2024 NORTHERN VIRGINIA WORKFORCE INDEX

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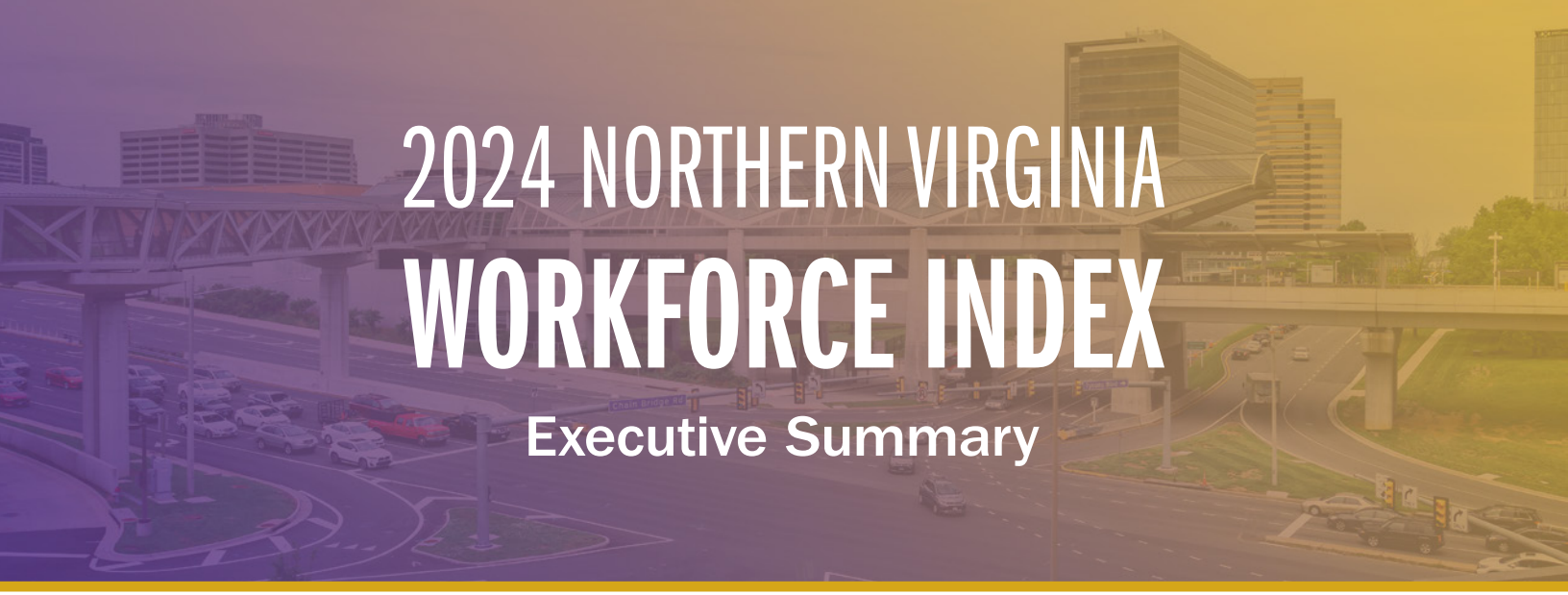
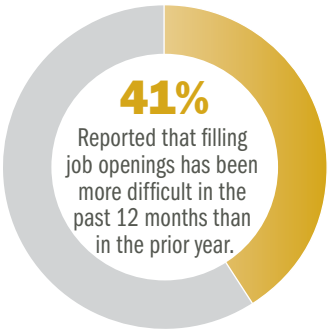


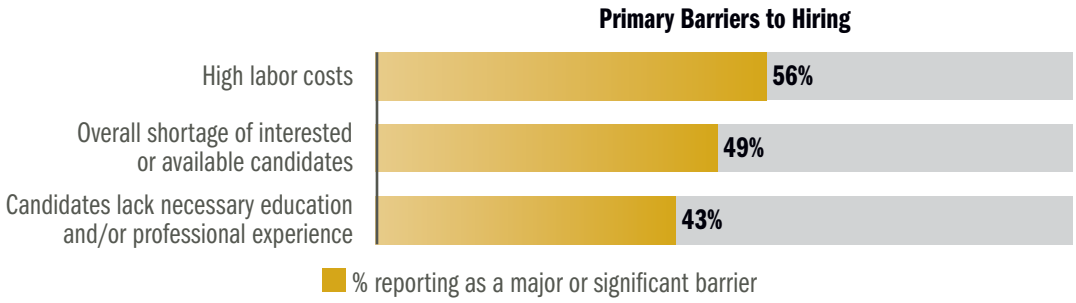
2024 NORTHERN VIRGINIA WORKFORCE INDEX

Executive Summary

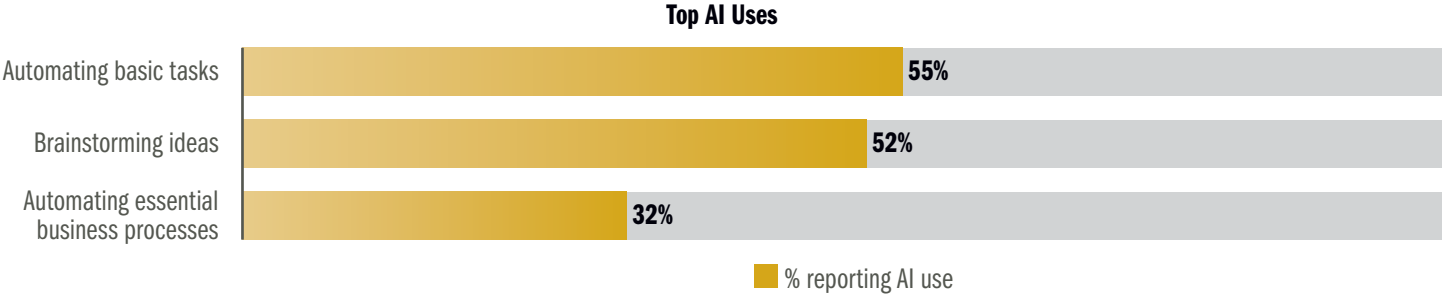
Our recent survey of over 260 regional business leaders found that ...

High labor costs, coupled with a persistent shortage of qualified candidates, continue to pose significant challenges for businesses in Northern Virginia when it comes to both hiring and retaining top talent.





Less than half of businesses in the region have adopted artificial intelligence (AI) in their workplace. However, over half of businesses anticipate their AI usage to increase in the next few years. Of the businesses that are already using AI, the majority use it for automation and brainstorming purposes.



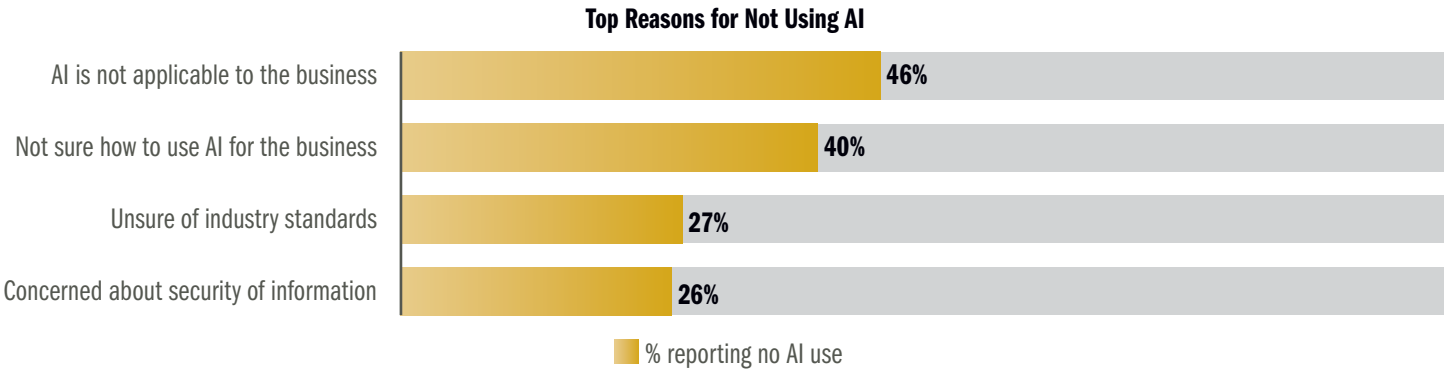
44%

Reported using AI in the past 12 months.

59%

Anticipate their business's AI use to increase in the next 1-3 years.

Businesses often hesitate to adopt AI because of uncertainty and concerns about data security. Even companies that have adopted AI face challenges related to the use of sensitive information and appropriate utilization of AI by employees.



51%

Have significant concerns regarding use of sensitive information with AI.

25%

Have significant concerns about appropriate business use of AI by employees.

Employers in Northern Virginia still rely on formal educational credentials as part of the hiring process.

25%

Require at least a bachelor's degree when hiring for entry-level positions.

44%

Are rarely or never willing to accept equivalent professional experience in lieu of a degree.

The *Northern Virginia Workforce Index,* originally developed in 2021 through a partnership between NVC and Northern Virginia Community College, is an annual employer survey and report that provides data on employer sentiment and workforce practices specific to the Northern Virginia region.

To download a copy of the full 2024 Workforce Index Report, please visit:
nvcbusiness.org/northern_virginia_workforce_index

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INTRODUCTION

The U.S. economy saw higher-than-expected growth in 2024. It is expected to continue growing in 2025, though experts predict that economic growth will slow a bit.[1] This expected slowing, combined with the rapid growth of artificial intelligence (AI) and increasingly high costs of living in many metropolitan areas, has led to rising levels of uncertainty about the future of the labor market.

Whatever the coming year holds in store, detailed and actionable intelligence on local labor market conditions, especially employer workforce needs, remains a vital component of understanding and planning for the future. The *Northern Virginia Workforce Index,* originally developed in 2021 through a partnership between NVC (formerly the Northern Virginia Chamber of Commerce) and Northern Virginia Community College (NOVA), is an annual employer survey and report that provides data on employer sentiment and workforce practices specific to the Northern Virginia region.

Among the results of this year's survey, we find that:

- High labor costs and a shortage of qualified candidates continue to make hiring difficult.
- While AI is still not widely used in the region, businesses anticipate increasing their use of AI in the next few years.
- The top uses for AI in the workplace are automation and idea generation, while the primary concerns businesses have regarding AI are protecting sensitive information and failing to keep up with AI use in their industry.
- Employers in the region still rely on formal education in hiring, with a quarter requiring at least a bachelor's degree for entry-level positions.

SURVEY OVERVIEW

Between August 23 and October 30, 2024, 267 regional business leaders responded to a series of 38 survey questions covering a range of workforce and talent-related topics. Updates to last year's survey included adding questions about AI use and removing questions about retention and remote work.

The survey was directed to the individual at each business who was most familiar with hiring, talent development and human resources decisions. Among those individuals who responded on behalf of their business, over half (58%) were members of the C-suite/executive leadership, 19% were human resources managers/directors or other HR professionals and 22% identified as some other type of manager or employee with requisite knowledge. Among these individuals, 76% have been employed at their responding business, in Northern Virginia, for more than five years.

The survey was administered using two different methods:

- **Probability-based:** Survey invitations and questionnaires were distributed by mail to a random sample of Northern Virginia businesses by the UVA Center for Survey Research (CSR), with options to respond online or by return mail. All businesses selected to participate in the survey received a noncontingent incentive of a $2 bill. CSR also conducted preliminary calling and internet searching to verify business contact information, as well as follow-up calling and emailing to improve response rates.
- **Nonprobability-based:** An online survey link was posted on NVC's website, emailed to NVC members and posted on NVC's social media pages.

1 Charles S. Gascon and Joseph Martorana, "Professional Forecasters' Past Performance and the 2025 Economic Outlook," Federal Reserve Bank of St. Louis, December 31, 2024, www.stlouisfed.org/on-the-economy/2024/dec/professional-forecasters-performance-2025-economic-outlook.

