THE STATUS OF THE METALWORKING INDUSTRY:

How North American manufacturers are evolving and adapting

November 2019

Presented by:

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SUMMARY OF FINDINGS

Despite the turmoil of the political environment, the frequent cautions of recession and the economic uncertainty caused by the trade tariffs imposed in 2019, a majority of metalworking businesses report an optimistic outlook for the next 12 months. Sixty-seven percent of respondents report experiencing positive change over the past year and more than 65% expect their business to be flat or grow over the next 12 months.

With the underlying strength reflected in the data, combined with the continued challenge expressed around finding and upskilling the workforce, it seems likely that there will be a trend that favors investment in new and more efficient technology equipment as well as a continued increase in workforce and employee training.

As we have seen in previous surveys we have conducted over the past several years, workforce is still a primary challenge for metalworking businesses. Eighty-eight percent of respondents report that finding qualified labor is one of the main challenges that their business faces, with 57% indicating that this is an "extremely challenging" aspect of managing their business.

Respondents report that upskilling employees is a both a significant challenge and a key driver of success. Seventy-eight percent indicate this is a key management challenge and 90% feel employee training is either “important” or “critical” as a factor of their success. Despite this, only 36% of respondents report that they have invested in employee education and training over the past year.

Investment in equipment and technology also plays an important role in the growth and success of metalworking businesses. Of those who invested in new capital equipment in the past year, 76% indicated it had a positive impact on their business while less than 2% indicated a negative impact. The data suggests that investment most frequently focuses on improving efficiency on the shop floor. Major equipment purchases like high-speed, multi-axis and multi-task CNC machines are perceived as having the strongest impact.

More expensive and newer technologies such as 3D printing/additive manufacturing, robotics and advanced data and analysis systems are not as widespread. Larger companies are much more likely to pioneer these technologies and make these types of investments. This is likely due to a higher need for process optimization, broader diversity and capacity of talent on staff, and more capital to invest.

The increased connectivity of manufacturing facilities combined with the growing popularity of digital platforms is changing the way buyers research and purchase new equipment. Buyers are relying more on online resources to gather information about new technology. Eighty-one percent access the internet from the shop floor, 67% begin their research for new equipment online, 63% are Facebook users, 58% are on LinkedIn and a whopping 92% of respondents indicate that they have used an online resource to purchase cutting tools or other consumables.

Not surprisingly, print publications have the strongest following among respondents in the older demographics. Seventy-four percent of respondents over 55 years of age report that they subscribe to at least one trade magazine while 49% of respondents under 35 years of age indicate that they do not subscribe to any trade magazines.

The aging workforce in the manufacturing industry is a frequent topic of concern among those within the industry. As a new generation enters the workforce and advancements in technology increase, the pace of change in the metalworking industry is likely to accelerate. This presents both great challenges and opportunities for U.S. manufacturers and the brands that support them.

> **“88% OF RESPONDENTS REPORT THAT FINDING QUALIFIED LABOR IS ONE OF THE MAIN CHALLENGES THAT THEIR BUSINESS FACES.”**

PURPOSE AND METHODOLOGY

Practical Machinist and the Society of Manufacturing Engineers (SME) collaborated on this survey of the U.S. metalworking industry.

The purpose of this research is to gain insights from within the industry regarding perceptions of business conditions, the business environment and the changes that are impacting the industry at an individual company level.

The majority of the responses to this survey were collected via email from industry email lists belonging to Practical Machinist and SME. The survey was also distributed online via PracticalMachinist.com and on social media through LinkedIn and Facebook.

