



Inspiring the future

A&D industry must reimagine its appeal to workers to thrive





Introduction

It is time for the aerospace and defense (A&D) industry to reimagine its careers and skills opportunities, after more than two challenging years of disruptions caused by the COVID-19 pandemic, dislocated supply chains, and geopolitical tensions. Companies have struggled to fill skills gaps, as the industry hit turbulence that affected retention, career development, and work opportunities.

Given this backdrop, KPMG has examined A&D workforce trends to discover where employers need to make changes in their approach to hiring and retention. Our research team conducted a survey of the workforce and the STEM student population to gain insights in what motivated people's career preferences. It collected publicly available data from the Bureau of Labor Statistics and other key sources, while conducting one-on-one interviews with HR and business leaders.

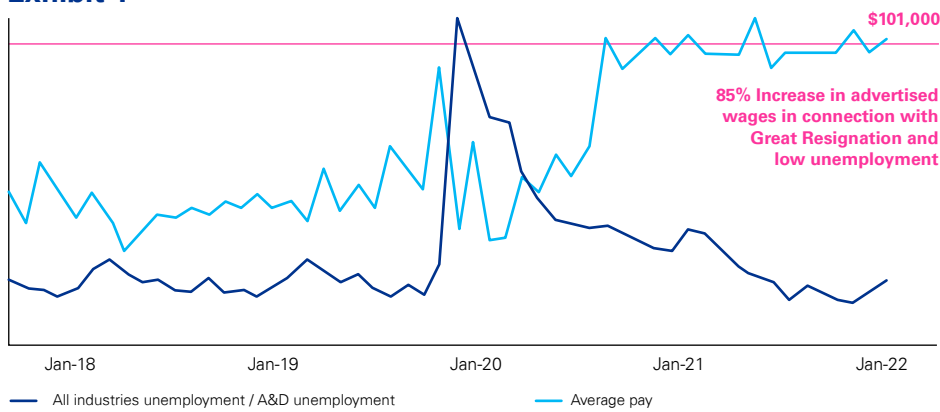
Based on the analysis of the research findings, the report advocates that A&D employers need to rethink their approach to hiring and retention. Companies in the industry are no longer regarded by workers as a place to build an entire career, while many of the most sought-after skills are easily transferable from one industry to another. A&D organizations are going to have to compete harder than ever for the best brains. Employers must adapt to the new reality and develop a message that A&D remains an exciting industry in which to work. There are a host of exciting opportunities for companies to embrace in the new labor market.

Current state of the workforce

Workforce levels in the aerospace and defense (A&D) industry have been on a rollercoaster ride in 2022. After a wave of layoffs at the start of the COVID-19 pandemic, attrition spiked during the

Great Resignation, but now job turnover has decreased to pre-pandemic levels, and A&D unemployment is in line with other industries (Exhibit 1).

Exhibit 1



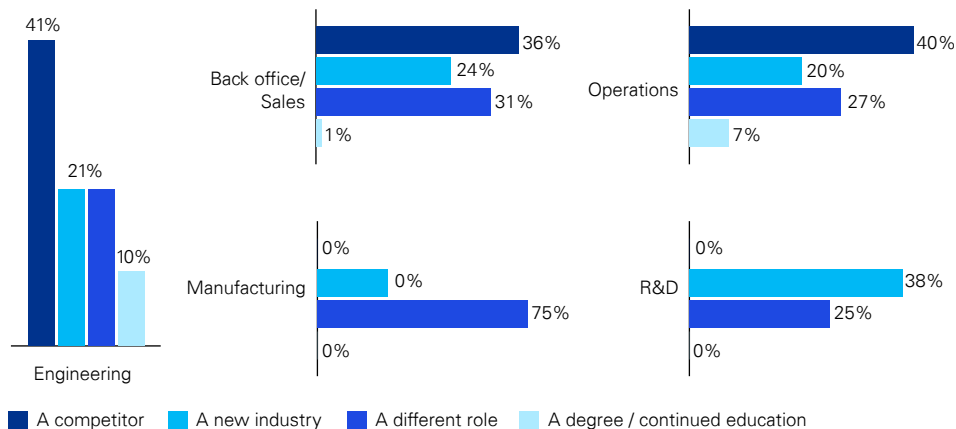
Source: Lightcast, 2022

A&D companies are facing similar challenges to many other industries due to a serious shortage of highly skilled workers. This concern becomes more

acute, given the fact that 40 percent of A&D engineers we surveyed would consider switching jobs to a competitor (Exhibit 2).

Exhibit 2

Percent of department group that would consider certain opportunities outside of their current company



Source: Workforce survey conducted by Informa with KPMG support



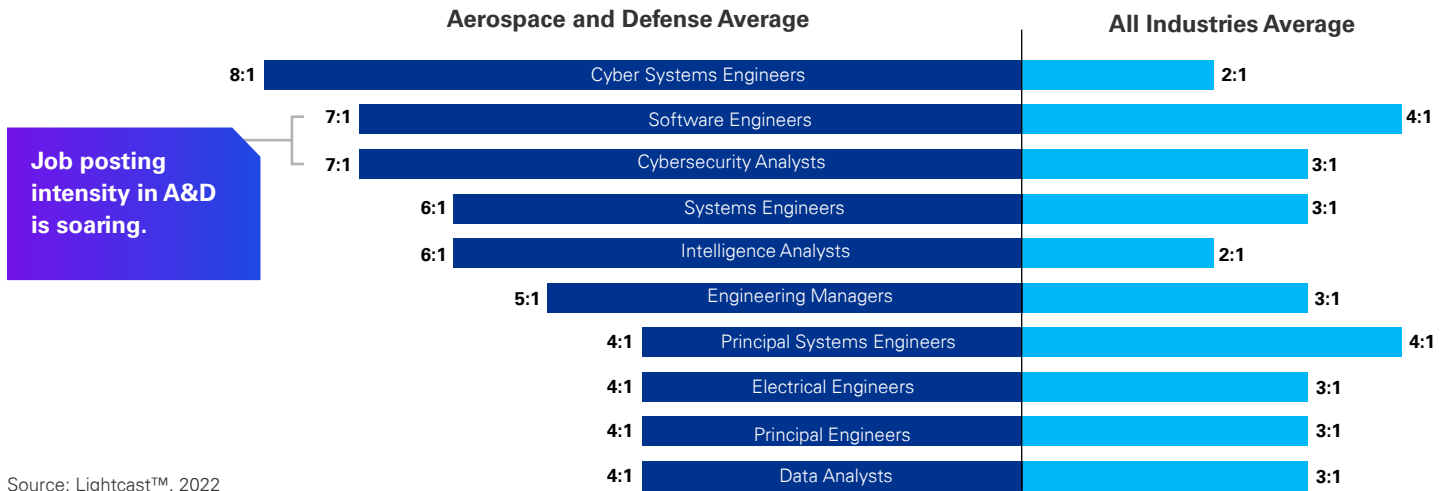
To address these gaps, A&D companies are making every effort to advertise their vacancies. For every five A&D job postings, there is one unique job listing, compared with a ratio of three to one for the national average of all industries, according to Lightcast, a labor market analytics firm. In other words,

the “posting intensity” of A&D is five, compared with a national average of just three.