For the purposes of this summary report, responses gathered using both methods have been pooled/aggregated (with a total of 244 probability-based responses and 23 nonprobability-based responses). Businesses were included in the survey sample if they have a location/establishment or employees within Northern Virginia, which is defined as the nine Commonwealth of Virginia jurisdictions included under the Region 8 planning district commission, or as part of the NOVA service area.[2] Among responding businesses, 59% have just one location, 35% have multiple locations and 6% are fully remote.

Responses are weighted to account for sampling design (i.e., base weights) as well as to adjust for differing rates of response and ensure that the combined sample is reflective of Northern Virginia's employer landscape in terms of industry sector and business size (i.e., poststratification weights). The random sample of businesses used in the probability-based data collection was provided by Dynata, Inc., a third-party reseller of listings from Dun & Bradstreet's comprehensive business database. Poststratification weights based on business industry and size reflect the distribution of Northern Virginia businesses in this database.

Table 1 compares the unweighted frequency of responses for each demographic characteristic to frequencies following application of these weights. From this comparison, it is apparent that businesses in the raw materials and social services/wellbeing categories were overrepresented in survey responses compared to the number of businesses in the region, while businesses in the financial/intellectual services and sales/personal services categories were underrepresented. Similarly, smaller businesses (between 5 and 19 employees) were underrepresented in survey responses, while larger businesses were overrepresented.

Table 1: Business Establishment Demographics – Unweighted vs. Weighted Shares of Responses

Industry Category	Unweighted	Weighted
Raw materials	14%	8%
Business support	16%	14%
Financial/intellectual services	29%	34%
Sales/personal services	19%	28%
Social services/wellbeing	23%	16%

Size Category	Unweighted	Weighted
5 to 9 employees	40%	48%
10 to 19 employees	20%	25%
20 to 99 employees	22%	20%
100 to 499 employees	12%	5%
500+ employees	7%	2%

Note: Because of the survey's focus on workforce issues like hiring and retention, sole proprietorships as well as businesses with between one and four employees were excluded from both samples.

Results reported throughout the remaining sections of this report are based on these weighted responses. Any reported frequencies include only "valid" responses.[3] That is, cases where a respondent did not answer a question, or where the answer was "Don't know/not sure" or "Not applicable," are not included in the totals when calculating percentages.

For additional details regarding the survey design and methodology, see the appendix.

2 These include Alexandria City, Arlington County, Fairfax City, Fairfax County, Falls Church City, Loudoun County, Manassas City, Manassas Park City and Prince William County.

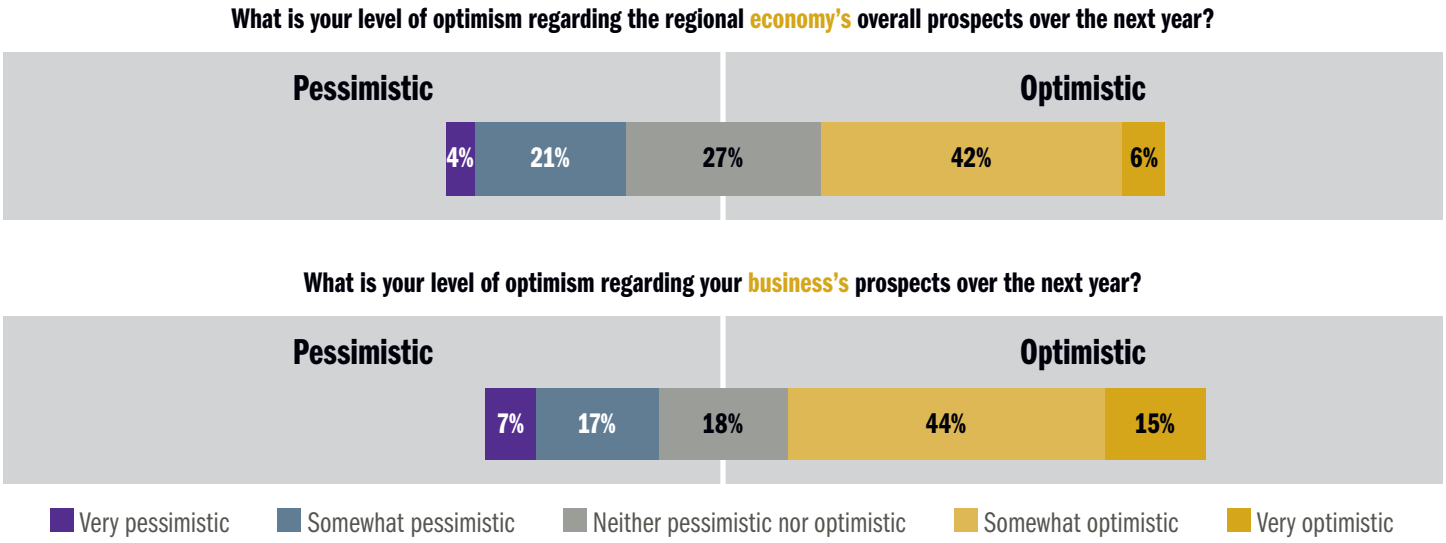
3 Note that cumulative frequencies may not sum due to rounding.

OVERALL BUSINESS/ECONOMIC OUTLOOK

Northern Virginia businesses' economic outlook was slightly more optimistic in 2024 than in 2023. A quarter of businesses reported being either "somewhat pessimistic" or "very pessimistic" about the regional economy's prospects over the next year, while nearly half (48%) reported feeling optimistic (*Figure 1*). In 2023, only 41% of *Workforce Index* respondents reported feeling optimistic about the economy.[4] Respondents' business outlook was even more optimistic than their economic outlook, with 59% reporting feeling at least somewhat optimistic (*Figure 1*). This is similar to last year's *Index.*

It is worth noting that respondents to this survey had a more optimistic view about their businesses than respondents to the Census Bureau's Business Trends and Outlook Survey (BTOS), which collects data every two weeks from a sample of businesses nationwide.[5] As of November 2024, only 37% of BTOS respondents in the Washington, D.C., metropolitan statistical area (MSA) said their business was doing above average or excellent.[6]

Figure 1: Business and Economic Outlooks Among Survey Respondents



In general, the number of paid employees has not changed significantly for nearly half of businesses (49%) in the past 12 months. Almost a third (29%) have seen some sort of increase in the number of employees, and less than a quarter (22%) have seen a decrease (*Figure 2*). The percentage of businesses reporting an increase is higher than it was in last year's *Workforce Index,* where only 27% reported an increase in the number of paid employees.[7] A third of businesses are expecting to see an increase in the number of paid employees over the next 12 months, but the majority anticipate no significant change (*Figure 2*).

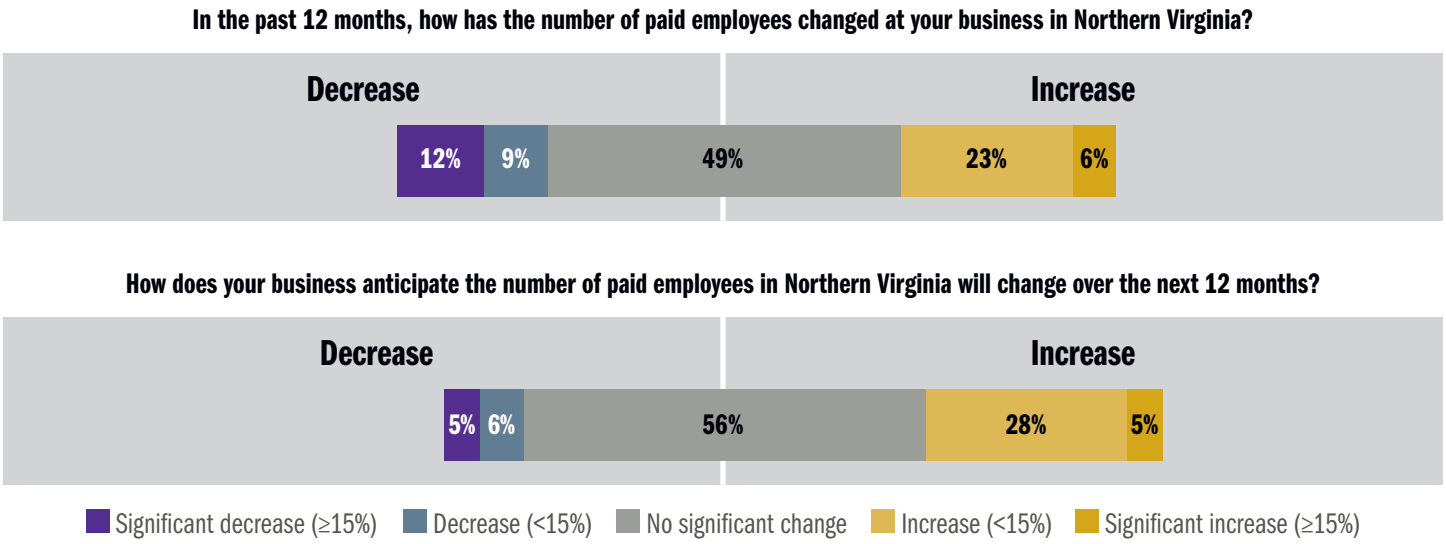
4 Northern Virginia Community College, *2023 Northern Virginia Workforce Index,* January 2024, www.nvcbusiness.org/northern_virginia_workforce_index/.

5 U.S. Census Bureau, "About the Data," *Business Trends and Outlook Survey,* last modified December 5, 2024, www.census.gov/hfp/btos/about.

6 U.S. Census Bureau, "Top 25 MSA," *Business Trends and Outlook Survey,* accessed December 6, 2024, www.census.gov/hfp/btos/data_downloads.

7 Northern Virginia Community College, *2023 Northern Virginia Workforce Index,* January 2024, www.nvcbusiness.org/northern_virginia_workforce_index/.

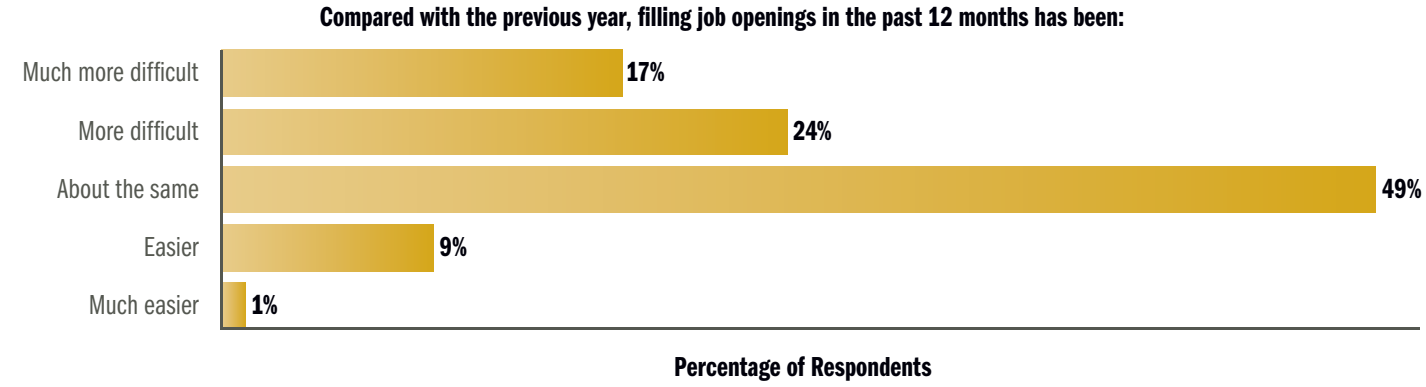
Figure 2: Past and Future Employment Changes Among Survey Respondents



