companies with more than 500 employees provide training to workers and/or managers about working with different generations, compared to about 25% of companies with fewer than 500 employees. That is, while 68% of all companies do not offer this kind of training, only 38% of large companies do not—suggesting that a lack of resources, rather than interest, may be a headwind here.

“The benefit of multigenerational teams is the learnings that everyone on the team can pick up from each other. The experiences that each team member brings can help the team and the individual grow.” – *Shawn Davis, Director, Global Manufacturing Engineering Human Resources, General Motors Company*

Manufacturers’ view of multigenerational teams mirrors the industry’s view of diversity and inclusion more broadly. In the MI’s Diversity + Inclusion Benchmarking in Manufacturing survey, companies pursued D&I initiatives to be seen as an employer of choice, reflect the community they operate in or to strengthen their competitive position. In the survey focused on multigenerational teams, more than one-third of companies use multigenerational teams for the same three reasons.¹² The majority of responding companies make use of multigenerational teams to improve their innovation, creativity and productivity. Less than one-fourth of companies use multigenerational teams to improve their external reputation or to comply with legal requirements—which may help explain why the majority of companies do not track instances of age discrimination. All in all, only a small portion of responding companies did not believe multigenerational teams were important for their business.

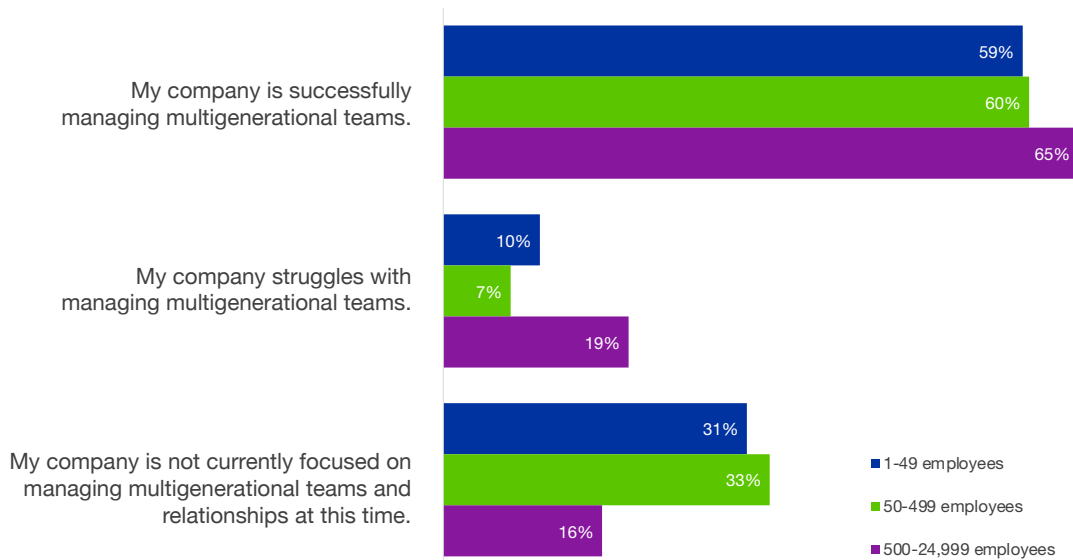
“Two of us, one older and one younger, worked on a part together. We both stepped back and thought, ‘there must be a better and faster way to do this.’ It was a team effort to figure out how to get the machine to run faster, smoother, safer and more efficiently. We ended up cutting the cycle time down from 45 minutes to 18 minutes and eliminated an operation, and that was just from bouncing ideas off each other.” – *Josh Griffin, Shop Supervisor, Ketchie, Inc.*

Figure 2: My company utilizes multigenerational teams in order to:



n=212

Figure 3: Which statement best reflects your company's opinion:



n=212

At the same time, experiences with multigenerational teams varied. About 30% of responding companies are not focused on managing multigenerational teams and relationships, and another 10% struggle with managing multigenerational teams. Smaller companies seem to be somewhat more likely to struggle with or not focus on multigenerational teams, but even companies that have between 500 and 25,000 employees reported more than one-third of the time that they struggle with or do not focus on multigenerational teams. Similarly, although productivity was the second most common reason for utilizing multigenerational teams (at 62%), 45% of all responding companies do not know if multigenerational teams are more productive overall. Better tracking of productivity or more specific management of multigenerational teams may clarify these opposing findings.

These attitudes were reflected in interviews, as exemplified by one company that reported, “Our teams are so blended that it would be hard to compare or see a difference in performance based on the addition of different ages.” Another company said that multigenerational teams have “definitely improved [their] bottom line” but mentioned harder-to-quantify effects, such as less tardiness, more employee commitment and more creative problem-solving. One interviewee suggested that multigenerational teams require different ways to resolve conflict and emphasized the importance of good communication. According to survey results, communication is the most common topic of training that companies give to workers and/or managers of different ages, surpassing the next most common topic (leadership) by 17 percentage points, suggesting that manufacturers are not only paying attention to culture and soft skills when it comes to multigenerational teams, but are interested in learning more.

“We value multigenerational teams because we know that the best solutions come with diversity of thought and of experiences... When you bridge between generations, you can take that knowledge of the knack of things and then technology to identify the exact problem or improve the solution.”

– Mari Jo Moody, VP of HR at Batesville Casket Company, subsidiary of Hillenbrand, Inc.