The higher-than-average posting intensity in A&D reflects the fact that competition is growing among employers to hire the best available talent, not just among A&D firms but across a range of industries.

This intensity signifies how critical are the skills that employers are seeking. The posting intensity in A&D was highest for cyber systems engineers (8 to 1), software engineers (7 to 1), and cybersecurity analysts (7 to 1), all skills that are easily transferable among different industries (Exhibit 3).

Exhibit 3



Source: Lightcast™. 2022



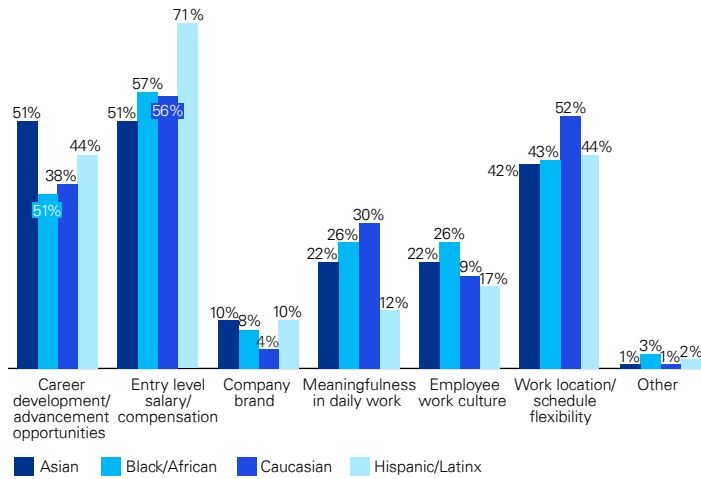
Perhaps the best way to attract those workers is through increased wages. In fact, our survey shows that 61 percent of male students and 57 percent of female students believe entry level salary and

compensation are the main drivers for accepting a job offer (Exhibit 4). And this is what the industry has been addressing. To attract workers, advertised wages in A&D have soared to a median annual

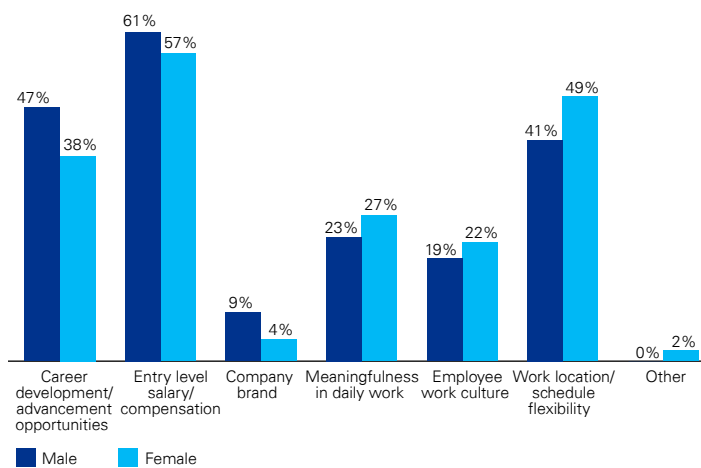
salary of more than \$100,000 a year, compared with less than half that amount in mid-2020.

Exhibit 4

Percent of ethnicity group that ranked each driver as top 2 for accepting a job offer



Percent of gender group that ranked each driver as top 2 for accepting a job offer



Source: Workforce survey conducted by Informa with KPMG support

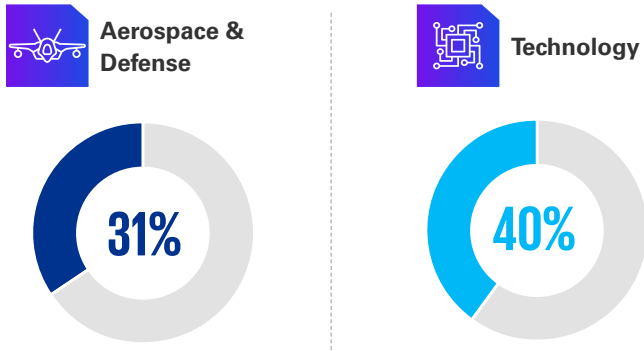
Another way of easing these talent issues would be to make the industry more appealing to women and other under-represented groups. A&D companies have a long way to go to match the national average of female workers as a share of

their workforce, for example (Exhibit 5). Only 16 percent of aerospace engineering bachelor's degrees are awarded to women, which is less than half the ratio of degrees awarded to industrial manufacturing engineers (Exhibit 6).

The lower female participation rate is reflected across all skills in the industry: only about a third of the A&D workforce is women compared with 47 percent for the entire U.S. workforce.

Exhibit 5

Inclusive of comparing the A&D industry to Technology directly



Source: Lightcast™. 2022

Ethnic minorities are also less well represented in A&D compared with other industries. A mere 29 percent of the A&D workforce is comprised of people who do not identify as Caucasian, compared with 40 percent in the technology sector (Exhibit 7).

Exhibit 7

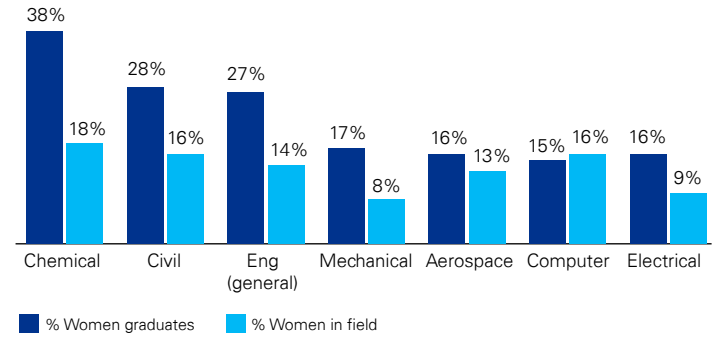
Ethnic minority distribution of A&D compared with tech sector



Source: Lightcast™. 2022

Exhibit 6

% of women graduating with engineering degrees compared to % of women in the industry



Women graduates in A&D-related majors are not taking A&D jobs



Women and other groups indicate they would be more attracted to work in A&D if employers address their specific needs, including a focus on their work-life balance (Exhibit 8). Some 63 percent of women in our survey strongly agree that work-life balance is a deciding factor with respect to their decision in choosing an employer, compared with just 36 percent of men (Exhibit 9). The same is true for ethnic minorities; they value even more highly than others those jobs where both the location and work schedules are flexible.