HIRING TRENDS AND CHANGES

Only 41% of respondents reported that it was either more difficult or much more difficult to fill job openings in the past 12 months than it had been in the previous year (*Figure 3*). While this is far lower than in the 2023 *Workforce Index* — where over half of businesses reported increased difficulties filling job openings — nearly half reported that filling job openings has been "about the same," indicating that businesses in the region are still finding it difficult to hire (*Figure 3*).[8]

Figure 3: Difficulty Hiring

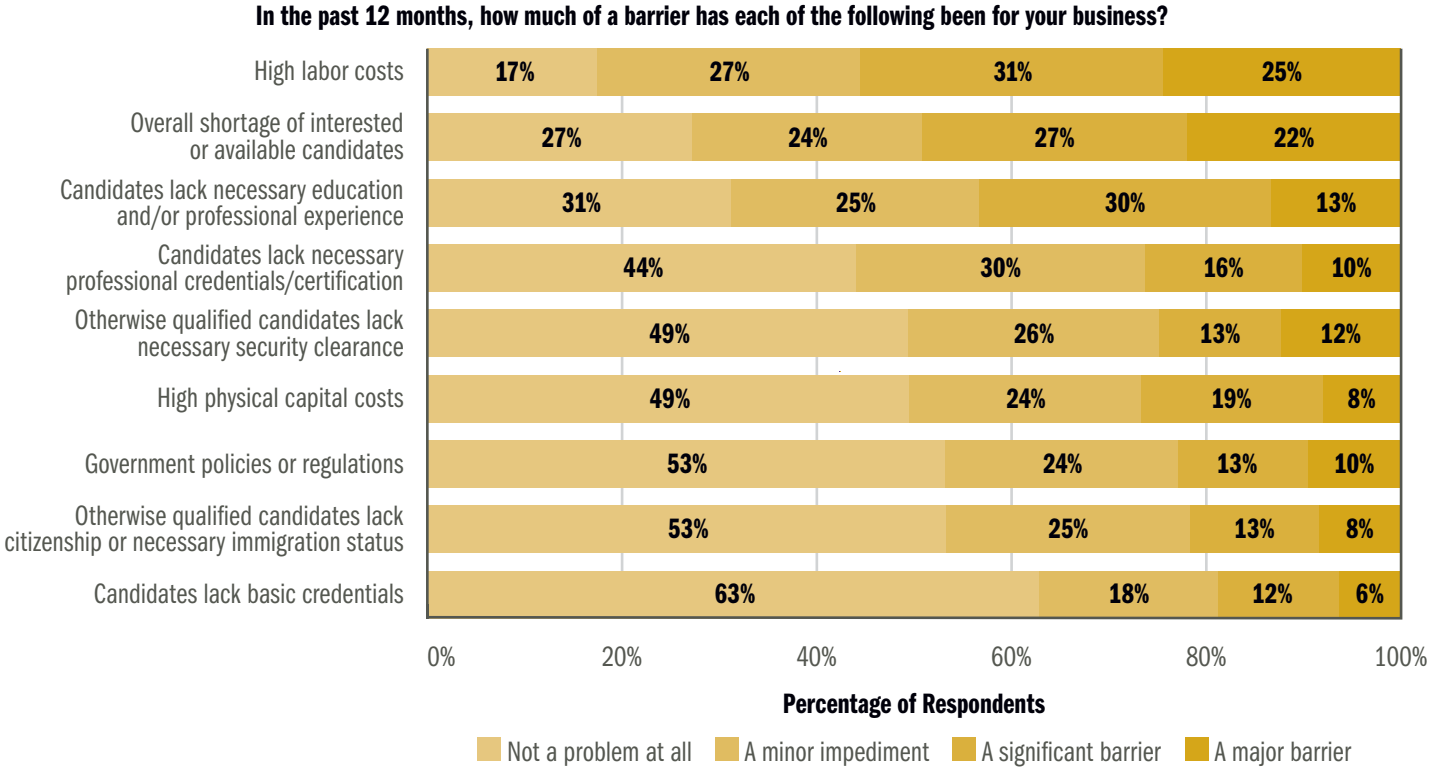


8 Northern Virginia Community College, *2023 Northern Virginia Workforce Index,* January 2024, www.nvcbusiness.org/northern_virginia_workforce_index/.

However, unlike in previous years, an overall shortage of candidates is not the primary barrier to hiring for local businesses. While 49% cited this as either a major or a significant barrier to hiring over the past year, an even larger share — 56% — reported that high labor costs were making it difficult for them to hire. Many respondents (43%) also identified candidates' lack of necessary education and experience as a major or significant barrier (*Figure 4*).

When given the chance to identify additional barriers not included among available responses, respondents frequently cited high cost of living and difficulties with keeping wages competitive, as well as candidates' desire for remote work. They also cited an aging workforce and difficulties replacing employees who have retired.

Figure 4: Barriers to Hiring

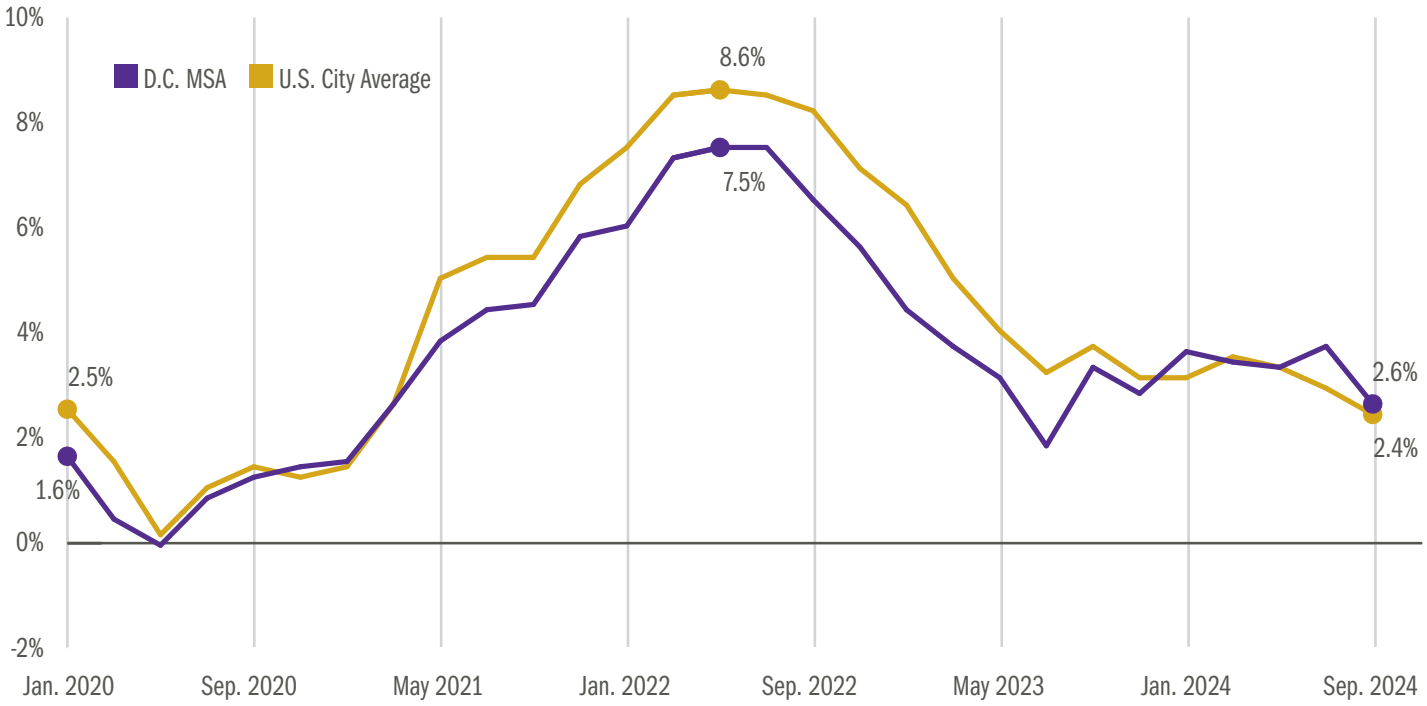


Concerns about high labor costs are unsurprising, given increasing costs for goods and services. The most common way of measuring prices and inflation is with the U.S. Bureau of Labor Statistics' (BLS) Consumer Price Index (CPI). The CPI is based on how much certain goods and services cost relative to a base year. The Consumer Price Index for All Urban Consumers (CPI-U) captures costs for about 90% of the population.[9]

Although prices are rising more slowly than they were in mid-2022, when inflation was at its peak, the year-over-year change in prices is still much higher than it was prior to the COVID-19 pandemic (*Figure 5*). Increasing prices for consumers also affect the prices businesses have to pay; wages typically have to increase to keep up with rising costs, and the cost of providing benefits to employees also increases dramatically.

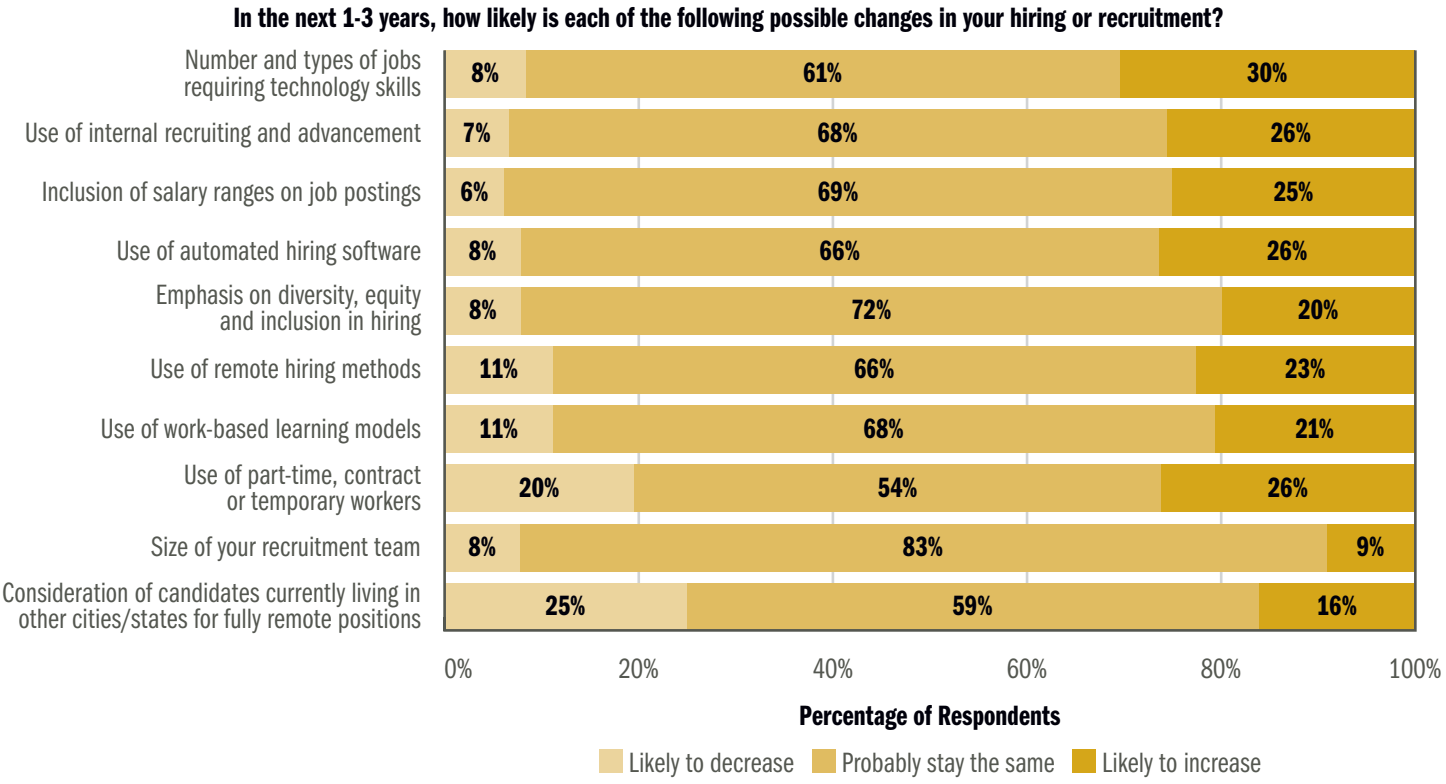
9 U.S. Bureau of Labor Statistics, "CPI News Release Technical Note," *Consumer Price Index,* last modified February 9, 2024, www.bls.gov/cpi/technical-notes/.