3.2 IMPORTANCE OF UPSKILLING

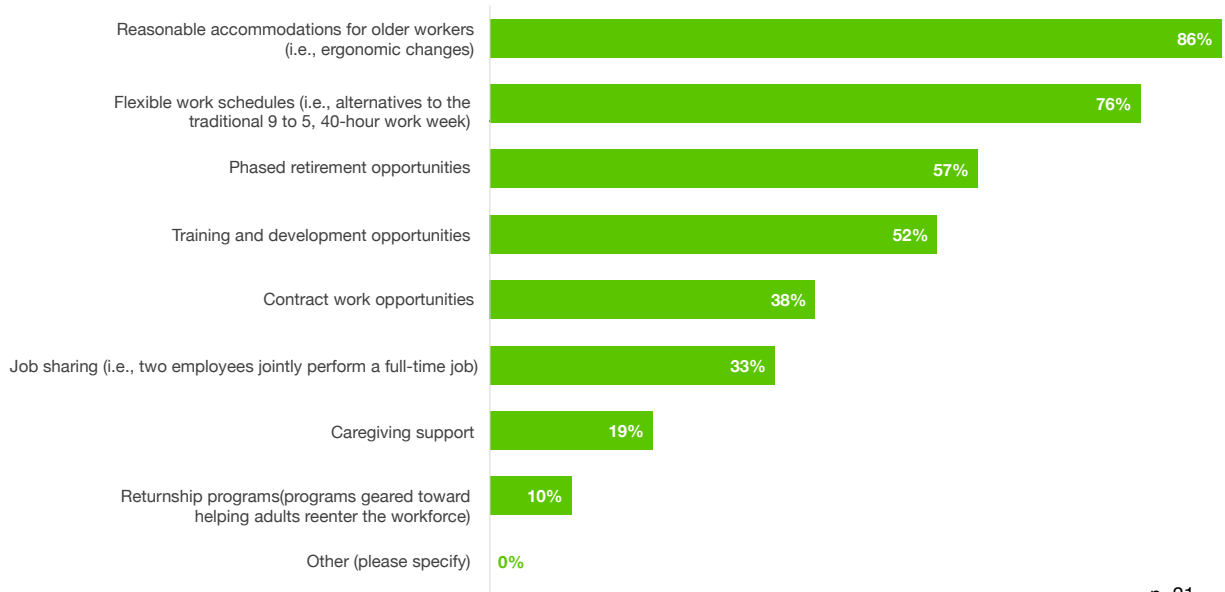
“We are a company that during slow times chooses to retain our workforce and put them through an immense amount of training and career development. Our older workers are engaged in that and every aspect of employment, which works in our favor.”

– Kent E. Dubbe, VP of Human Resources and Organization Development, Ariel Corporation

Upskilling—the process of acquiring new competencies, like digital skills—offers manufacturers the opportunity to strengthen their existing human capital, but it may also function as a tool for retaining workers of all ages. Upskilling can promote employee engagement and in turn contribute positively to tenure, company loyalty and productivity. According to the survey, 78% of companies promote professional development and upskilling opportunities to all employees. This figure was even higher (82%) among companies that plan to increase the representation of millennials and Generation Z within their workforces over the next five years. It may be that, in the words of one interviewee, “younger workers want to see a career pathway even at a smaller company” and that companies are offering upskilling to meet that demand, while also readying the newest parts of their workforces.

More than half (52%) of surveyed companies use training and development opportunities to recruit and retain older workers. This is more than contract work (38%) or job sharing (33%) and only a few percentage points less than phased retirement (57%). Note that the share of responding companies that use training and development opportunities to recruit and retain older workers was similar (at 55%) among companies that agreed that retaining older workers is important for their businesses. Interviewees clarified that many manufacturers are offering financial incentives to employees who participate in upskilling, regardless of age, and even making particular use of upskilling to be able to shift older and/or existing employees to new tasks during the pandemic.

Figure 4: Has your company developed strategies to recruit and retain older workers?



Responses about upskilling from interviews seem to validate the above findings from the survey; interviewees mentioned not wanting to limit the availability of upskilling opportunities. One company stated that all types of training are available to employees to keep employees happy in their work environment. Another remarked that their company used to only pay for formal training certificates or degrees for employees with certain amounts of seniority but now works on professional development plans with any interested employee. Another company emphasized that employees were not just interested in advancing their hard skills; training focused on soft skills was often helpful even for employees with lots of technical or business knowledge.

Finally, when asked about the types of support that companies provide to enable employees of all ages to take advantage of professional development and upskilling opportunities, the most common answer was manager support, at 74% of survey respondents who provide any type of support. In addition, more than 60% of respondents who provide support do so in the form of flexible schedules and/or monetary support such as tuition benefits—highlighting the tangible investments that manufacturers are making in professional development and upskilling. Even the least common form of support, asynchronous or self-paced options, was reported by more than 40% of companies that provide support related to professional development and upskilling opportunities. (Overall, 51% of surveyed companies answered that they provide some kind of support for professional development.)

“Our main concern when it comes to the aging workforce is being able to retain talent through retooling and reskilling existing workers, especially as new technologies emerge in manufacturing.”
 – Nedly Perez, Global Head of Diversity and Inclusion, McCormick & Company, Inc.

3.3 RECRUITMENT OF YOUNGER GENERATIONS

Recruiting qualified workers from younger generations is a key concern for many businesses, especially as those generations become an increasingly large share of all potential employees. Our survey results suggest that millennials and Generation Z make up 31% and 14%, respectively, of responding companies’ workforces. Moreover, at least three out of four companies plan in the next five years to increase representation of millennials and Generation Z among their teams.

Figure 5: Please indicate if representation of each of the generations among the workforce at your company has increased, decreased, or stayed the same over the past 5 years.

	The Silent Generation (b. 1928 - 1945)	Baby Boomers (b. 1946 - 1964)	Generation X (b. 1965 - 1979)	Millennials (b. 1980 - 1995)	Generation Z (b. 1996 - 2015)
Increased	0%	6%	35%	68%	68%
Stayed the same	25%	41%	46%	14%	12%
Decreased	56%	42%	4%	4%	5%
Don't know	11%	10%	14%	14%	12%

Note: Percentages might not add to 100% as not all companies answered all portions of the question.

Figure 6: Now indicate if your company has plans to increase representation of the following generations among the workforce at your company over the next 5 years.

	The Silent Generation (b. 1928 - 1945)	Baby Boomers (b. 1946 - 1964)	Generation X (b. 1965 - 1979)	Millennials (b. 1980 - 1995)	Generation Z (b. 1996 - 2015)
Plans to increase	0%	14%	62%	77%	75%
No plans to increase	92%	83%	36%	21%	22%