Exhibit 8

Percent of gender group that believes work-life balance is a deciding factor with respect to my decision in an employer

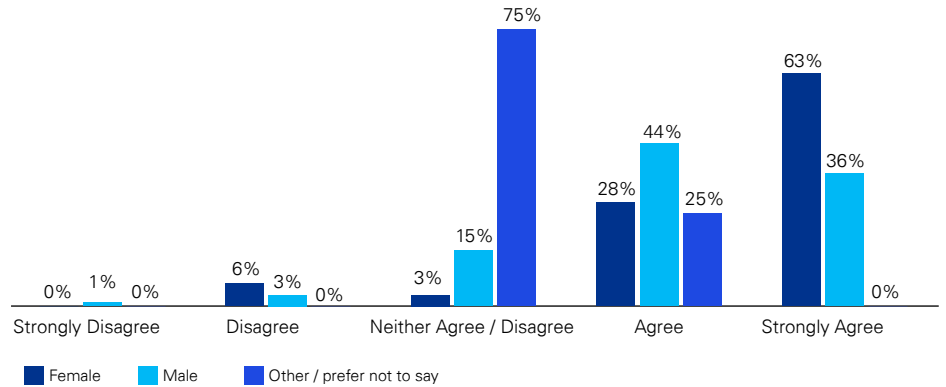
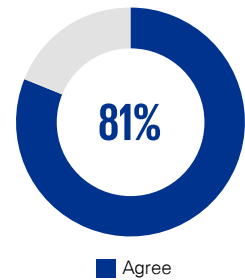
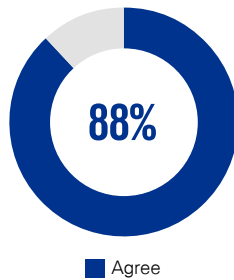
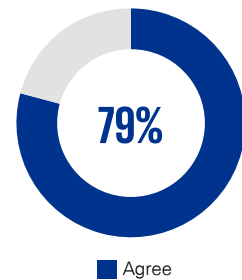
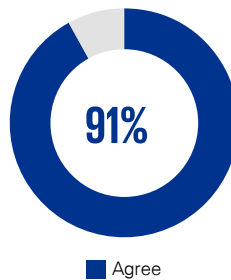


Exhibit 9

Percent of gender group that believes flexible hours/work schedule is important to me



Percent of gender group that believes ability to have work location flexibility is important to me



Source: Workforce survey conducted by Informa with KPMG support

If A&D companies are to do a better job of hiring and retaining skilled employees, our survey indicates they need to prioritize career development, while ensuring a greater sense of meaningfulness in people's daily work. In our survey, 47 percent of men and 38 percent of women indicated that career development was a main driver in accepting a position. And 23 percent of men and 27 percent of

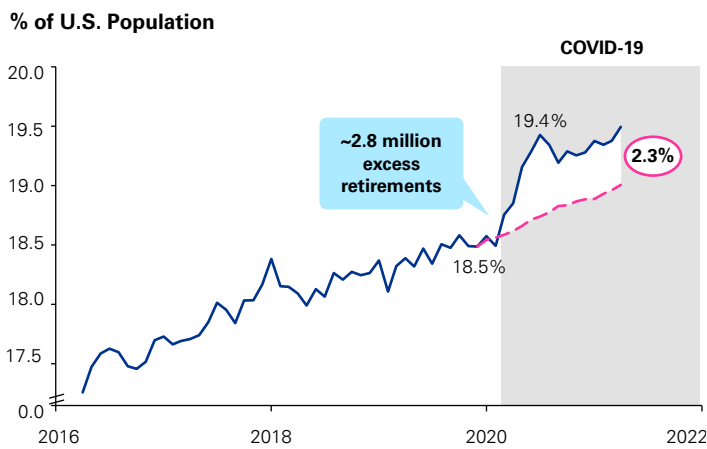
women responded that meaningfulness in daily work is a primary motivator. These factors need to be addressed if A&D companies are to narrow the gap between the expectations of employees and employers.

An additional challenge is that there is a lack of young workers entering the nation's workforce. The number of

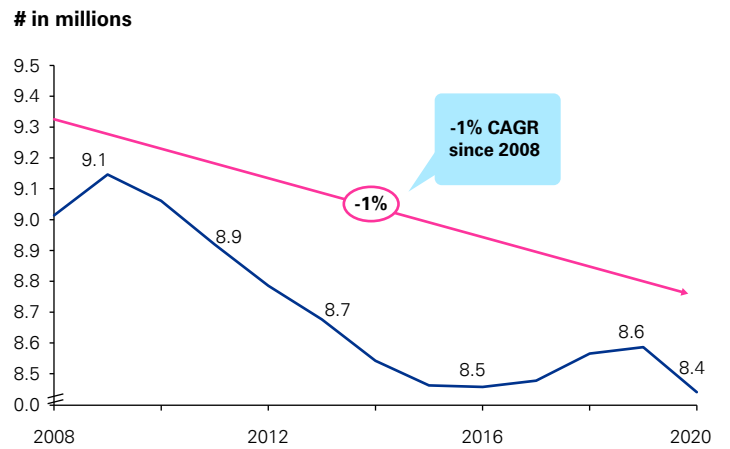
people aged 18-19 fell by 8 percent a year between 2009 and 2020 (Exhibit 10). This occurred at a time when the retirement rate had been climbing, and actually accelerated during the pandemic (Exhibit 10). The number of retirees from 2020-2022 exceeds the long-term trend by 2.8 million. These two trends intensify competition among industries for workers.

Exhibit 10

U.S. retirement rate surges following the COVID-19 pandemic



Proportion of 18-19 year-olds has declined over the last decade



Source: Federal Reserve Bank of Dallas, St. Louis Federal Reserve, Pew Research Center, US Census, National Center for Education Statistics, KPMG Analysis



Emerging themes

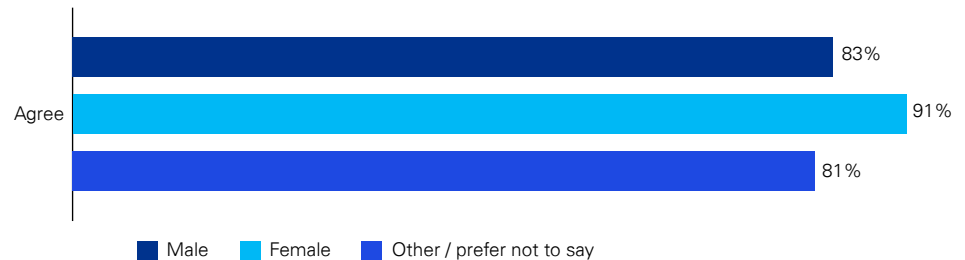


Flexibility matters to employees

Our study shows that, when it comes to work location and schedule, flexibility is as important to employees as compensation and benefits. Student respondents say it is a critical factor in deciding whether to join a company, and 96 percent of the overall workforce surveyed say they want jobs with flexible work locations and/or schedules (Exhibit 11).