Figure 5: Consumer Price Index for All Urban Consumers (12-month % change)



Source: U.S. Bureau of Labor Statistics, "Consumer Price Index for All Urban Consumers, Not Seasonally Adjusted," *Consumer Price Index,* accessed December 5, 2024, www.bls.gov/cpi/data.htm.

Figure 6: Changes and Trends in Hiring



The four main changes in hiring and recruitment that businesses said are likely to become increasingly common over the next few years are the number and types of jobs requiring technology skills; the use of part-time, contract or temporary workers; the use of internal recruiting and advancement; and the use of automated hiring software (*Figure 6*).

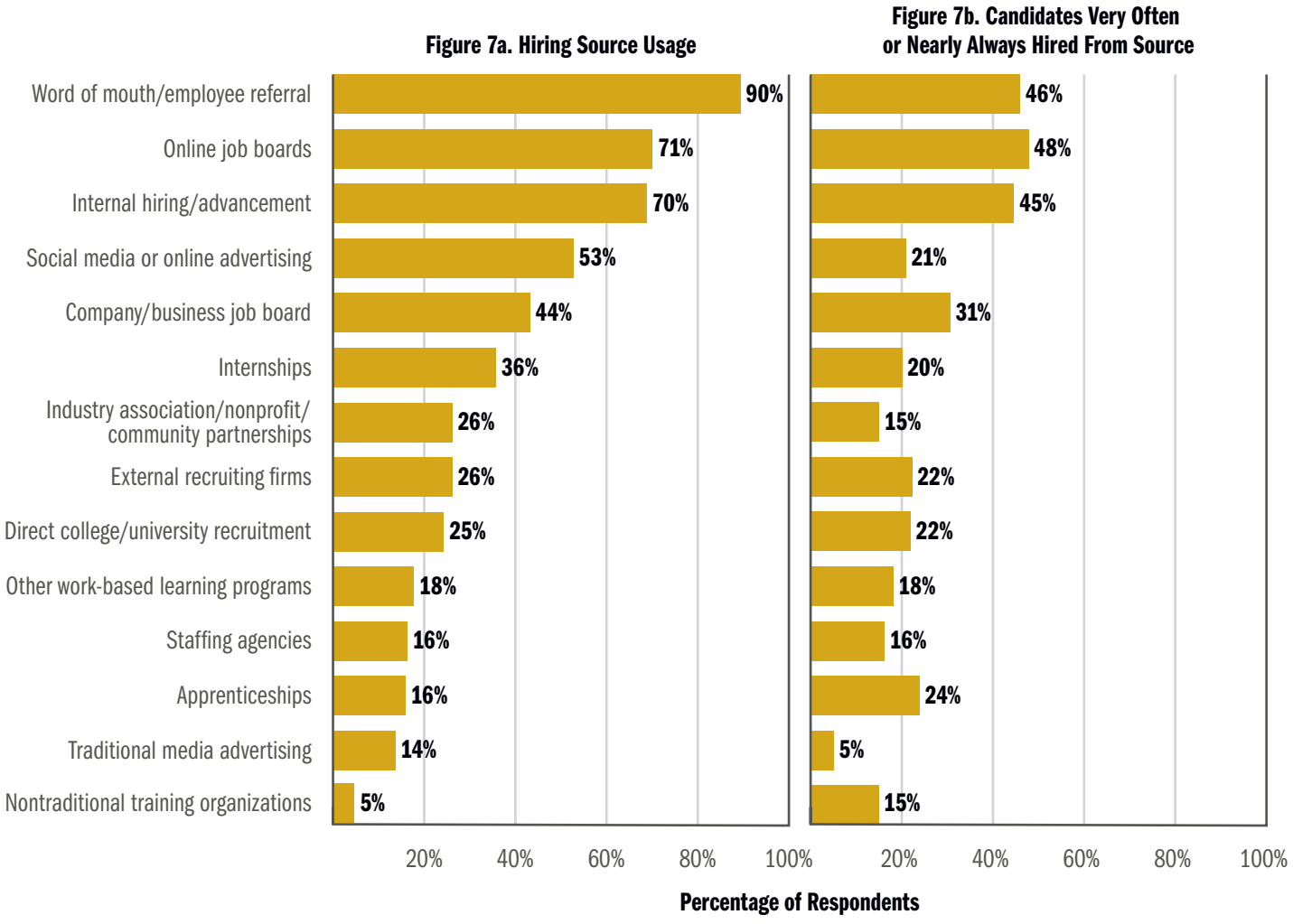
The expected increases in the number and types of jobs requiring technology skills and the use of automated hiring software may be due to the increasing use of AI to support business operations (AI is discussed in more detail in the next section).

While about a quarter of businesses expect their use of part-time, contract or temporary workers to become more common in the next one to three years, 20% of businesses anticipate their use of those same types of workers to decrease. Whereas an increased reliance on part-time/contract workers could be some businesses' solution to hiring challenges, a decreased reliance on these types of workers could be an indication of lower turnover rates.

Employee referral or word of mouth is by far the most common source used to recruit new employees (90%), although online job boards, internal hiring and social media/online advertising are also used by a majority of businesses. Work-based learning methods, however, are used less frequently, with only 36% reporting that they use internships to recruit, and even smaller shares reporting that they use apprenticeships or other work-based learning programs (16% and 18%, respectively) (*Figure 7a*). In addition, less than a quarter of businesses reported that candidates recruited from internships, apprenticeships or other work-based learning programs are either very often or nearly always hired (*Figure 7b*).

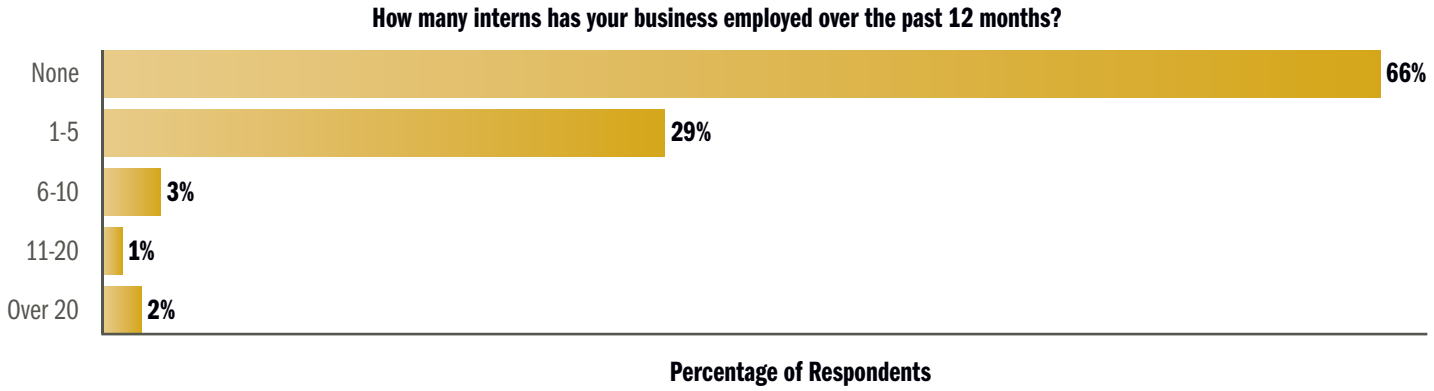
Figure 7: Hiring Sources

Does your business use any of these sources to recruit talent? How frequently do candidates recruited from these sources get hired?



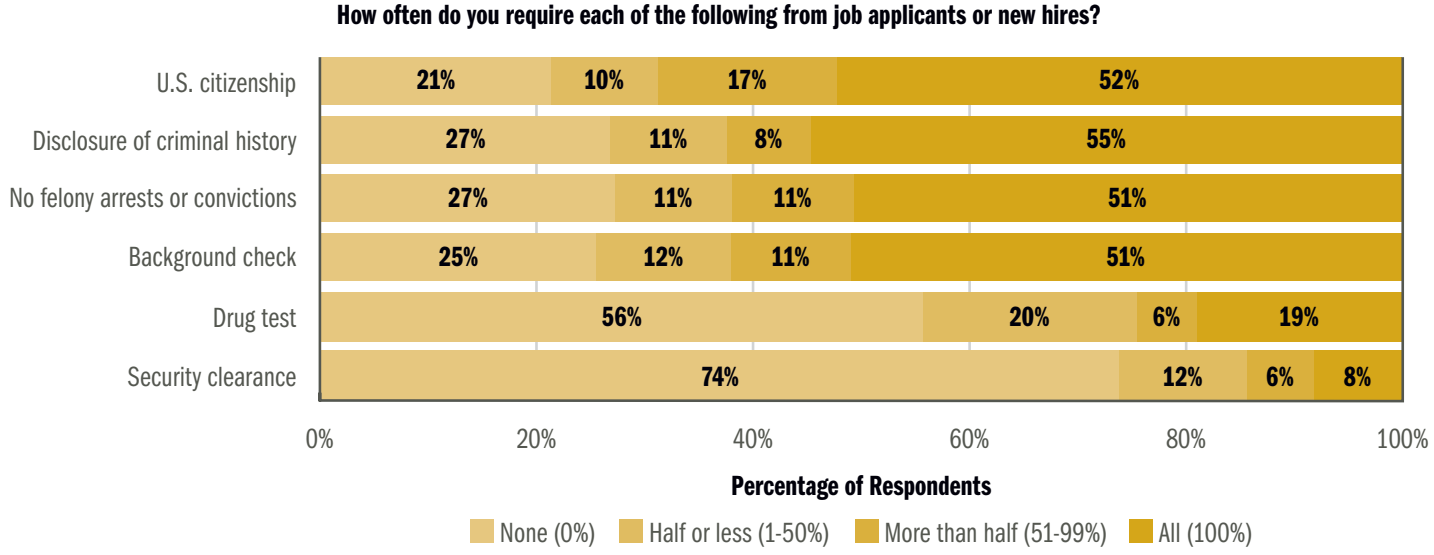
Similarly, only a third of businesses reported employing any interns in the past year, and the vast majority of those that did employed only between one and five interns (*Figure 8*). Nearly a quarter (21%) of businesses indicated that they are likely to increase their use of work-based learning models over the next one to three years, so this number may increase (*Figure 6*). However, this number has decreased over the past two years — from 49% in 2022 and 40% in 2023 — so it seems as though many businesses are in fact decreasing their use of work-based learning.[10, 11]

Figure 8: Recent Internship Employment



Over half of businesses require all new hires to be U.S. citizens and to complete a background check. Similar shares of businesses also require all new hires to disclose their criminal histories and to have no felony arrests or convictions (*Figure 9*). Security clearances are less common, with only about a quarter requiring them of any employees. However, this share is much larger for government contracting firms; over three-quarters (76%) of these firms require at least some of their new employees to have a security clearance.

Figure 9: Hiring Requirements



10 Northern Virginia Community College, *2022 Northern Virginia Workforce Index,* January 2023, www.nvcbusiness.org/northern_virginia_workforce_index/.

11 Northern Virginia Community College, *2023 Northern Virginia Workforce Index,* January 2024, www.nvcbusiness.org/northern_virginia_workforce_index/.