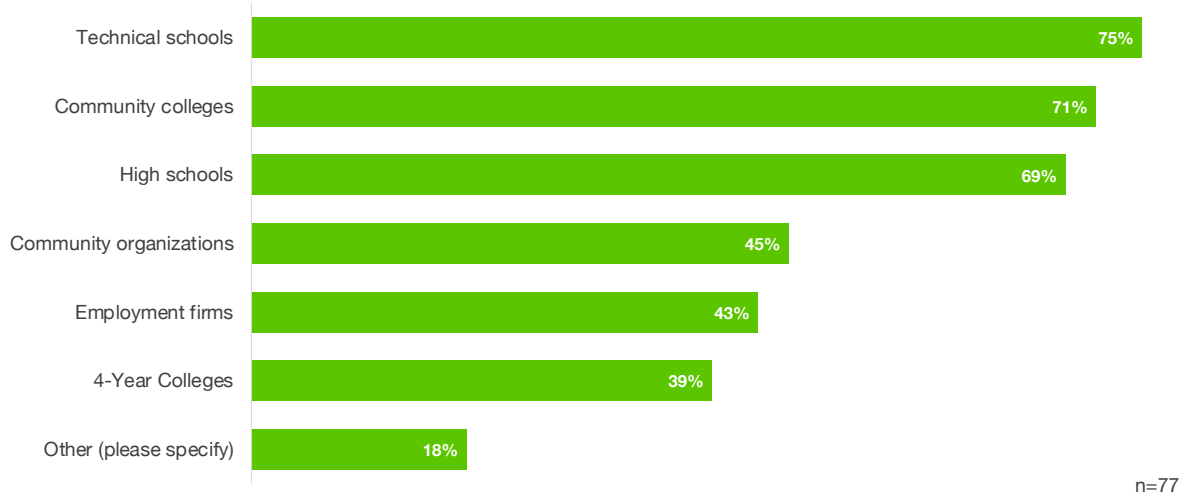
n=104

Note: Percentages might not add to 100% as not all companies answered all portions of the question.

To that end, companies are utilizing a variety of strategies to attract talent. A common point in interviews was the importance of starting pipelines early or conducting outreach to children and teenagers to improve public perception of the manufacturing industry among tomorrow’s workers. Especially in locations where it is harder to hire a sufficient number of skilled workers (e.g., in rural areas), some companies are hosting summer camps, co-op programs and “family days” to start connecting with young people as early as kindergarten. The MI is also making efforts in this area, holding Manufacturing Day (MFG Day) annually on the first Friday of October; this event empowers manufacturers to show students, parents, teachers and communities the reality of modern manufacturing careers.¹³ Multiple interviewees mentioned having to push back against outdated ideas about the nature of manufacturing, including among parents and school counselors who worry that the field is still “dark and dangerous” and a less viable choice than a four-year college degree. Some interviewees have thus found it helpful to be active on social media, to both leverage younger employees when recruiting other young people and spotlight their use of technology.

External partnerships also appear to be key to recruiting younger workers. Slightly more than half (54%) of all responding companies have formed partnerships with organizations to improve the pathways to manufacturing careers for younger generations, and this figure increases with company size. That is, while 46% and 51%, respectively, of companies with fewer than 50 and between 50 and 500 employees have formed such partnerships, roughly 72% of companies with more than 500 employees have done so. Anecdotally, it appears that external partnerships are particularly important to companies not located in large cities, since this can help showcase to potential employees the value, not just of manufacturing, but of the communities in which shops are located.

Figure 7: What kinds of organizations have you established partnerships with?



Among all responding companies, the most common types of partnerships are those with technical schools, community colleges and high schools. Survey respondents and interviewees displayed considerable breadth in their answers; other types of partnerships companies pursue include manufacturing and trade associations, state departments of labor, apprentice programs, local workforce boards, professional networking groups, rehabilitation facilities and refugee organizations. One interviewee, in reference to their company’s partnerships for the purpose of recruiting younger generations, said that these partnerships allow for connections with different demographics, including mechanically inclined students who do not need four-year degrees to be competitive job applicants.

“Our older machinists will help out the younger ones who may be struggling or are afraid to ask for help.”

– Nicole Wolter, President and CEO, HM Manufacturing

Looking to the future, more and more companies may seek to secure their access to skilled human capital by investing in recruitment and training efforts to fully leverage younger workers. One interviewee exemplified an attitude reported by multiple others: companies are now hiring more people right out of school and cultivating these workers into employees that the companies need. Already, workers from Generation Z make up 10% of leadership teams among responding companies: a sign of younger workers’ contributions to their companies. In the same vein, interviewees reported that adding young people to their companies brings the opportunity to think about the future of manufacturing and stressed a certain “synergy” that can be found when both older and younger workers are present.

3.4 MENTORSHIP AND WHAT IS LEARNED

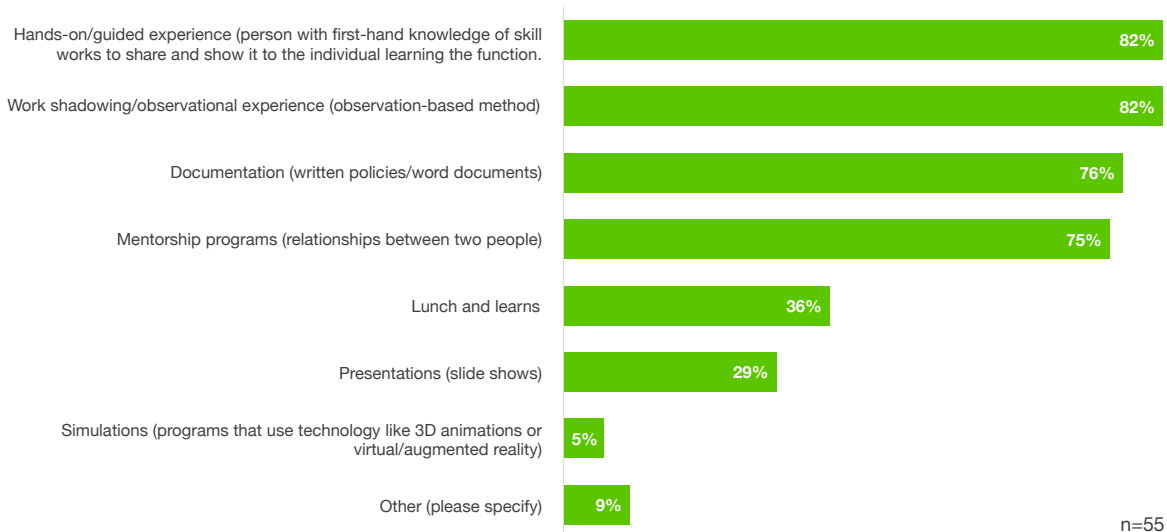
Manufacturers largely recognize the value of mentorship, with 61% of respondents utilizing either traditional mentoring or reverse mentoring. The mentoring relationships are valuable on both personal and professional levels. Workers involved in mentoring can familiarize themselves with workplace culture and gain friendships outside of work.