Exhibit 11

Percent of gender group that agreed work life balance is a deciding factor with respect to my decision in an employer

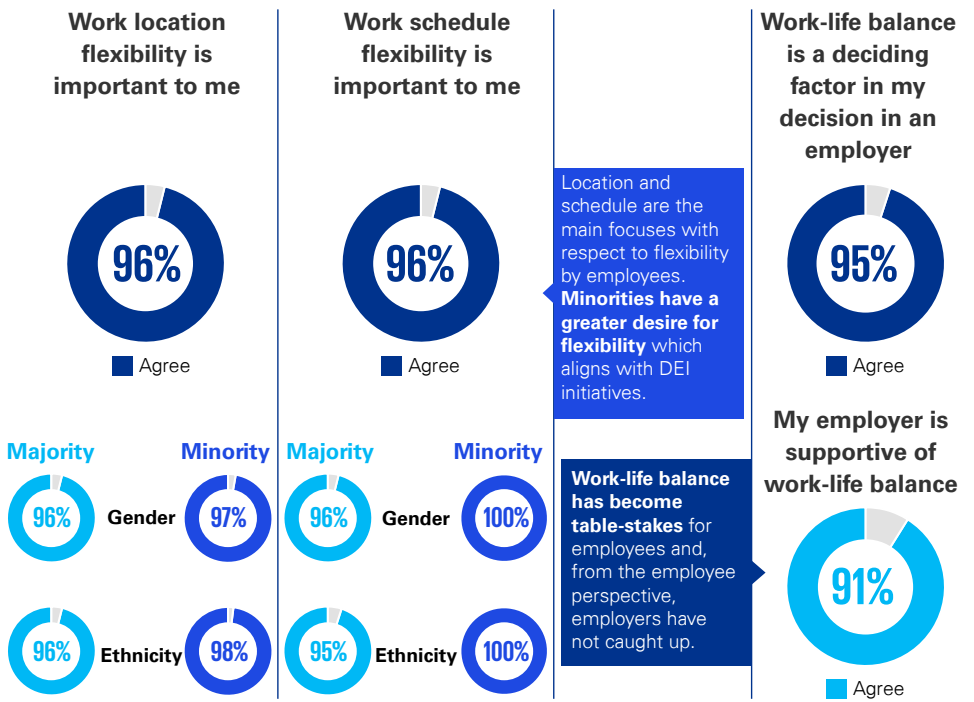


Source: Student survey conducted by Informa with KPMG support

A&D firms have made efforts to increase the flexibility of their schedules, but many are constrained by a range of factors from offering flexibility in certain dimensions: the work may be highly confidential, factory operations cannot be done at home, and launch schedules and deadlines might be fixed. But there are other ways these companies can be flexible, such as providing time off for employees' personal appointments or higher pay to compensate for roles where the time and place of work is relatively inflexible.

Flexibility is critical to the promotion of diversity in a workforce, as well. In our survey, groups that are under-represented in the industry more strongly indicated they wanted job flexibility, which aligns with initiatives involving diversity, equity, and inclusion. For example, flexibility of both location and schedule is even more important for ethnic minorities than for others (Exhibit 12).

Exhibit 12



Source: Lightcast™. 2022



A focus on retention is important for innovation

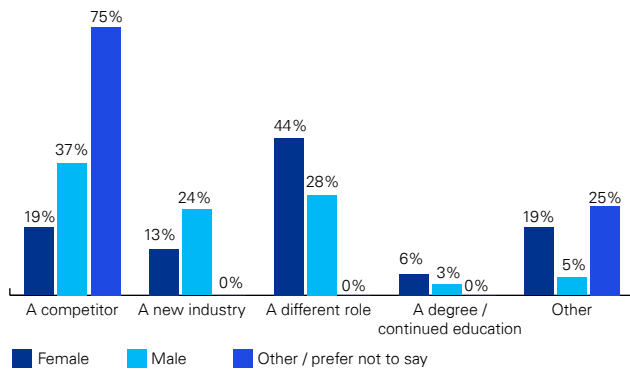
Hiring new recruits used to be considered the key method of driving growth and innovation, but this overlooks the retention and development of in-house talent. Retaining key people should always be top-of-mind for employers because companies can be sure that skilled

workers are keeping their options open. Forty percent of engineers say they are willing to change jobs, given the right opportunity, and all types of employees say they are considering working at rival companies, moving to a different industry, or even changing careers. Most

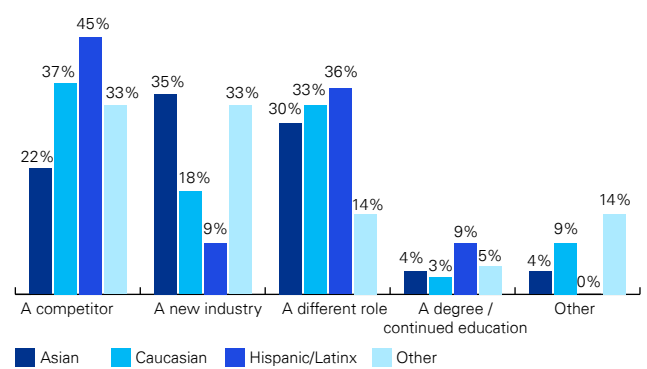
employers in A&D indicate they compete primarily with companies in their industry, whereas skilled workers are looking for jobs among a range of industries (Exhibit 13).

Exhibit 13

Percent of gender group that would consider certain opportunities outside of their current company



Percent of ethnicity group that would consider certain opportunities outside of their current company



Source: Workforce survey conducted by Informa with KPMG support

Companies cannot afford to be complacent, assuming that their best people will stay. At the very least, recruitment is expensive. Consider the time and cost involved in finding and hiring the right candidate; it could take a recruitment manager an average of 25 hours to fill a single job. It would be more productive for managers to spend 25 hours cultivating in-house talent, such as allocating an hour every other week developing the skills and career paths of talented employees. If A&D companies did a better job retaining skilled workers, they could then focus time and resources on hiring top-tier talent that simply is not available in-house.