ARTIFICIAL INTELLIGENCE

AI has risen to prominence in the past few years, with the development of open source AI platforms such as ChatGPT, the implementation of chatbots on websites and the advent of meeting assistants such as Otter.ai. In fact, one study found that AI has been adopted more quickly than were both the internet and personal computers.[12] In response to an October 2023 executive order from former President Joe Biden, the U.S. Department of Labor published a list of principles and best practices for the use of AI in late 2024.[13] AI's effects on the labor market have also been widely discussed; however, much of the recent discussion has been at the national level. A variety of studies have analyzed business use of AI at the national level, but little analysis of such trends has been conducted at the local level. Understanding how businesses use AI is vital to understanding the ever-changing labor market in the region. This is especially true in Northern Virginia, given the unique makeup of the region's labor market and the prevalence of government contracting firms and IT jobs.

Less than half of businesses (44%) reported using any form of AI in the past year (*Figure 10*). However, AI use varies by industry sector; over half of businesses in the financial/intellectual services sector reported using AI in the past year, compared to less than a third of those in the social services/wellbeing sector (*Figure 11*). AI use also varies depending on the size of the firm, with the vast majority (88%) of firms with 500+ employees reporting having used AI in the past year, compared to less than a third of firms with 10 to 19 employees (*Figure 12*). More than half (56%) of government contracting firms also reported using AI in the past year.

Figure 10: Use of Artificial Intelligence

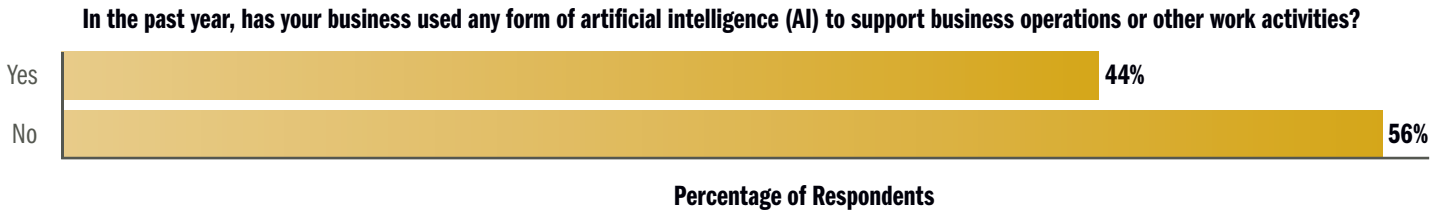
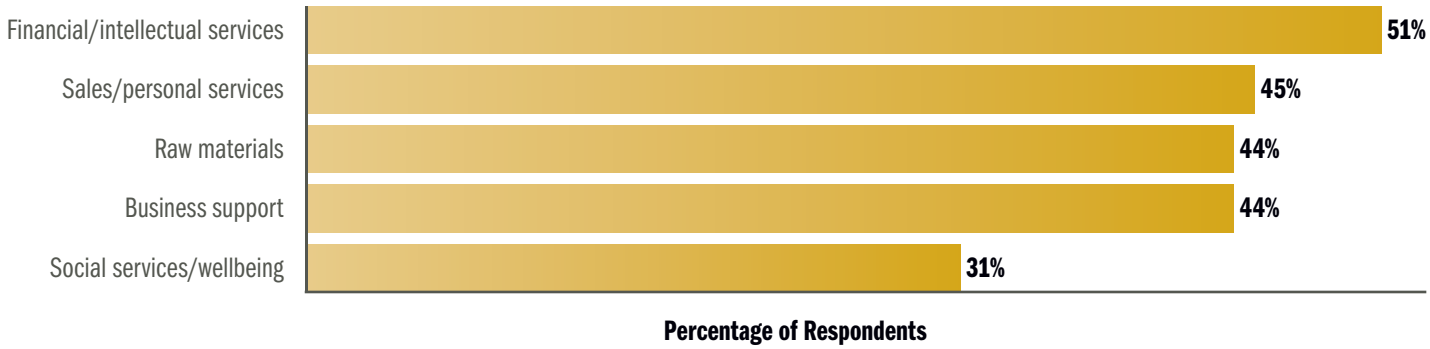


Figure 11: Use of AI by Industry Sector



The main reason that businesses are not using AI is that it is not applicable to their business or industry. In fact, among those businesses reporting having not used AI in the past year, 46% cited this as a reason. Other reasons businesses cited for not using AI include uncertainty about how to use it and uncertainty of industry standards for AI use (40% and 27%, respectively). About a quarter of businesses also expressed concerns about the security of information in AI use (*Figure 13*).

12 Alexander Bick, Adam Blandin and David J. Deming, "The Rapid Adoption of Generative AI," NBER Working Paper 32966, September 20, 2024, 889099f7-c025-4d8a-9e78-9d2a22e8040f.usrfiles.com/ugd/889099_fa955a5012dd45abb84dd647ce02de95.pdf.

13 U.S. Department of Labor, "Artificial Intelligence and Worker Well-Being: Principles and Best Practices for Developers and Employers," accessed December 23, 2024, www.dol.gov/sites/dolgov/files/general/ai/AI-Principles-Best-Practices.pdf.

Figure 12: Use of AI by Business Size

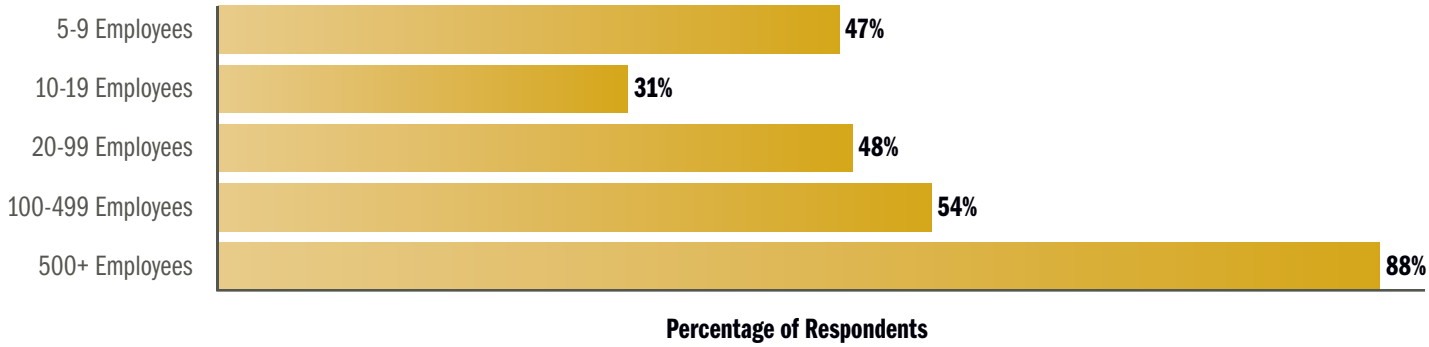
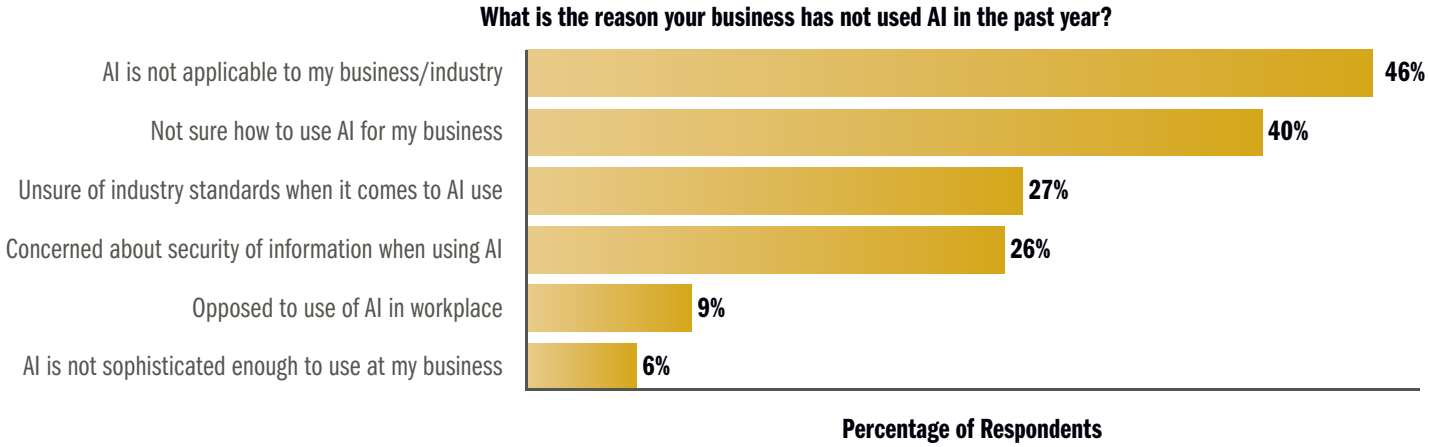
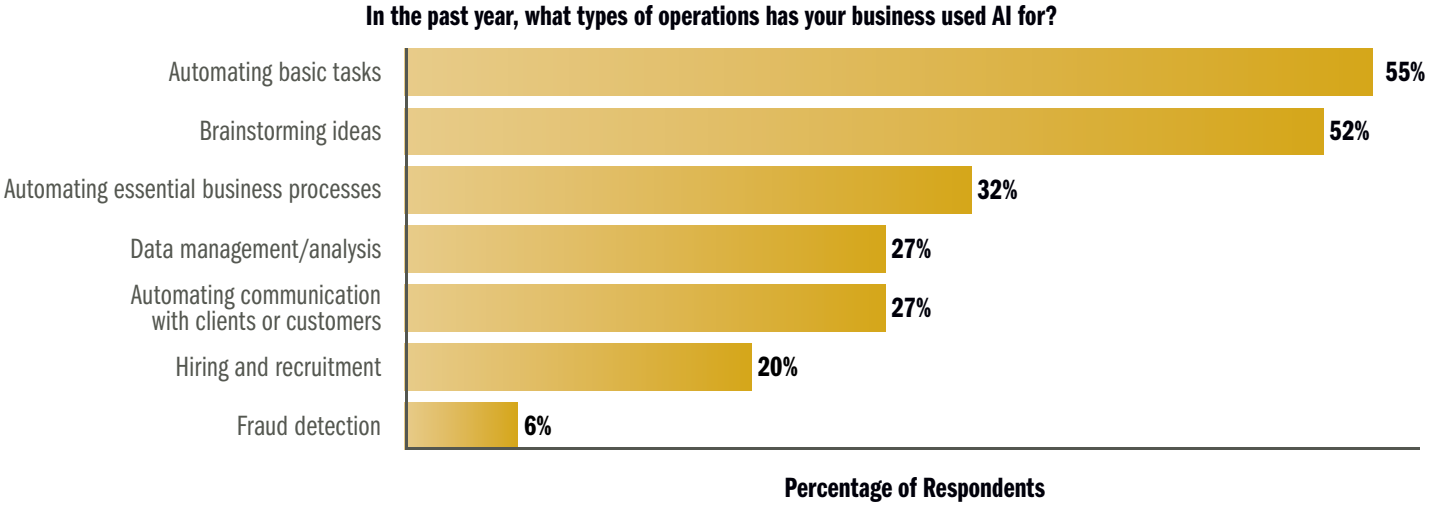


Figure 13: Reasons for Not Using AI



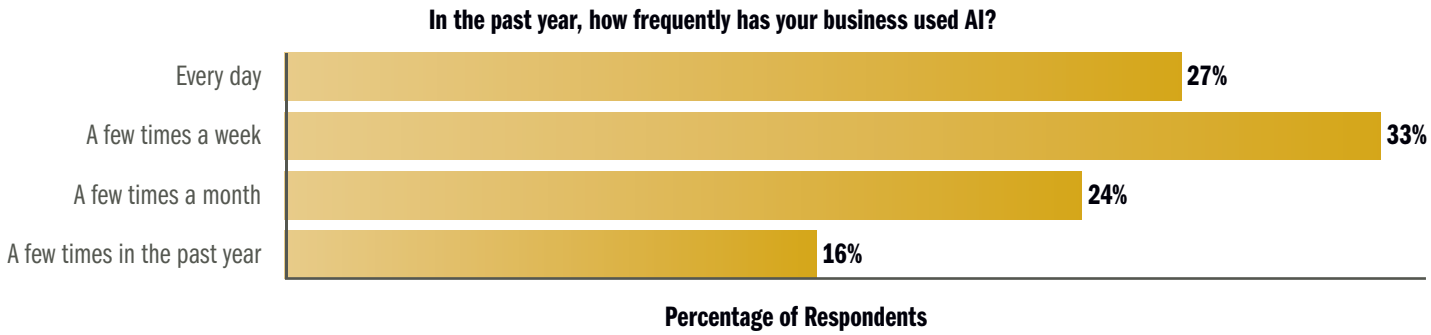
The primary tasks for which businesses have used AI in the past year include automating basic tasks — for example, responding to emails or generating meeting notes — and brainstorming ideas. Over half of those businesses that have used AI report using it for these purposes (55% and 52%, respectively). A smaller share of businesses have used AI to automate essential business processes, automate communication with clients/customers or perform data management or analysis (*Figure 14*).