“In a small company, multigenerational groups can be a lot of fun. Also, with multigenerational teams, you see some unique friendships that you wouldn’t expect to see outside of work.”

– Dean Burrows, President and CEO, Gear Motions

In addition, mentoring can be a prime way to transfer knowledge, which can mitigate the risk of losing knowledge when an employee retires. Workers have a primary person from whom they can seek help and ask questions. A strong mentoring program that outlines key objectives and topics of learning and conversation can help ensure that knowledge is transferred effectively. Of the 48% of respondents that have a formal system for knowledge transfer, 75% use mentoring. Of the other types of knowledge transfer systems, several can be folded into mentorship, such as hands-on experience and work shadowing. If companies clearly dictate the type of information that new workers need to learn while on the job, they can more efficiently transfer knowledge through mentorship, rather than having employees read through copious amounts of written material.

Figure 8: How does your company transfer knowledge?



Through interviews, several common topics arose when it came to what younger workers learned from older workers and vice versa. Largely, interviewees highlighted older workers transferring experiential knowledge and work ethic to younger workers. Younger workers were able to teach older workers about technology. However, all workers benefit from mentoring through diversity of thought and creating strong social bonds.

3.5 LITERATURE REVIEW FINDINGS ON MULTIGENERATIONAL TEAMS IN MANUFACTURING

Based on the survey and interviews, manufacturing firms should utilize multigenerational teams to capitalize on the knowledge of existing workers and ensure that knowledge is shared with new employees. Though a literature review gleaned relatively few U.S.-based studies on multigenerational teams in manufacturing, several historical and international studies reflect takeaways from the survey and interviews: in addition to being an effective way for transferring knowledge, multigenerational teams can improve productivity, spark innovation and create a positive work environment.

- Multigenerational teams can mitigate the risk of knowledge loss due to retirement. Having age-diverse teams work together consistently, rather than only when someone announces retirement plans, helps ensure that knowledge is transferred constantly. In a study based on interviews from manufacturing facilities in the U.S. and Germany, only one company had a formal plan to monitor skills as workers retired, but frontline supervisors were very concerned with knowledge loss. The study identified multigenerational teams as one effective strategy, since they helped ease younger employees through the knowledge transfer process.¹⁴
- As with all dimensions of diversity, age diversity can spark innovation due to the wide variety of backgrounds and lived experiences that come with age. One study using employee data from Luxembourg found that firms with heterogeneous age groups (i.e., a variety of age groups represented) experience positive impacts on innovation.¹⁵ Multigenerational teams can experience increases in productivity from the multiple perspectives represented on the team. Historical research reflects this statement: one study from Germany of more than 18,000 German firms and 2 million employees found that increasing age diversity, especially for companies conducting innovative tasks, experience positive productivity effects.¹⁶
- Multigenerational teams can help foster a positive work environment. A recent survey from AARP found that 70% of adults enjoyed working with people from other generations.¹⁷ Companies that value their employees, young and old, and value the relationships they build with each other, may be able to stave off the risk of losing workers to retirement or another job. One study of employees from the Netherlands found that promoting motivation in the workplace, especially to keep older workers engaged, is important in reducing the risk of losing employees to early retirement.¹⁸
- Mentoring, in all its forms^f, can help workers gain new skills and knowledge. For example, in a survey of small manufacturing firms in Kenya, the authors found that a significant relationship existed between mentorship and employee performance and productivity.¹⁹ Examples from the U.S. manufacturing industry in the last five years are scarce, with a need for a more analysis in this area.

These takeaways from the literature review, along with the survey and interviews, helped develop the following best practices and recommendations that manufacturing firms should consider when implementing multigenerational teams.

4. BEST PRACTICES/RECOMMENDATIONS

Given the challenge of hiring younger workers and losing retiring workers, companies must capitalize on their existing workforce and ensure that workers with valuable knowledge of both operational and soft skills are passing on that knowledge to less-tenured employees.

Results from a literature review, the survey and information collected during interviews with manufacturing firms show that those who have addressed their multigenerational workforces most successfully target four main objectives. Targeting these objectives can aid companies reaping the full benefits of effective multigenerational teams.

^fThe three types of mentoring are traditional (an older worker mentors a younger worker), reverse (a younger worker mentors an older worker) or reverse (an older and younger worker mentor each other).

Formalize Policies	<ul style="list-style-type: none"> • Offer phased retirement or part-time work to retirees. • Establish a clear system of knowledge transfer with topics to discuss.
Expand the Recruitment Pipeline	<ul style="list-style-type: none"> • Develop nontraditional partnerships to widen the pool of applicants, providing more age and experience diversity on teams. • Build recruitment efforts targeted at more mid-career workers.
Emphasize the Value of Age Diversity	<ul style="list-style-type: none"> • Include age in diversity trainings. • Consider issuing a public statement affirming a commitment to age diversity. • Honor retirees' contributions.
Recognize Employees' Needs	<ul style="list-style-type: none"> • Collect staff feedback on policy changes and solicit input on company improvements.

4.1 FORMALIZE POLICIES

Though the survey and interviews revealed that manufacturing companies are aware of the aging workforce, few have formalized policies to address this issue. Formalizing policies signals to employees that the company has a strong strategic stance and clear action plans.

4.1.1 OFFER PHASED RETIREMENT OR OFFER PART-TIME WORK TO RETIREES

As discussed throughout this report, manufacturers are concerned about a variety of issues related to age diversity and generational changes within their industry but often do not have official policies to recruit and retain specific generations or to prepare for certain effects of age diversity. Efforts to formalize policies, including those to offer phased or part-time retirement options or to establish systems for knowledge transfer, should be a priority for leaders within manufacturing companies.

“We offer part-time work for those toward the end of their career. My philosophy is that it’s better to have more senior employees transition into retirement. That is, it’s better for a worker to do 40 hours a week, then 30, then 15 for a while until they’re really ready, rather than just ‘here’s your watch’ and that person is gone. I think our way is more respectful, and it allows for a more flexible workforce.”