Employees are looking for a “great place to be from”

Employers should focus on retaining and training their workforce, but they should not expect employees to respond by loyally serving out their entire careers at a single company. Our survey shows that

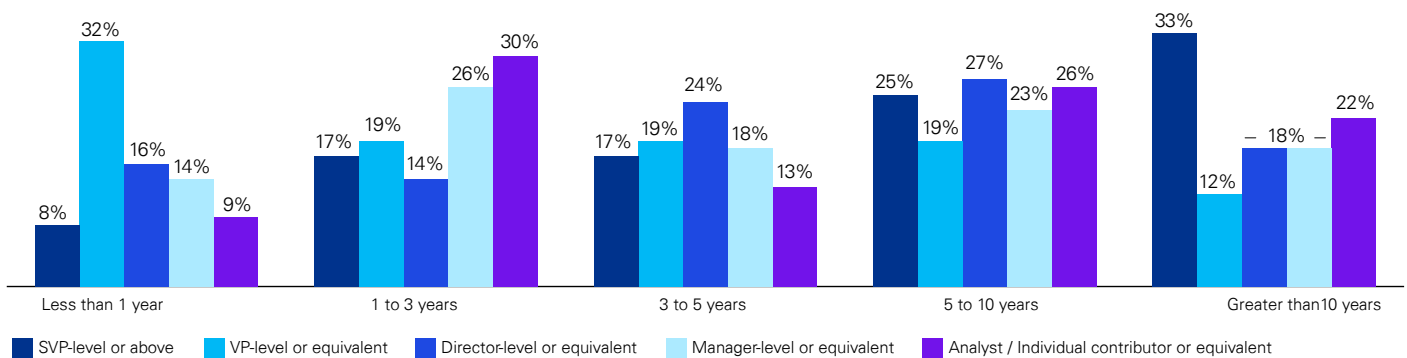
A&D workers regard a career in terms of a series of work experiences lasting three to seven years on average at each organization. For example, only 9 percent of women and 10 percent of men in our

survey see themselves staying at their current employer for more than 20 years (Exhibit 14).



Exhibit 14

Percent of company level group that sees themselves staying at their current employer for the following length of time



Source: Workforce survey conducted by Informa with KPMG support

Many companies regard themselves as great long-term destinations for talented workers, but they need to see things from the perspective of employees, who consider their employer as a “great place to be from.” They want to work at a company where they can enjoyably gain useful experience, that will advance their careers, and that will be highly regarded by future hiring managers when they apply for a job at another company.

Employees in the survey rated career development as one of the top two reasons for considering a job opportunity elsewhere, along with more compensation. For example, 75 percent of those aged 21 to 40 said more career development was a primary factor in considering other employment opportunities. That means employers who nurture employees’ technical skills will be an attractive place to work.

This can be done through training programs, project assignments that build new skills, role rotations, and mentoring. These efforts are likely to pay off. In addition to developing technical skills, employees are seeking development in other areas, such as soft skills, as well as mentors who can help them advance their careers (Exhibit 15).

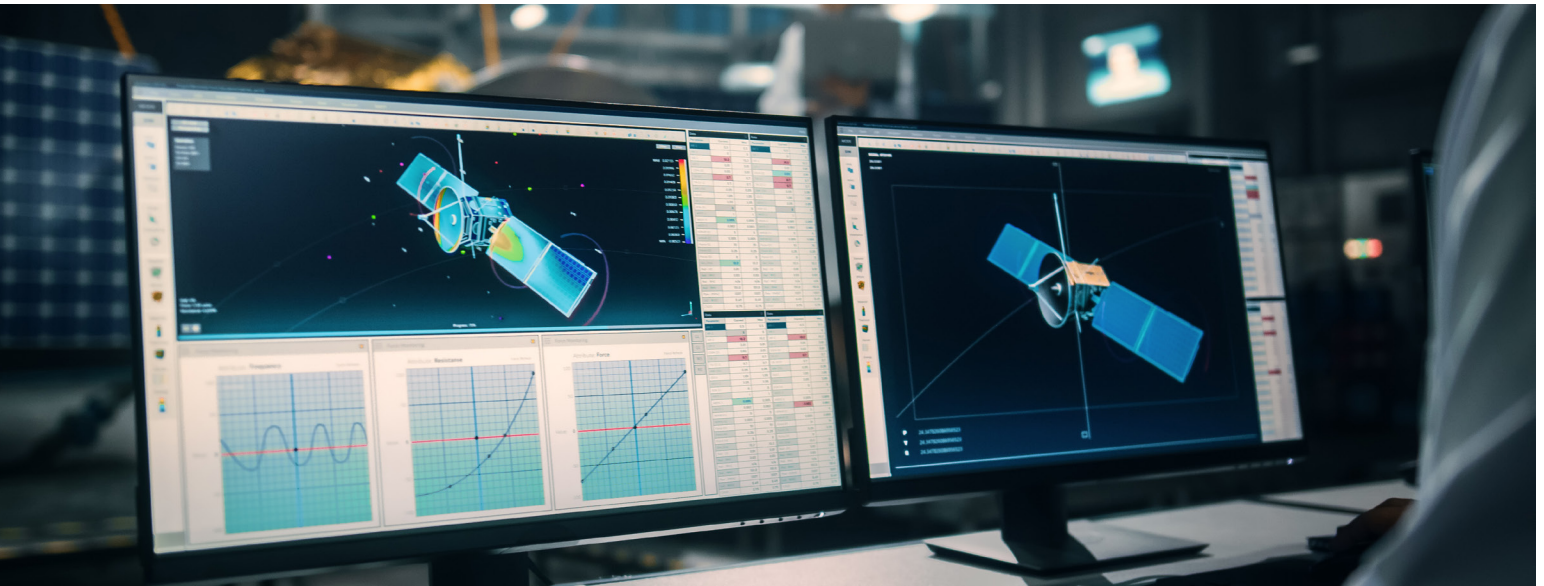
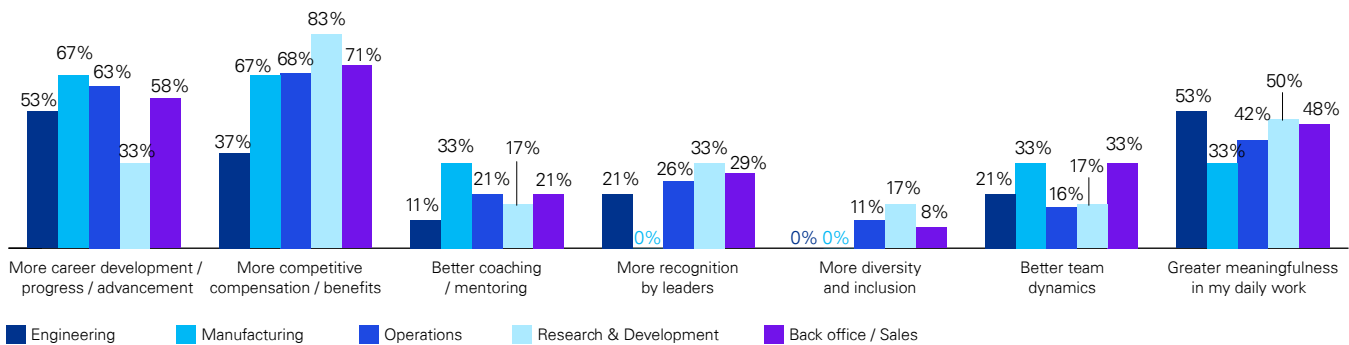