Figure 14: Uses for AI



Although fewer than half of businesses reported using AI in the past year, those that did tended to use it on a regular basis. Of those that reported using AI in the past year, over half used it at least a few times a week, and over a quarter (27%) used it every day (*Figure 15*).

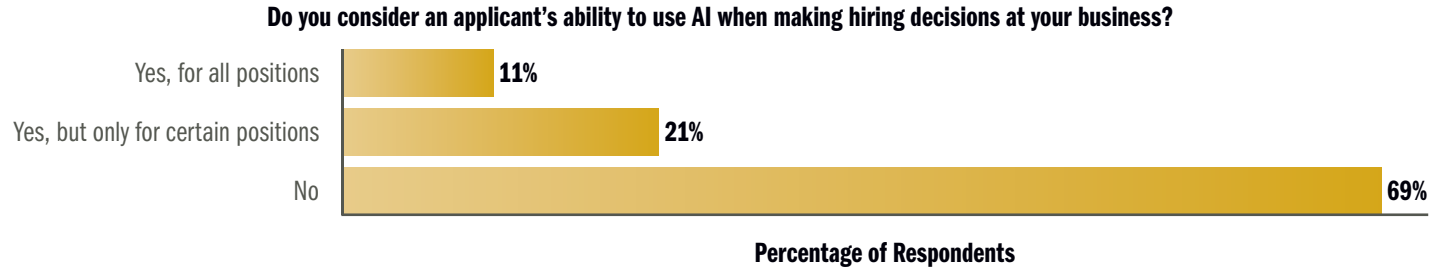
Figure 15: Frequency of AI Use



While over two-thirds (69%) of businesses do not consider an applicant's AI skills when hiring (*Figure 16*), such consideration varies by industry. The financial/intellectual services sector is the most likely to prioritize AI skills, with 50% considering them for at least some positions and 18% considering them for all roles. This is to be expected, since this sector includes many of the IT jobs in the region. About a quarter of businesses in the sales/personal services and social services/wellbeing sectors also consider AI skills when hiring.

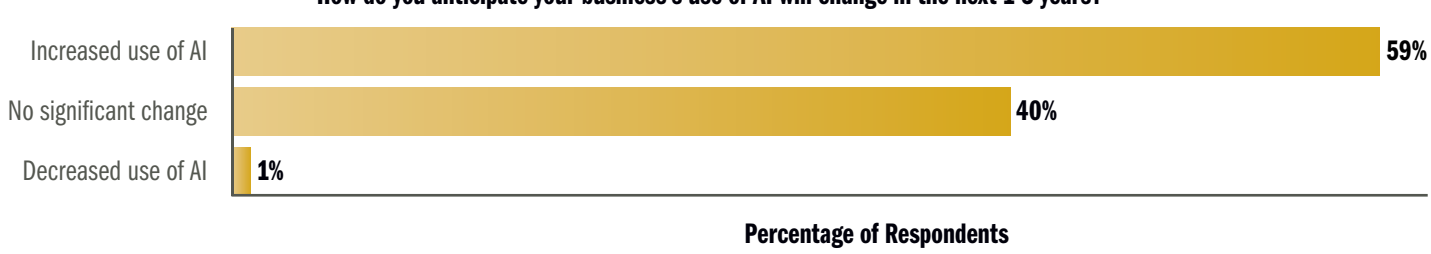
Among businesses that have not used AI in the past year, 40% cite uncertainty about how to use it (*Figure 13*). As companies learn more about AI, the demand for AI skills in hiring is likely to grow.

Figure 16: Hiring by AI Skills



Despite AI skills not being a major deciding factor in hiring candidates, the majority of businesses (59%) anticipate their use of AI will increase in the next one to three years (*Figure 17*). A little less than half (40%) anticipate no significant change in AI use within their business. Only 1% anticipate their business's use of AI will decrease in the next one to three years. These results indicate that AI will play an increasingly important role in the labor market. We may also see a rising demand for AI expertise among applicants as businesses expand their use of this technology.

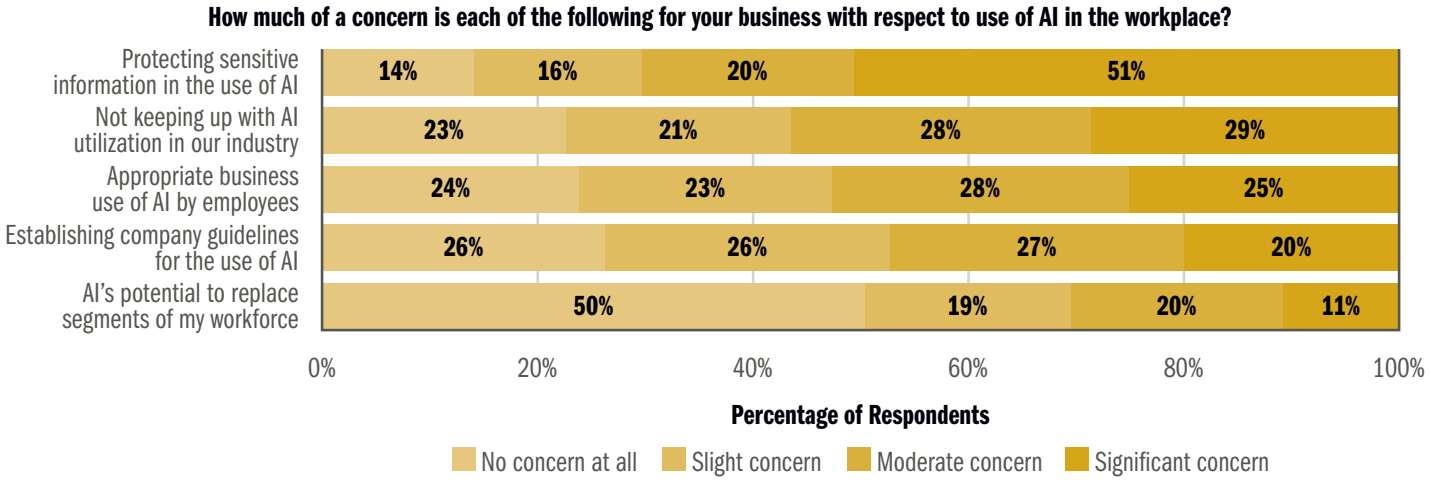
Figure 17: Predicted Changes in AI Use



Businesses' primary concern about AI is the protection of sensitive information, with 51% citing this as a significant concern (*Figure 18*). Over a quarter of businesses had significant concerns about falling behind on AI adoption in their industry. However, half of businesses had no concerns at all about the potential of AI to replace segments of their workforce.

Additionally, a quarter of businesses have significant concerns about the appropriate use of AI by employees. The U.S. Department of Labor's recent publication offering guidance on AI in the workplace may help address this concern.[14]

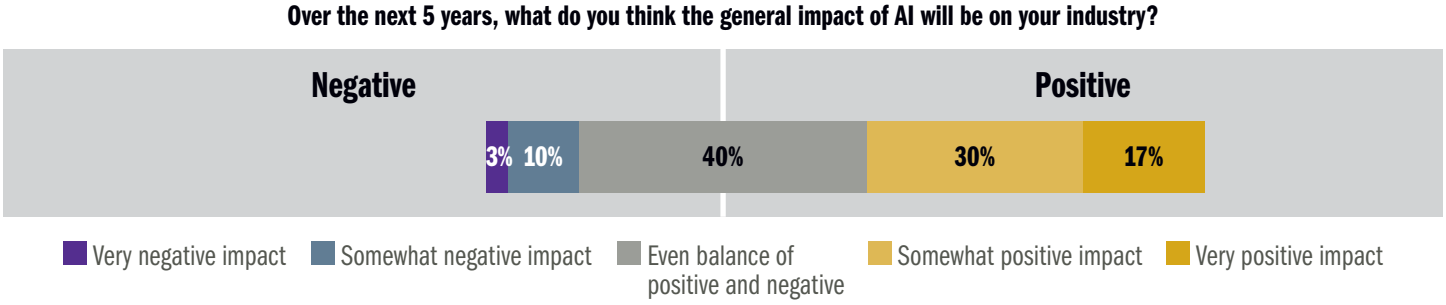
Figure 18: Concerns About AI



Nearly half of respondents reported that they think AI will have a very positive or somewhat positive impact on their industry in the next five years (*Figure 19*). An additional 40% reported thinking that AI will have an even balance of positive and negative impact over the next five years. This largely positive sentiment aligns with research that shows AI's potential to moderately boost labor productivity.[15]

Only 13% think AI will have a somewhat or very negative impact on their industry over the next five years. This sentiment may be attributed to the concerns listed in *Figure 18*.

Figure 19: Predicted Impact of AI



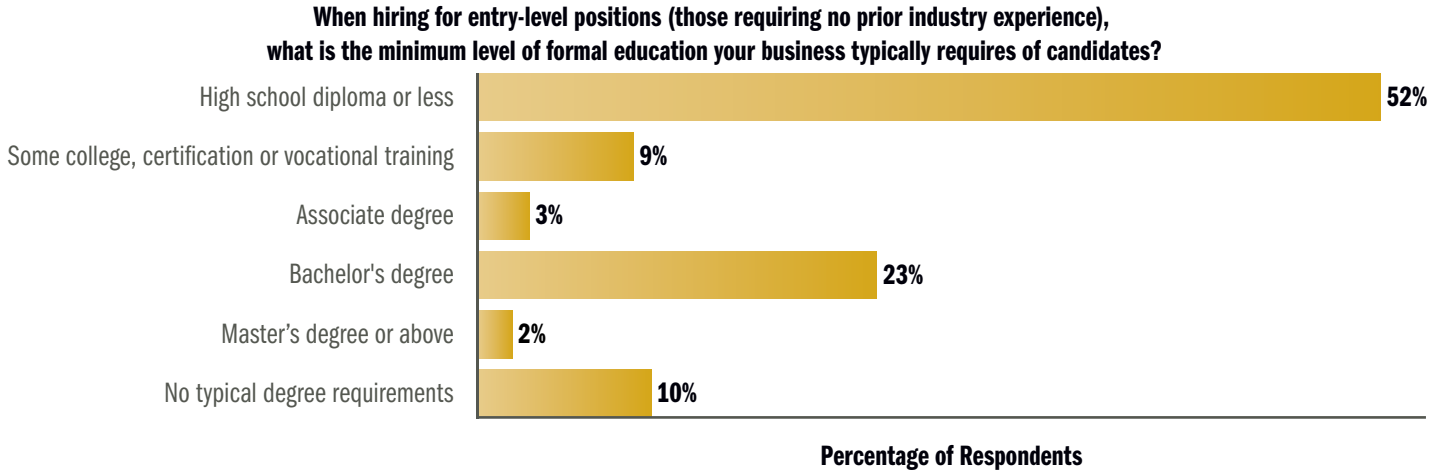
14 U.S. Department of Labor, "Artificial Intelligence and Worker Well-Being: Principles and Best Practices for Developers and Employers," accessed December 23, 2024, www.dol.gov/sites/dolgov/files/general/ai/AI-Principles-Best-Practices.pdf.