– Dean Burrows, President and CEO, Gear Motions

- **If possible, offer phased (i.e., gradual) retirement or part-time work for retirees:** Multiple interviewees have found that soon-to- retire and recently retired employees can provide significant value to their companies by being available to answer questions or cover shifts during times of high need or even by simply remaining a part of the community and a source of encouragement for current workers. Many manufacturers are proud to report that retirees are frequently willing not just to attend company events but to return periodically to work to train new employees, consult on specific projects and/or provide a safety net for when full-time employees are sick or on vacation.

4.1.2 ESTABLISH A CLEAR SYSTEM OF KNOWLEDGE TRANSFER WITH TOPICS TO DISCUSS

One of my employees who has retired three times already after 44 years of service is back on my shop floor helping GenMet and teaching other employees today. We are better off for his efforts.”

– Eric Isbister, CEO, GenMet

Knowledge transfer processes should be formalized, with a clear outline of topics to cover. Without such documentation, companies run the risk of losing valuable knowledge should an employee forget to discuss something. Developing a checklist of items to discuss during hands-on experiences or work shadowing can help ensure that all necessary information is passed on before an employee retires.

“Folks that have been here a long time have lots of knowledge; the key is how to transfer that knowledge down. We have a semiformal mentoring program for new employees, where we pair them up with a more senior person. Rather than it being a manager–worker relationship, it is a space for them to discuss career goals, challenges and other things over a cup of coffee.”

– Richard Calvaruso, Senior Director, GE Appliances

- **Have a clear system of knowledge transfer:** Ensure that the wealth of knowledge held by older workers is passed down far in advance of retirements by documenting processes and procedures, allowing shadowing of key client interactions and pushing younger workers to attempt challenging projects under the supervision of soon-to-retain workers. Some companies make a continuous effort to pair up younger and older workers, in formal mentoring relationships or otherwise. For example, one interviewee noted that, when overtime is necessary, she will always have a newer employee work with someone senior so they can learn together. Other interviewees emphasized the need for younger employees to be fully aware of the value of learning from older employees, which can be accomplished in part by encouraging questions from all employees and by formally prioritizing knowledge transfer.

4.2 EXPAND THE RECRUITMENT PIPELINE

Survey results found that most recruitment efforts are focused on younger generations, a finding that was also reflected in the interviews. Some companies interviewed had relatively strong recruiting efforts, while some struggled with reaching out to local schools. Nearly all companies surveyed do not have strategies for recruiting older workers. Addressing the aging manufacturing workforce requires expanding recruitment wherever possible and in less traditional settings.

4.2.1 DEVELOP NONTRADITIONAL PARTNERSHIPS

Survey respondents showed strong recruiting efforts in traditional settings, such as technical schools, community colleges and high schools. However, as the manufacturing industry changes, both demographically and technologically, companies should consider increasing outreach efforts in less traditional settings, such as community organizations, employment firms or four-year colleges. Taken together, companies can benefit from widening their applicant pool as much as possible.

- **Target applicants from a wider variety of skills and backgrounds:** By developing partnerships with community organizations, companies signal that they are engaged in supporting their community members actively, and they may receive applications from already-skilled workers who are seeking to leave their current employer. Working with employment firms can save companies the time needed to sort through applications and conduct interviews. Employment firms can whittle down the applicant pool, ensuring that companies are only interviewing people with the relevant skills and backgrounds needed for the job. In both of these nontraditional partnerships, companies may attract slightly older applicants, which can help smooth any demographic bumps companies are experiencing.

- **As technology advances, applicants can too:** Though not all manufacturing jobs require advanced degrees, some do. Nearly three-quarters of non-factory floor manufacturing jobs are given to candidates with a four-year or advanced degree.²⁰ To ensure that these positions do not go unfilled, companies should consider increasing outreach and recruiting efforts at four-year schools. Though this may be difficult, particularly in more rural areas, companies can still boost their efforts by participating in virtual career fairs or posting positions through university career centers.

4.2.2 BUILD RECRUITMENT EFFORTS TARGETED AT MORE MID-CAREER WORKERS

Numerous manufacturers are thinking about pipelines for younger workers—which is a positive sign—but fewer companies have strategies in place to recruit more mid-career workers, and some have needed to outsource work when mid-career employees were difficult to hire in the past few years. Companies can benefit from hiring more mid-career workers by having a more evenly spread workforce, which is especially important as workers approach retirement. Companies will need to be mindful in encouraging mentoring and similar relationships to create strong company bonds.

- **Prepare for upcoming retirements:** Pipelines to recruit more mid-career workers can be a crucial part of preparing for their predecessors' retirements. Several interviewees discussed a bimodal distribution when it comes to age at their companies—that is, multiple manufacturers employ a large number of older workers (such as baby boomers) and a large number of younger workers (such as millennials) but comparatively few middle-aged workers. This means that, absent intervention, a gap could exist in some companies' workforces as more older workers retire, such that there are more senior positions open than there are middle-aged employees to step up into them.
- **Fill in certain team needs:** In addition to unique perspectives, mid-career workers often offer soft and technical skills that can balance out teams, including by marrying recent industry knowledge with historical or institutional awareness. In the words of one interviewee, “Gearing is a unique skillset—lots of people can turn, but finding someone who knows how to grind and cut teeth and do precision processes is harder. A mid-career professional knows the basics and knows what to do when a machine isn't giving you the output you want. This is different than just loading and unloading or otherwise running a machine.”
- **Do not overlook mentoring:** Adding more mid-career employees to workforces will also bring fresh opportunities for employee mentoring. On one hand, slightly more encouragement may be needed for this type of coaching to take place between members of adjacent generations; some interviewees mentioned that workplace interactions that mirror those of grandparents and grandchildren involve less conflict, compared to interactions that mirror those between parents and children. Fortunately, however, at least one other interviewee said that younger employees may be less intimidated by (and thus more likely to ask questions of) middle-aged employees than particularly senior ones.

4.3 EMPHASIZE THE VALUE OF AGE DIVERSITY

Age is often not the first word that comes to mind when “diversity” is mentioned. However, age is a crucial dimension of diversity that should be recognized and valued. When employees feel valued, they feel a greater commitment to their company. Practices that can help emphasize the value of age diversity at a firm include 1) incorporating age in diversity trainings, 2) issuing a public statement affirming a commitment to age diversity and 3) honoring retirees' contributions.