Exhibit 15

Percent of department group that might be considering other employment offers for



Source: Workforce survey conducted by Informa with KPMG support

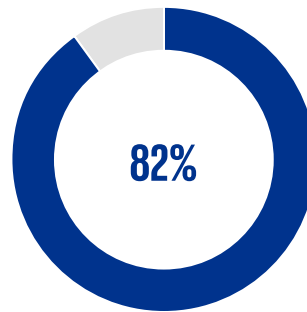


New talent practices

In our survey, 82 percent of HR leaders in A&D say that hiring is more challenging than before the pandemic, but they admit that they have not significantly altered their hiring practices (Exhibit 16). In interviews, company leaders say they are considering removing degree requirements to widen the net. There was also a recognition among them that they needed to go further to fill skills gaps.

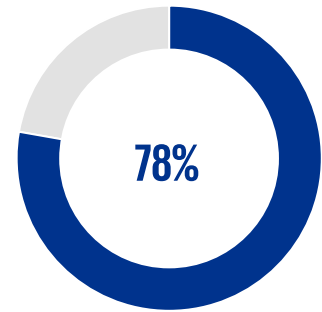
Exhibit 16

In terms of attracting new talent, it is more challenging now than prior to 2020 n = 95



■ Agree

In terms of engaging and retaining current talent, it is more challenging now than prior to 2020 n = 95



■ Agree

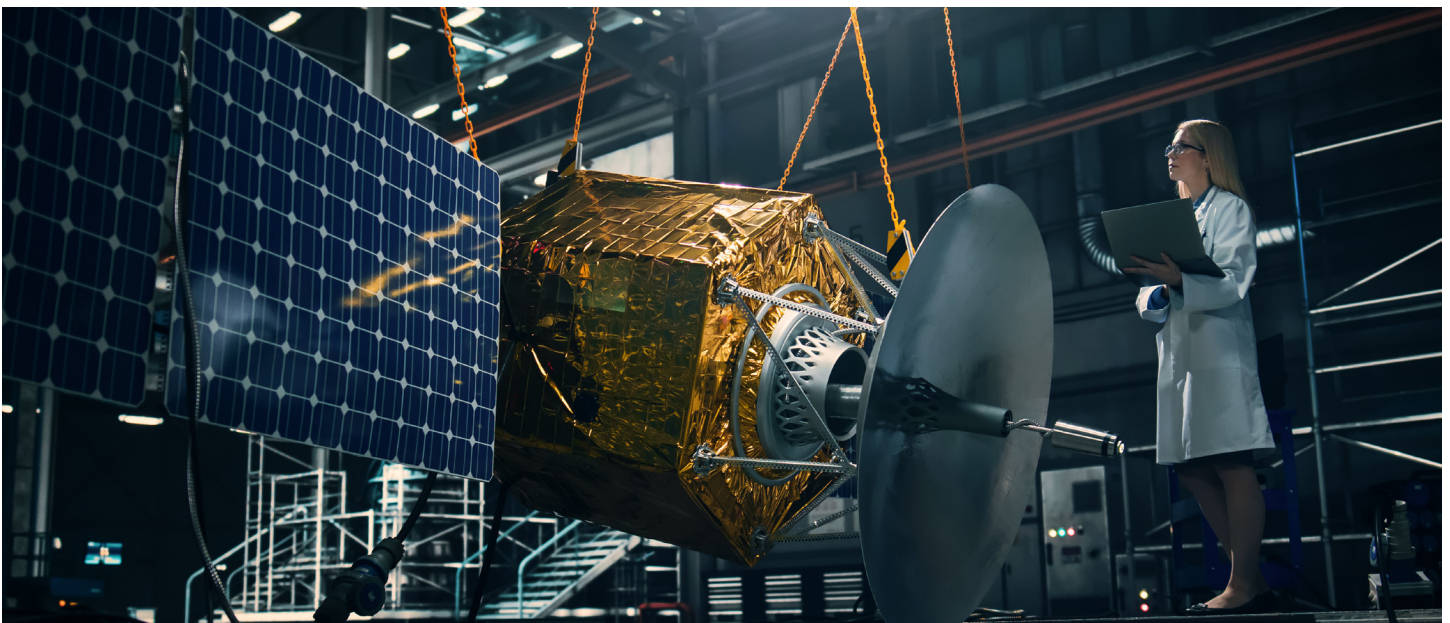
Source: HR Leader survey conducted by Informa with KPMG support

Companies are moving toward skill-based hiring, greater transparency around what skills will be needed in the future, and investing in talent to develop the skills that are in short supply. These are examples of a broader trend toward reshaping the relationship between employers and workers. In recognition of

the fact that the pool of available talent is not bottomless, companies increasingly recognize they have to invest in building the skills of workers and creating a mutually beneficial relationship between employers and employees.

Hiring managers can build pipelines of diverse talent by practicing recruitment

through a multitude of social dimensions. They should focus not just on ethnicity, gender, and sexual orientation, but also age, physical capabilities, and different personality types. People from diverse, often marginalized, backgrounds can not only fill skill gaps but also enrich the work experience for everyone.





Mission and purpose

The A&D industry is at an almost unprecedented moment when there are five generations of workers participating at the same time. It might seem hard to find things that all five generations can agree on, but they are all energized by the mission of the sector and they find the cutting-edge technology there thrilling. The industry has a special sense of purpose, connecting and protecting the populace, while deploying some of the most advanced technology.

Despite these attractive attributes, engineering students revealed in interviews that they were more interested

in working in the technology industry. This may be due to their greater familiarity with major technology brands, but if they were to compare the two sectors objectively, they may find that they would have a greater impact in A&D, working at the forefront of technology. Admittedly, designing and building a next-generation strike aircraft takes years, far longer than producing a new software application. But individual stages of A&D product development often require rapid prototyping, and technicians can be rotated through a variety of programs that will enable them to make a tangible impact quickly.