15 Alexander Bick, Adam Blandin and David J. Deming, "The Rapid Adoption of Generative AI," NBER Working Paper 32966, September 20, 2024, 889099f7-c025-4d8a-9e78-9d2a22e8040f.usrfiles.com/ugd/889099_fa955a5012dd45abb84dd647ce02de95.pdf.

EDUCATION AND PROFESSIONAL DEVELOPMENT

A majority of businesses in this year's *Workforce Index* (64%) require a high school diploma, some college/certification or an associate degree. Only a quarter of businesses reported requiring a bachelor's degree or higher, while 10% reported having no typical degree requirements for entry-level positions (*Figure 20*). This is similar to last year's *Workforce Index,* where 65% of businesses reported requiring an associate degree or lower and 24% reported requiring a bachelor's degree or higher.[16]

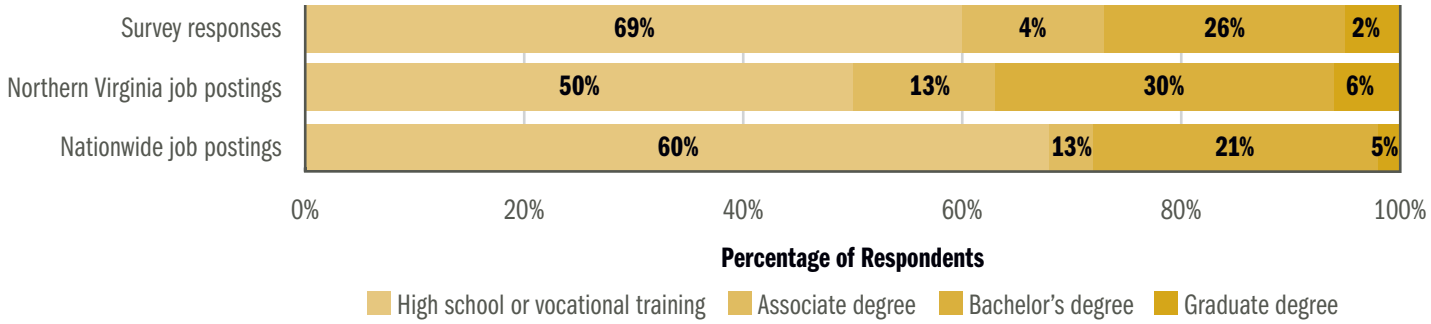
Figure 20: Minimum Education Required, Entry-Level Positions



Education requirements on job postings vary drastically among survey responses. Of the businesses with typical education requirements, over two-thirds (69%) reported requiring a high school degree or less for entry-level positions. However, only half of entry-level job postings in the region require a high school degree or below (*Figure 21*).

Conversely, more than a third (36%) of entry-level job postings in the NOVA service area require a bachelor's degree or higher. This is higher than the 28% of survey respondents who indicated the same (*Figure 21*). It should be noted, however, that Lightcast's Analyst tool, which aggregates job posting data across thousands of online job boards, is unable to determine minimum education requirements for around 40% of regional entry-level postings. It is possible that these unspecified postings require a high school diploma or less.

Figure 21: Minimum Education Required in Survey Responses vs. Entry-Level Job Postings



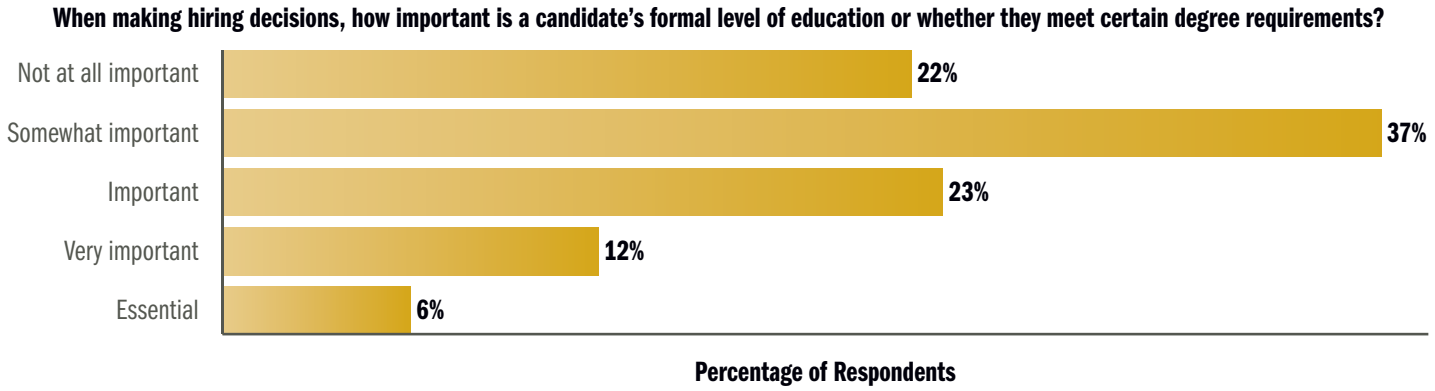
Source: Lightcast™ Analyst, 2024.4 release.

Note: Due to data source limitations, entry-level job postings are defined here as those requiring 0-1 year of experience. Only job postings with a minimum education level and experience level listed are included. Survey responses saying "no typical degree requirements" have been excluded.

16 Northern Virginia Community College, *2023 Northern Virginia Workforce Index,* January 2024, www.nvcbusiness.org/northern_virginia_workforce_index/.

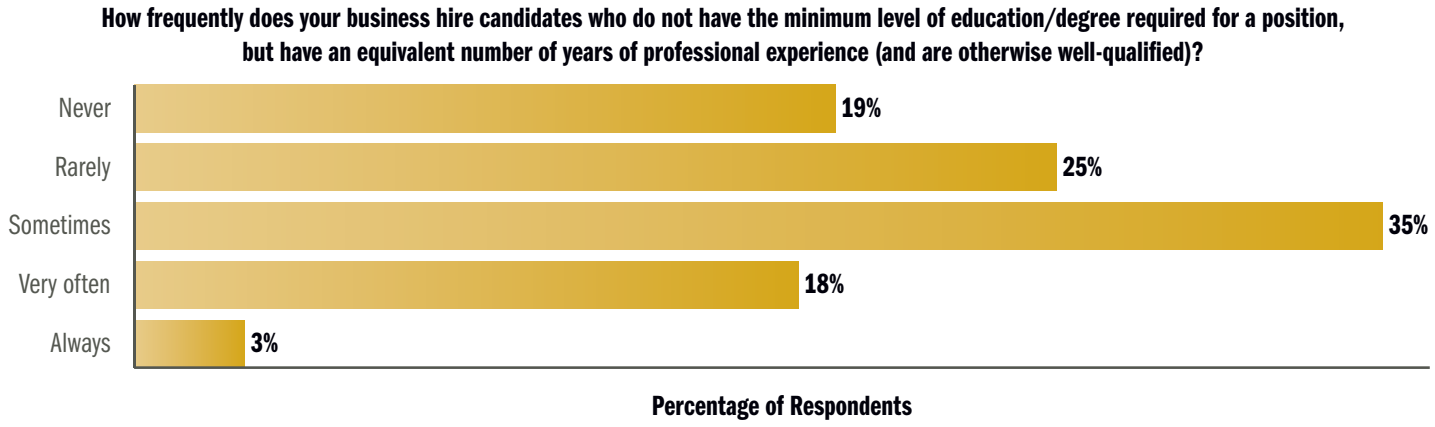
More than half (59%) of survey respondents indicated that education was not at all important or only somewhat important when making hiring decisions (*Figure 22*). However, the vast majority of these businesses report requiring just a high school diploma. A little less than half (41%) indicated that education was important or even essential when hiring. However, nearly three-quarters of these businesses require at least a bachelor's degree. These results suggest that, regardless of a nationwide trend toward more skills-based hiring, formal education is still an important factor in hiring for businesses in the Northern Virginia region.

Figure 22: Importance of Education in Hiring



In addition, most businesses in Northern Virginia (60%) are only sometimes or rarely willing to accept professional experience in lieu of a degree or credential; close to 20% are never willing to accept equivalent experience (*Figure 23*). This percentage is similar to last year's *Workforce Index,* where 21% reported that they were never willing to accept equivalent experience.[17]

Figure 23: Willingness to Accept Equivalent Experience



17 Northern Virginia Community College, *2023 Northern Virginia Workforce Index,* January 2024, www.nvcbusiness.org/northern_virginia_workforce_index/.

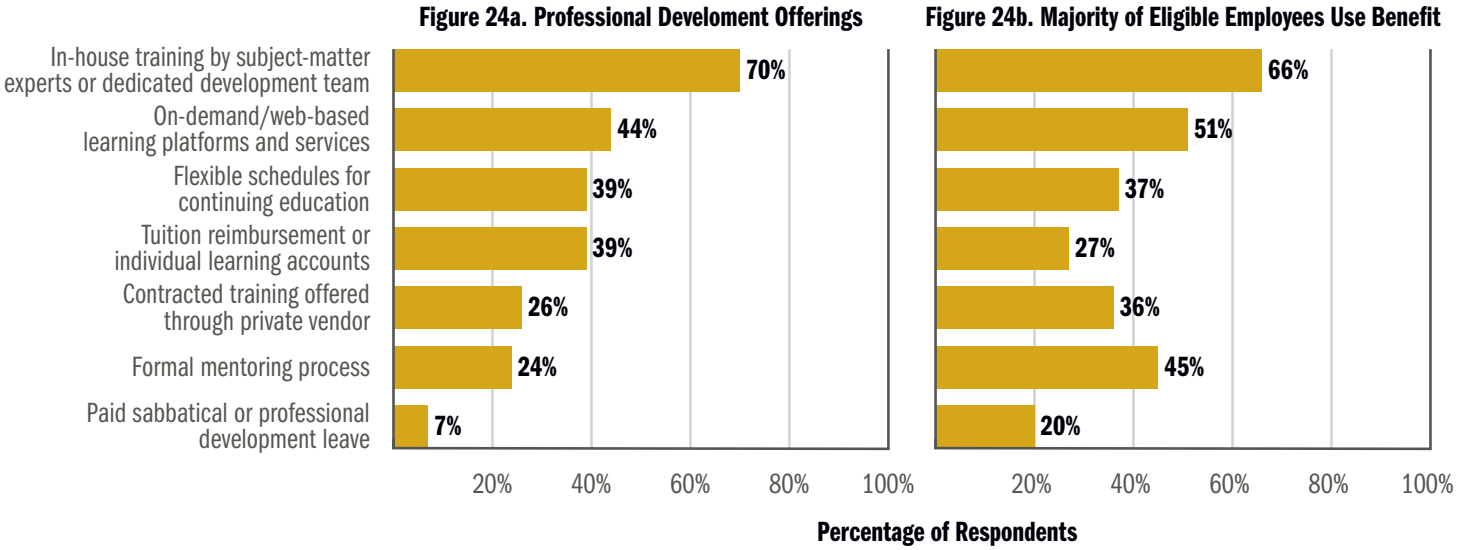
In-house training is still the most commonly offered professional development benefit (*Figure 24a*), as well as the most frequently used by eligible employees (*Figure 24b*). On-demand/web-based learning platforms and services are also commonly used, but such tools are offered by fewer than half of businesses.