4.3.1 INCLUDE AGE IN DIVERSITY TRAININGS

“We do a lot to train people—one example is unconscious bias training—to help people understand the differences in how people think and behave. We want to be a more inclusive and diverse company because that makes our company better.” – Richard Calvaruso, Senior Director, GE Appliances

Manufacturers stand to benefit from recognizing that age as a type of diversity can impact the communication and leadership styles—as well as values and preferences—of their workforces and incorporating these topics into diversity trainings accordingly. Working to think beyond stereotypes, enable employees to handle conflicts that do arise and take positive action between trainings are key to minimizing the risk of conflict in multigenerational teams.

- **Address stereotypes and assumptions:** Preconceived notions about any generation can interfere with a company’s hiring, internal communication, budgeting and other decision-making. One interviewee described a recent discussion within their team about whether a certain older worker would be the right choice to work on a project in another location. When some managers felt that the older worker likely would not want to move, another stepped in to point out that they should ask the worker for their opinion, rather than assuming.
- **Empower employees to work through misunderstandings:** Age-related stereotypes can lead both younger and older workers to feel excluded or discounted, and this can create friction in interpersonal interactions, even when no harm is intended. Multiple companies have made efforts, especially when teams will be working long hours or in particularly close contact with each other, to train employees proactively on conflict resolution and active listening. In this way, teaching managers to mediate and employees to communicate effectively during tense situations can be one of the most important outcomes of age-related diversity trainings.
- **Continue to frame age as part of diversity:** Regular touchpoints on the topic of age as it relates to company and team culture are key to minimizing conflict in between formal trainings. In the experience of interviewees, intentionally including age in conversations about diversity appears to pave the way for a variety of actions, from hosting workshops about how older workers can navigate the process of requesting workplace accommodations, to setting up a process for workers to report age-related microaggressions.

4.3.2 CONSIDER ISSUING A PUBLIC STATEMENT AFFIRMING A COMMITMENT TO AGE DIVERSITY

Manufacturers should consider issuing statements and policies about their D&I efforts and ensure that a commitment to age diversity is included. Ideally, doing so will involve thinking broadly about the case for age diversity, recognizing how their business is likely to shift in coming years and communicating specific goals and priorities.

- **Recognize the immediate business case for age diversity, but don’t stop there:** First and foremost, it is clear from interviews and survey results that many manufacturers are already reaping tangible benefits from age diversity within their workforces, and public statements can certainly emphasize positive trends in terms of innovation, productivity or customer satisfaction. In addition, public statements affirming a commitment to age diversity are likely to signal to employees, job applicants and similar stakeholders that a manufacturer understands other ways in which age diversity is valuable at a workplace. Remember that 44% of responding companies use multigenerational teams to be seen as an employer of choice, which is more than double the share that use multigenerational teams to enhance their external reputation in general.
- **Look to the future:** Due to increasing lifespans and lower birth rates, the workforce will remain multigenerational for the foreseeable future. As the manufacturing sector continues to undergo demographic changes, public statements about age diversity will be key to simultaneously retaining older generations while welcoming newer ones. At least one interviewee pointed out that the “customers of tomorrow” will be different from those she serves today. Issuing a public statement affirming a commitment to age diversity sooner rather than later can position manufacturers to be seen as leaders in spaces such as workplace diversity and company culture.

- **Be specific:** Effective public statements about age diversity include clear language on related company values and outline goals or action plans. Additional helpful items to include can be quotes from top leadership, mention of nonretaliation policies that protect reporters of age discrimination and information about age diversity in the context of the manufacturing industry in particular. In some cases, manufacturers may want to define the ages (e.g., “50 and older”) for whom they are committing to providing a level playing field. Employers can refer to the [AARP Employer Pledge Program](#), which clearly affirms the value of experienced workers and the commitment to developing diverse organizations.

4.3.3 HONOR RETIREES’ CONTRIBUTIONS

“Our older workers have a wealth of knowledge. They can remember how to fix a problem when it arose many years ago.”– Laurie Shakley, General Manager, Watertown Plant Operations, Click Bond

Valuing age diversity in employees does not end when someone retires. How retirees are treated can have ripple effects on employees still working at the company. Multiple interviewees expressed ways that they have honored the contributions their workers have made at the firm, even after they have retired.

- **Include retirees in celebrations:** It became evident in interviews that many manufacturers view their workers like family. Companies are either small enough that employees know everybody’s name, or they have been around long enough that multiple generations of families have worked for the company. Several interviewees include their retirees in company celebrations or keep them apprised of company events through newsletters or other methods of outreach. Though not all retirees will want to participate, extending the invite signals to current employees that retirees are still valued at the company.
- **Incorporate retirees in outreach and engagement efforts:** An employee choosing to retire does not necessarily signal the end of their professional relationship with the company. At least one interviewee highlighted the creation of a formal retiree group as a way for them to stay involved at the company, if they so choose. Some of these retirees volunteer in the community as representatives of their former company, while some return to the company on a voluntary basis to discuss retirement options with current employees. Incorporating retirees in outreach and engagement efforts reflects positively on the company, as these former employees can serve as much-needed resources, both at the firm and in the community.
- **Develop a visible way of recognizing workers in the physical workplace:** Multiple interviewees highlighted the long tenure of their employees, with some workers spending nearly their entire professional career at the firm. Creating a visible way of celebrating this legacy in the physical workplace not only honors the retiring employee, but it also signals to current employees that the company values their workers. One firm interviewed mentioned that their current employees, of their own volition, chose to hang up jerseys with retired employees’ names on them on the shopfloor walls. Such recognition can boost company morale, is suggestive of strong company culture and ensures that retirees are distinguished as valuable members of the company.

4.4 RECOGNIZE EMPLOYEES’ NEEDS

It can be difficult to know when employees are pleased or displeased with company action without some form of feedback mechanism. Whether that mechanism is as formal as a company survey or as informal as a discussion over coffee, manufacturing companies should hear what their employees have to say before enacting changes.

4.4.1 COLLECT STAFF FEEDBACK ON POLICY CHANGES AND SOLICIT INPUT ON COMPANY IMPROVEMENTS

Manufacturers who regularly collect employee feedback on age-related policies are likely to have a fuller, less biased sense of generational preferences and needs, as well as of cohesion or tension within their workforces. Employee feedback also offers the opportunity to improve engagement, hear from quieter voices or unofficial leaders, leverage diverse perspectives about internal initiatives and identify patterns over time or across teams.