Emphasizing the end product

One helpful way of improving retention and attracting more skilled people to the A&D sector is to do a better job of emphasizing the appeal of the sleek final products. This is likely to knit work groups closer together and build moral. Many A&D workers who make components, for example, don't know what products their parts go into—but there is a method to show them that makes them feel part of something bigger.

TA Aerospace of California makes clamps, grommets, line blocks, and other small parts for aircraft and space platforms, but few of the workers could say where the components ended up. To help them visualize the results of their efforts, the company's employees painted a mural in the factory of a top-of-the-line Lockheed-Martin F-35 fighter jet, one of the aircrafts that contains their components. Employees then attached the actual components they make to the mural. The company says there was a feeling of excitement on the factory floor as the mural took shape. The project not only helped workers visualize how their efforts helped create a sophisticated airplane, but also gave them an opportunity to create something as a team. Such activities can build employees' pride in their work.¹

¹ Source: "Factors that affect retention and satisfaction among newly hired aerospace engineers," American Society for Engineering Education, 2020, "People engagement – it's why we do what we do," TA Aerospace, April 9, 2018

Reimagining careers in A&D



Now is the time to act

The current point in the economic cycle presents an opportunity for A&D companies to tap into the market for talent, because the tech industry has been laying off large numbers of workers in the face of a slowdown in demand. Crunchbase², a private-markets data

company, says 45,000 people in the tech sector have lost their jobs in the U.S. in the first 10 months of 2022.

Now is the time for A&D companies to act. The combination of job stability and a technologically rewarding career in A&D

should prove to be an irresistible lure to some tech specialists. But the window of opportunity will not remain open for long. Companies that scoop up these talented professionals will be at a competitive advantage.



Build meaningful experiences

Managers want their employees to spend more time at the office, and workers want flexibility of schedules and locations. So, if companies are going to succeed in enticing people back into physical work environments, they will have to meet their employees halfway, by creating more meaningful experiences at work, not just by holding more in-person meetings.

A&D employers must consider the ways in-person work experiences cannot be replicated by remote working. Managers should ask, what does the employee gain from returning to the workplace? The benefits include activities that build camaraderie, collaboration, and innovation. If managers focus on nurturing the talent of individuals through in-person

sessions, employees will have a strong incentive to go to the office. They will feel valued, and it may improve their chances of promotion. In this way, companies will strengthen retention and build more skills for the future.

² Source: "Tech Layoffs in 2022: The U.S. companies that have cut jobs," Crunchbase.com, Nov. 28, 2022



Articulate the opportunity

Given that big tech is reducing the size of its workforce, this is a good time for A&D companies to show that their industry not only offers skilled professionals the chance to be involved in some of the most exciting and challenging projects with leading-edge technology, but also

may provide more job stability than other sectors.

Certainly, there are few industries where, as in A&D, workers can make such a big difference. Our employee survey indicates that the ability to make an impact, specifically around ESG topics, is a priority

for employees (Exhibit 17). The fact that A&D currently has such a large carbon footprint also provides an opportunity for people to make a significant environmental impact, if they can use their skills to reduce the industry's carbon emissions.

Gaining invaluable experience

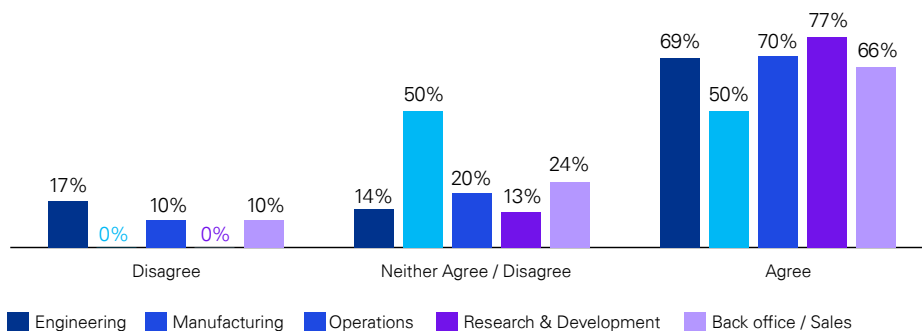
To enable its students to gain working experience and to foster aerospace innovation, Embry-Riddle Aeronautical University (ERAU) has established a research park adjacent to its Florida campus. The university offers companies space in the park to set up a facility with access to students, researchers, and faculty members, as well as funding and equipment.

ERAU provides incentives that support both firms and students: The companies gain access to talent, and the students receive hands-on training. Not only does the university help provide students with internships at the companies, but the interns also receive a stipend from the university to supplement payments by the companies to ensure the startup can pay a competitive wage. In addition, employees at the research park that pursue a master's degree at ERAU are eligible to receive a matching stipend from the university.

The cornerstone of the park, the John Mica Engineering and Aerospace Innovation Complex, has created more than 120 jobs with an average annual salary of more than \$78,000, paid by 22 advanced-technology companies that operate there. These companies include Boeing, Censys, Verdego, and HyCarb. The research park as a whole generated \$137 million of total economic impact in Florida in 2021.³

Exhibit 17

Percent of department group that believes it is important for me to work for an employer that is conscientious of its impact on the environment, climate, society, and community



Source: Workforce survey conducted by Informa with KPMG support

This is an opportunity to clarify the message. It is up to the A&D industry, as well as individual companies in the sector, to do a much more effective job articulating career opportunities.



³ Source: Embry-Riddle Aeronautical University, Research Park website, "To Help Create High-Paying Jobs, Cici and Hyatt Brown Pledge \$25 Million, Matching State of Florida Support for Embry-Riddle Aeronautical University," ERAU News, March 25, 2022



Rethink talent supply

A&D's message must be conveyed to young students who have not graduated from secondary school, as well as to university students and adults in the labor market. It should travel along a wide range of different paths, such as "ambassadors" visiting schools, the development of "shadowing" programs, and an expansion of the number of apprenticeships. All such efforts must build awareness among

potential recruits throughout the entire ecosystem (Exhibit 18).

This approach aligns with trends in hiring practices. Industry is moving to a skills-based hiring model that will open more pathways to careers, shifting from degree/experience-based hiring. Companies should focus on the talent they really need and then search for it everywhere,

not just in elite universities but in places they traditionally overlooked. Before, companies tended to ignore other sources of skilled workers, such as community colleges, high schools, staffing agencies, and a range of skills-based learning programs. As a result, many people fell between the cracks; now the search is on for talent wherever it can be found.

Priming the pipeline

Companies need to consider the entire ecosystem of support around the labor supply and work with different stakeholders to address the issue of skills shortages. Boeing has taken steps in this direction in a facility in Louisiana. Boeing is the prime contractor for the construction of the Core Stage for NASA's Space Launch System rocket at NASA's Michoud Assembly Facility, just outside of New Orleans. The core stage is the largest rocket stage ever built and was manufactured by a 3,500-strong workforce.