Formal mentoring processes, while still commonly used, are offered by a much smaller share of businesses than in last year's *Workforce Index* (40% of respondents reported offering a formal mentoring process in 2023, compared to only 24% in 2024).[18]

It is also worth mentioning that the share of businesses offering each type of professional development (except for in-house training) has decreased significantly since publication of last year's *Workforce Index*.[19] This trend could be related to high labor costs, which is the most significant barrier that businesses are facing (*Figure 4*).

Figure 24: Professional Development/Training Benefits

Do you offer the following types of professional development or training benefits for existing employees at your business? Approximately how many of your eligible employees use the benefit?



18 Northern Virginia Community College, *2023 Northern Virginia Workforce Index,* January 2024, www.nvcbusiness.org/northern_virginia_workforce_index/.

19 Northern Virginia Community College, *2023 Northern Virginia Workforce Index,* January 2024, www.nvcbusiness.org/northern_virginia_workforce_index/.

CONCLUSION

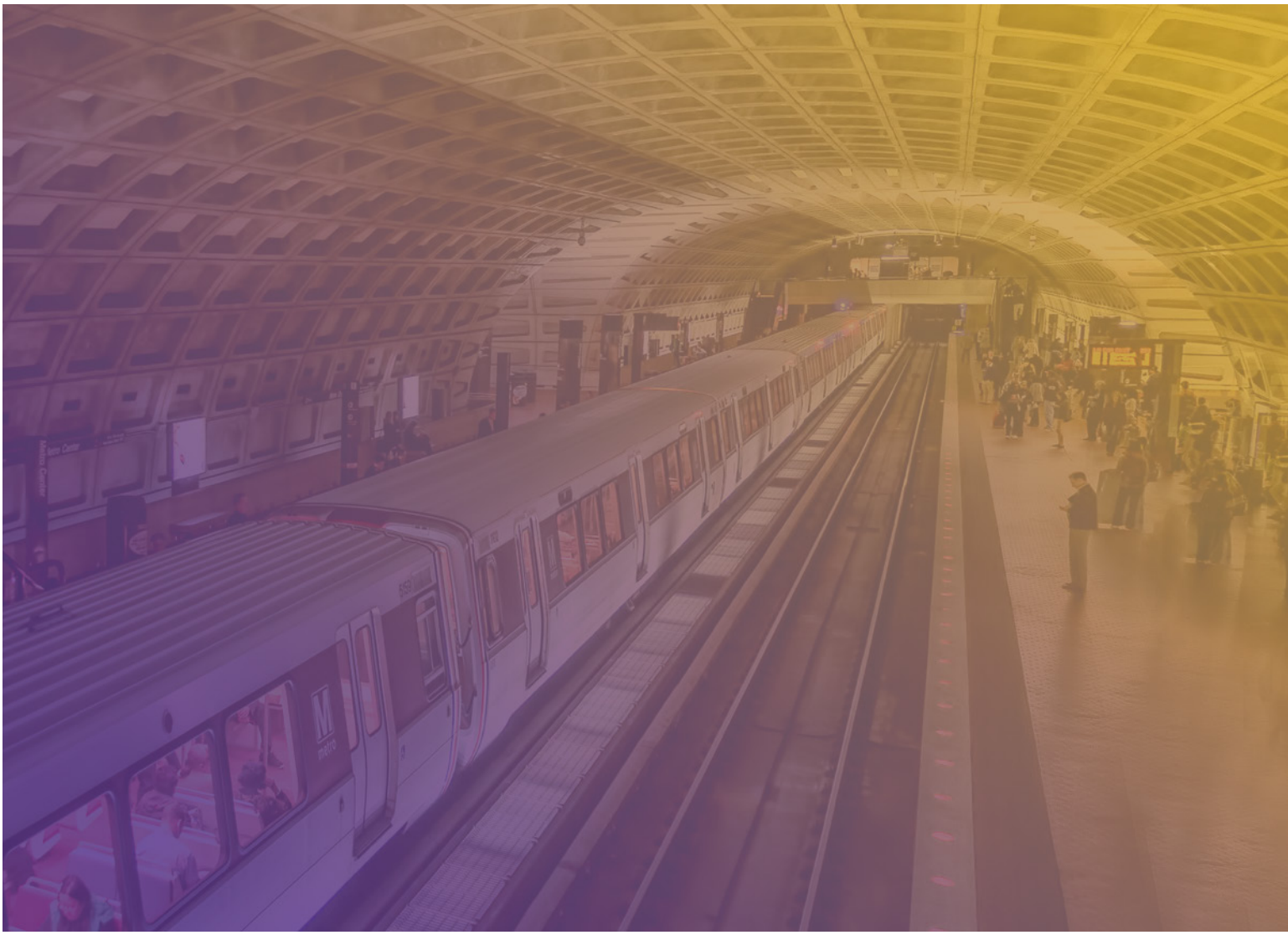
The labor market is changing rapidly, with costs increasing, employers searching for ways to find and retain talent and artificial intelligence growing in popularity. Understanding the Northern Virginia labor market is critical to ensuring that the regional workforce meets the needs of employers.

In 2024, businesses continued to face difficulties hiring and retaining talent because of high labor costs and an ongoing shortage of qualified candidates. Despite these challenges, employers continue to rely on traditional hiring methods more than work-based learning approaches.

While less than half of businesses reported using artificial intelligence in the past year, certain sectors have been quicker to adopt this technology. A far greater share of large businesses have also adopted AI in their workplace. The primary uses for this technology in the past year were idea generation and automation, but many businesses have concerns about the use of sensitive information with AI.

Despite over half of businesses reporting that they require only a high school diploma for entry-level positions, formal education still plays an important role in the regional labor market. In fact, many businesses still regard a candidate's education level as very important or essential.

As new technologies develop and conversations about the future of work continue, it will be increasingly important to understand the local labor market. The *Northern Virginia Workforce Index* provides data directly from businesses to help decision makers understand businesses' needs.



APPENDIX: SURVEY METHOD AND DATA

This appendix includes a discussion of the general methodology for the *2024 Northern Virginia Workforce Index Survey,* conducted by the Center for Survey Research (CSR) at the University of Virginia's Weldon Cooper Center on behalf of Northern Virginia Community College and NVC.

Sampling: To support the representation of different types and sizes of businesses, the sample was stratified based on two factors: industry and size. NAICS codes were grouped into five industry categories, and businesses were grouped into five size categories based on number of paid employees. Businesses with four or fewer employees and businesses with an unknown number of employees were not sampled. The intersection of industry and size created the basis for the stratified sampling design, which contained 25 total strata.

The sample counts for each grouping were based on the known population in each sample stratum using power allocation and were adjusted for expected differences in response rates. The power allocation procedure sampled businesses in each industry-size stratum according to the square root of its category's population size, based on a target of 2,098 businesses to be sampled. The response rate adjustment, based on CSR's experience with the 2023 survey administration, adjusted sample sizes upward for the largest size categories, as these businesses had lower rates of response in the previous survey cycle.

Any business that met the stratification criteria and had a valid postal address was eligible. To further ensure the reliability and accuracy of the listings, a sample verification process was conducted by CSR prior to data collection. For all cases, CSR conducted internet searches and made phone calls to verify eligibility for the study and update contact information, including identifying who at the business was best suited to complete the survey.

Additionally, CSR hosted a nonprobability instance of the survey so that businesses not sampled as part of the probability study could still participate. CSR shared an anonymous, reusable link for the nonprobability survey, which NOVA and NVC shared with their contacts, including members of NVC and other known businesses in Northern Virginia. Two questions were added to the nonprobability version of the questionnaire to identify employee size and industry groups in an effort to determine the sampling stratum. All other survey questions remained the same in both instances of the questionnaire.

Data Collection: The survey launched on August 16, 2024, with the advance mailing of an informational letter. The letter was followed by the first questionnaire packet, sent a week later on August 23, 2024. The first questionnaire packet included a letter introducing the survey along with instructions for completing the survey online, a paper questionnaire booklet, a postage-paid business reply envelope and a $2 unconditional incentive to encourage participation. After receiving the first questionnaire packet, businesses were sent a thank-you/reminder postcard, a second questionnaire packet and a closeout postcard. Shortly after the mailing of the first packet, CSR sent an email invitation, with a direct link to the survey, for all cases for which an email was on file. These same businesses were sent additional email communications, including two reminder emails and one closeout email. Reminder calling was conducted between September 25 and October 11, 2024. Data collection closed on October 30, 2024.

Response Rate: In total, 244 businesses from the probability-based sample completed the survey; 139 of these surveys were completed via the web and 105 were completed via mail. An additional 211 cases were out of sample/ineligible, 107 had bad addresses and could not be reached and another 58 refused to participate. The remaining cases were categorized as some form of nonresponse. Following the American Association for Public Opinion Research's (AAPOR) Response Rate 4 (RR4) calculation, the overall response rate for the probability sample was 13.7%. A response rate cannot be calculated for the nonprobability sample, which had 23 responses.

Data Preparation: CSR carried out the data preparation, which required the labeling, cleaning and merging of paper and online data across both the main, probability-based sample and the supplemental nonprobability sample. Responses from the probability sample were de-duplicated across the two modes of data collection to ensure only a single response per business was recorded. In instances when a business completed the questionnaire more than once, the most complete and/or first submission was accepted, and subsequent entries were dropped from the data file. A variable within the file indicates if the response is from the probability or nonprobability sample. All data preparation was carried out using SPSS software (version 28).

Weighting: As noted, the probability sampling design for the study included stratification across size and industry to increase variation across these characteristics within the final sample. Certain strata were sampled at a higher rate while other strata were sampled at a lower rate. In addition, each stratum responded at different rates. The probability and nonprobability samples were combined for weighting purposes. The total weights combine base (stratification) and poststratification weights. Each respondent received a weight inverse to its combined probability of (1) being selected into the sample and (2) responding; that is, for each stratum, the total weight is simply the total stratum population divided by the total number of responses in the stratum. Analysis of weighted data was carried out using the `survey` and `survyr` R software packages.

Margin of Error: The margin of error for the probability-based responses is approximately ±7.3% at the 95% level of confidence. This means that if the survey were repeated with 100 different random samples, the results of the survey would be within 7.3 percentage points of the population mean (that is, the mean of all businesses in Northern Virginia) in 95 of those 100 iterations of the survey. Note that every question on the survey has its own margin of error. The overall calculation presented here is for a question answered by all respondents with a 50-50 response distribution. Margins of error would be larger for questions answered by smaller numbers of respondents or for subgroups in the data. Conversely, questions with a lopsided response pattern (e.g., an 80-20 response pattern) and answered by all respondents will have a smaller margin of error.

This overview has been edited and condensed from the full sampling and methodology report prepared by Kara Fitzgibbon, Sean Johnson and Brooke Beenhouwer at the University of Virginia Center for Survey Research. For the full report as well as a copy of the survey questionnaire, visit:

www.nvcc.edu/about/offices/strategic-insights/lmi/research-insights.html

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We would also like to express our deep appreciation for the University of Virginia's Center for Survey Research, which assisted with major updates to the survey questionnaire, administered probability-based data collection and carried out data cleaning and preparation. This project would not have been possible without the hard work of Kara Fitzgibbon, Sean Johnson, Brooke Beenhouwer, Beverley Kerr, Danial Butt, Anika Pruntel, Ulises Verde, Spot Etal and Cici Wang.

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For additional data and insights on labor market trends in Northern Virginia, visit **www.nvcc.edu/lmi**
or contact NOVA's labor market intelligence team at **novalmi@nvcc.edu.**

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