- **Allow employees to feel heard and engaged:** Soliciting input from staff can improve companies' cultures by promoting feelings of inclusion, engagement and transparency. Even when not all employee input can be incorporated into final decisions, forums such as employee resource groups provide a designated space for older workers or younger workers to voice their thoughts and concerns openly and even receive support. Some interviewees felt that the physical layout of their plants or offices was key to encouraging a sense of unity and continuous feedback between employees and supervisors or leadership.
- **Identify and amplify voices that are not being heard:** More active efforts to collect staff feedback on company policies also have the benefit of clarifying which generations and/or ages more commonly find themselves represented in decision-making, versus which may have valuable input but are less often a part of leadership teams, company committees and other groups. Survey results indicate that millennials and Generation Z are underrepresented on respondents' leadership teams while the Silent Generation, baby boomers, and Generation X are overrepresented, but other, less formal forums for discussion and decision-making are just as important to consider.
- **Make full use of diverse perspectives:** When asked about the benefits of a multigenerational workforce, one of the most common answers among interviewees was the value of diversity of thought and experience. Manufacturers do not need to only leverage this value when working on client-facing projects and solutions; diverse perspectives can also be helpful when making internal decisions about hiring, benefits, culture, long-term strategy and more. Workers from different generations are likely to have different ideas for company policies, and leaders who can invite this kind of feedback will have a fuller sense of options and tradeoffs.

“For any challenge we face, a typical senior employee has seen something similar in the last 20 to 30 years of their tenure. Those employees provide perspective and have a calming effect, especially in times like today when the supply chain is broken and the labor market is tight.”

– Giles Miller, Co-President, Phoenix Closures

- **Consider regular internal surveys:** Surveys are often a powerful tool for companies looking to understand how age impacts their workforces, especially when survey results are compared over time or across different teams. Interviewees who have found surveys helpful in the past mentioned the importance of being able to dig into patterns and/or problems and then use those results to draft specific action plans. With regards to company policies, surveys allow employees to explain in detail how they will be impacted by proposed changes without having to publicly disclose otherwise private information (e.g., family or health concerns).

“MSA surveys its associates from time to time to better understand the key drivers of employee engagement, such as whether or not ‘new and innovative ideas are encouraged at MSA,’ the opportunities ‘to provide input into decisions’ and thoughts about ‘MSA as an attractive place to work.’ This helps us keep a finger on the overall pulse of the organization and identify opportunities to support inclusivity and engagement for a diverse, multigenerational workforce.”

– Rob Bilger, Executive Director of Global Strategic Sourcing & Supply Chains, MSA Safety

5. CONCLUSION

As the manufacturing workforce in America ages and as more workers approach retirement, the sector must adapt and ensure that valuable knowledge is not lost. Although many manufacturing firms are aware of this, few are actively pursuing steps to mitigate related risks. When effectively managed, multigenerational teams can help; they often build strong company culture, ensure that skills and knowledge are transferred and boost productivity and innovation.

In this way, firms that have instituted strategies that support multigenerational interaction are protecting themselves from knowledge loss and preparing for the future of the manufacturing industry. Such strategies include emphasizing the value of age diversity, recognizing employees' needs, formalizing policies and expanding recruitment pipelines. Taken together, these policies can boost employee morale, motivation and retention, as they allow companies to signal that workers are valued and heard. These strategies can also lead to increased touchpoints between generations, diminishing the risk of poor knowledge transfer. All in all, implementing these and other changes discussed in this paper can help companies capitalize on their existing workforces while also shielding themselves from the risk of knowledge loss in the face of shifts within the manufacturing industry.

APPENDIX I: METHODOLOGY

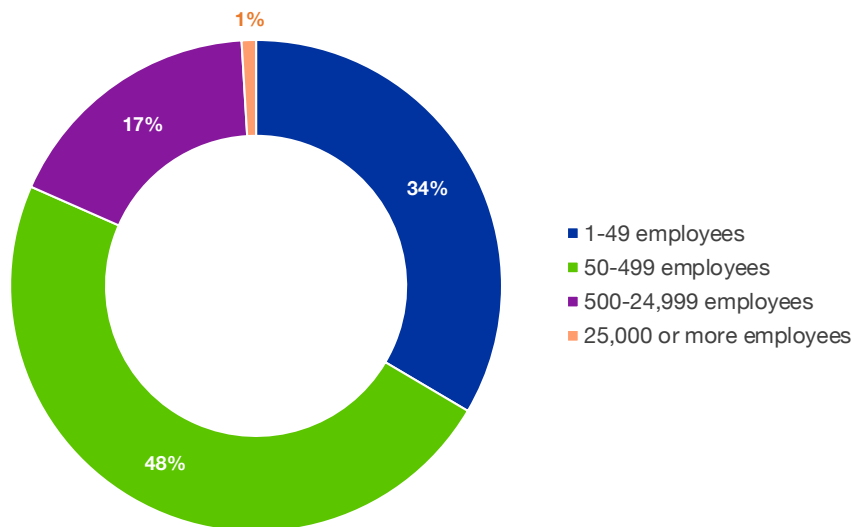
This report relies on research compiled through a survey of members of the National Association of Manufacturers, as well as a series of interviews conducted with business leaders from the manufacturing sector. The following paragraphs describe these research tools and provide a breakdown and assessment of participant profiles.

SURVEY

The MI's survey asked NAM member companies to respond to a set of questions designed to evaluate respondents' 1) value statements regarding their workforces, 2) tracking of their workforces, 3) strategic planning regarding the aging workforce and 4) strategies for recruitment and retention. The survey instrument was distributed on July 21, 2021, and collected Sept. 1, 2021, remaining in the field for six weeks. In total, 214 companies submitted responses.

Regarding the size profile of respondents, roughly 50% of survey participants were midsize companies, ranging from 50–499 employees. Roughly one-third were small companies, with fewer than 50 employees, and about 20% were large companies with 500–24,999 employees. Only 1% of participants represent firms with more than 25,000 employees.

Appendix A1: What are the total number of employees (all locations) at your company?