Boeing needed help to fill its pipeline of workers, so it collaborated with Louisiana Economic Development's (LED) FastStart workforce development program. LED brought together nearby Nunez Community College and the company to understand the latter's skills requirements and to supply critical talent to meet its needs. The college rapidly stood-up an aerospace manufacturing training program and offered nationally recognized aerospace manufacturing certifications.

LED gave money to Nunez Community College to buy equipment for the program, to renovate facilities, hire a program director, and pay stipends to program instructors to match industry pay scales. By the end of the first year, Nunez Community College had supplied 50 young workers to Boeing, and the program has been in place since 2018.



At LED FastStart, we believe that effective workforce development requires a long-term a commitment to not only recruit and train talent, but to sustain it with robust public-private partnerships," said Paul Helton, executive director of LED FastStart. "No other state can match the number, quality and diversity of educational partnerships that Louisiana has established between expanding companies and Louisiana's network of universities, colleges, HBCUs, community colleges and technical schools. The Aerospace Manufacturing Technology program at Nunez Community College, developed in collaboration with Boeing, is a perfect illustration of how business and higher ed working together benefits both.

– LED FastStart (Paul Helton, executive director)

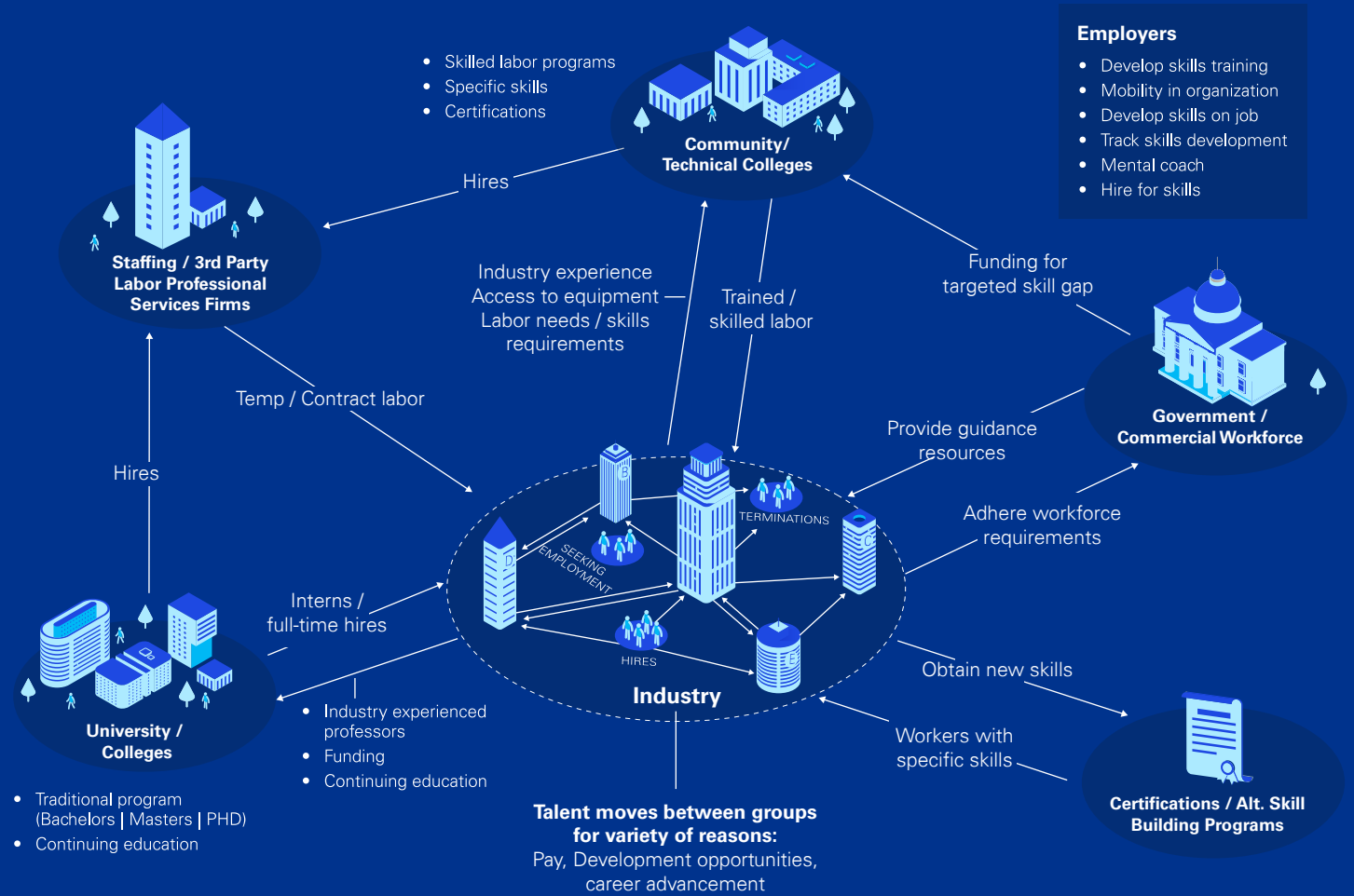


The key to success as an industry and as a nation is having a workforce equipped with critical, cutting-edge skills. Boeing is proud to partner with the Louisiana Economic Development's FastStart Workforce Development Program and Nunez Community College to increase access to real-world training and career pathway programs. We are extremely pleased with the Aerospace Manufacturing Technology program at Nunez Community College, which is closing the skills gap in the region and building a common framework that links, aligns and matches our workforce needs. This collaboration is an investment in the local workforce that this community will reap the benefits of for years to come.

– Boeing (Jennifer Boland-Masterson – director of manufacturing)

Exhibit 18

Talent ecosystem



Conclusion

This report is an urgent call for employers in A&D to purposefully reappraise and redesign their hiring and retention practices. Even though an economic slowdown may increase the supply of skilled workers in the short run, competition for talent will remain as fierce as ever and will expand well beyond the companies within A&D.

For workers with advanced manufacturing and computer skills, the world is their oyster. As technology and manufacturing industries converge, employers are finding they can move easily from one sector to another. A&D companies must respond in similar fashion by widening their net: by moving to skill-based

hiring, they will widen their skills search far beyond universities to include community colleges, apprenticeships, and even high schools.

Recruitment managers must also try harder to attract women and a diverse array of people who, until now, have been marginalized by the industry. They can do this by emphasizing the importance of work-life balance and flexibility of work hours and location. Meanwhile, the entire industry, as well as individual companies, needs to spread the message that A&D is, and remains, a great place to work—where people can make a real difference, both for their company and for society.



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