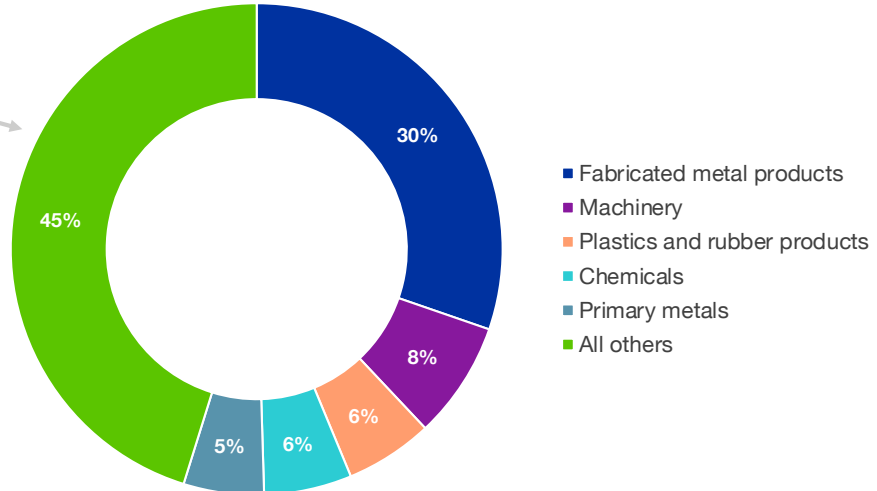
n=212

Turning to industrial classification, survey participants hailed from a range of manufacturing sectors; however, about one-third of participants indicated “fabricated metal products” and one-fourth of participants indicated “machinery,” “plastics and rubber products,” “chemicals” and “primary metals” altogether, suggesting that the views of firms specializing in these sectors may be overly represented in survey results. With 45% of respondents marking “other” as their primary classification, this suggests that further nuance in future surveys would better capture this miscellaneous category, which seems to be comprised of more specific classifications, such as wood products and food manufacturing.

Appendix A2: What is your company's sector?

Survey received between 3 and 10 responses for:

- Electrical equipment and appliances
- Transportation equipment
- Wood products
- Food manufacturing
- Computer and electronic products
- Paper and paper products



n=208

INTERVIEWS

To supplement information gathered through the survey and glean insights into best practices, video interviews were conducted with 16 industry-leading companies from July 14 to Sept. 17, 2021. Individual firms were represented by company executives, directors and human resource managers. Participants were selected on a voluntary basis via email.

Regarding the profile of interviewees, approximately 40% of companies had between 500 and 24,999 employees. About 27% each had between 1 and 49 and between 50 and 499 employees, and only one interviewee had more than 25,000 employees. While interviewees hailed from a variety of sectors, transportation- and energy-related companies were most represented at roughly 27% of interviewees. As expected, several interviewees were in states with large manufacturing sectors, such as Illinois, Indiana and Ohio, but roughly one-third of companies were located in multiple states, and most U.S. regions were represented. All of this suggests that, like the manufacturer survey, interview findings may be weighted somewhat toward the perspectives and experiences of midsize companies but should be reflective of a wide range of industries and locations. In addition, best practices and insights came from all firms, suggesting that implementation of these best practices is not dependent on firm size or resources.

ENDNOTES

1. U.S. Bureau of Labor Statistics, [January 2021 Employed Persons by Detailed Industry and Age](#).
2. The Manufacturing Institute, [The Aging of the Manufacturing Workforce](#).
3. U.S. Bureau of Labor Statistics, [1995 Employment Status of the Civilian Noninstitutional Population by Age, Sex and Race](#) and [2020 Employment Status of the Civilian Noninstitutional Population by Age, Sex and Race](#).
4. U.S. Bureau of Labor Statistics, [January 2021 Employed Persons by Detailed Industry and Age](#) and SHRM Foundation, [Current Issues in HR: Closing the Manufacturing Skills Gap](#).
5. Pew Research Center, [The pace of Boomer retirements has accelerated in the past year](#).
6. U.S. Bureau of Labor Statistics, Databases, [Job Openings and Labor Turnover Survey](#).
7. The Manufacturing Institute, [The Manufacturing Institute Training Survey](#).
8. Gad Levanon et al., [US Labor Shortages: Challenges and Solutions](#).
9. Robert L. Clark et al., [Employer Concerns and Responses to an Aging Workforce](#).
10. U.S. Bureau of Labor Statistics, [January 2021 Employed Persons by Detailed Industry and Age](#).
11. Cherise M. Burton et al., [Critical elements for multigenerational teams: a systematic review](#).
12. The Manufacturing Institute, [Diversity + Inclusion Benchmarking in Manufacturing](#).
13. The Manufacturing Institute, [Manufacturing Day](#).
14. Peter Berg and Matthew Piszczek, [Retirement-Proof Your Company](#).
15. Caroline Mothe and Thuc Uyen Nguyen-Thi, [Does age diversity boost technological innovation? Exploring the moderating role of HR practices](#).
16. Stephan Veen and Uschi Backes-Gellner, [The Impact of Workforce Age Heterogeneity on Company Productivity](#) (working paper under revision).
17. AARP, [Older Workers Valued for Their Experience, Research Shows](#).
18. Astrid de Wind et al., [“Mental retirement?” Trajectories of work engagement preceding retirement among older workers](#).
19. Vivian Cheronno et al., [Influence of Mentorship Practices on Employee Performance in Small Manufacturing Firms in Garissa County, Kenya](#).
20. PwC, [Upskilling manufacturing: How technology is disrupting America's industrial labor force](#)

ABOUT

The Manufacturing Institute

The Manufacturing Institute, the 501(c)(3) workforce and education partner of the National Association of Manufacturers, is driving an agenda to research and support manufacturing excellence, innovation and talent, and deliver solutions to make manufacturers in America globally competitive. In partnership with some of the leading consulting and economic research firms in the country, the Institute studies the critical issues facing manufacturing and applies that research to develop and identify solutions that are implemented by companies, schools, governments, and organizations across the country.

Keybridge

The Institute's Center for Manufacturing Research collaborated with Keybridge Research for this study. Keybridge is a boutique economic and public policy consulting firm that serves as economists, policy experts and strategic advisers to a diverse clientele, including Fortune 500 companies, global financial firms, trade associations, non-profit organizations, federal agencies and other institutions that operate at the intersection of economics and public policy. Keybridge provides clients with a suite of analytical and advisory services, ranging from macroeconomic risk assessments, economic modeling studies, policy impact studies, qualitative policy evaluations, survey design and analysis and strategic consulting.

This research was funded by a generous grant from AARP.





www.themanufacturinginstitute.org