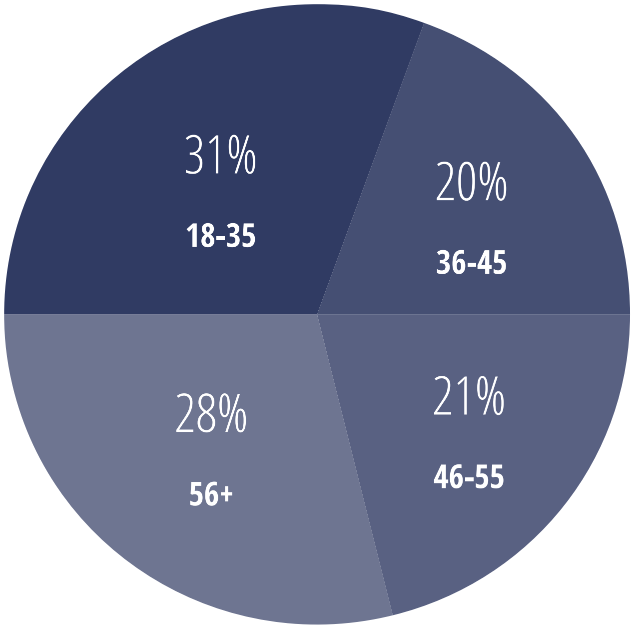
583 completed surveys were collected between August 1 and September 15, 2019.

The survey was primarily composed of multiple-choice questions and responses were filtered to only include active North American manufacturing professionals in the data set that is reflected in this report.

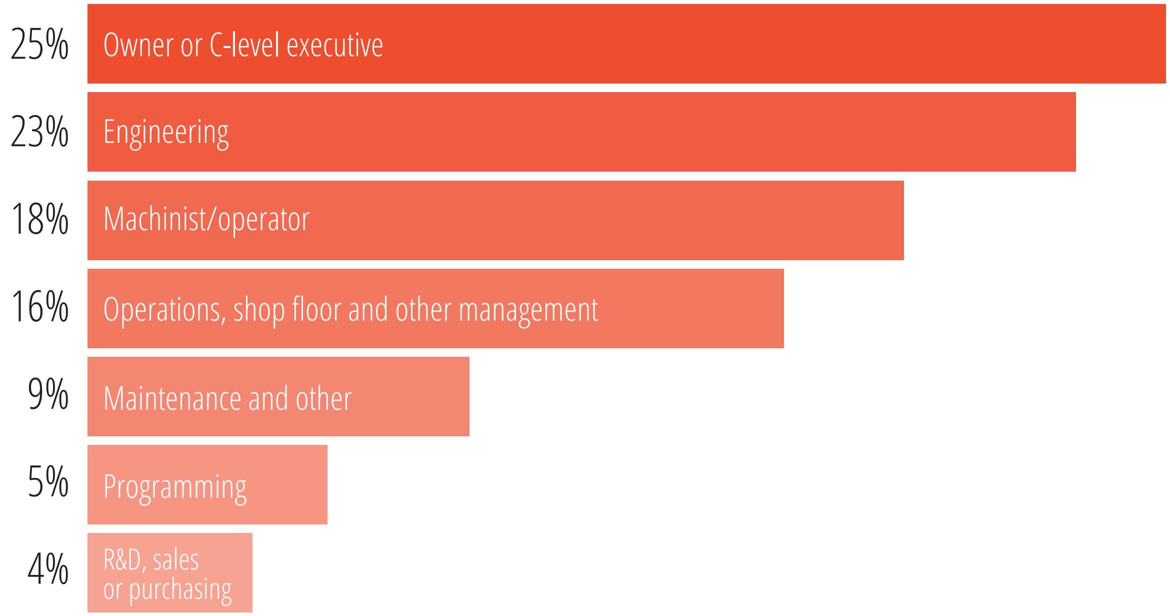
Percentages throughout this report are rounded to the nearest whole number.

SNAPSHOT OF RESPONDENTS

AGE



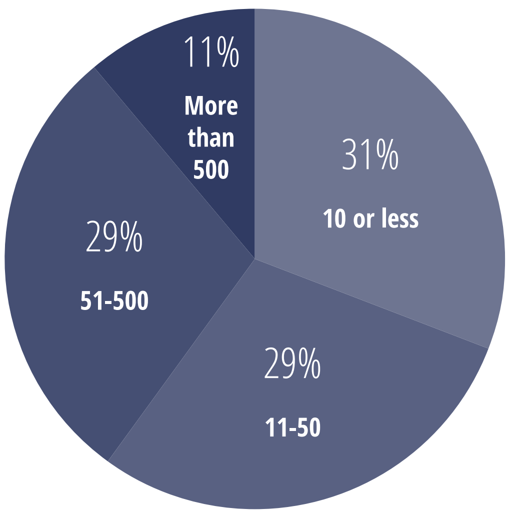
ROLE/JOB TITLE



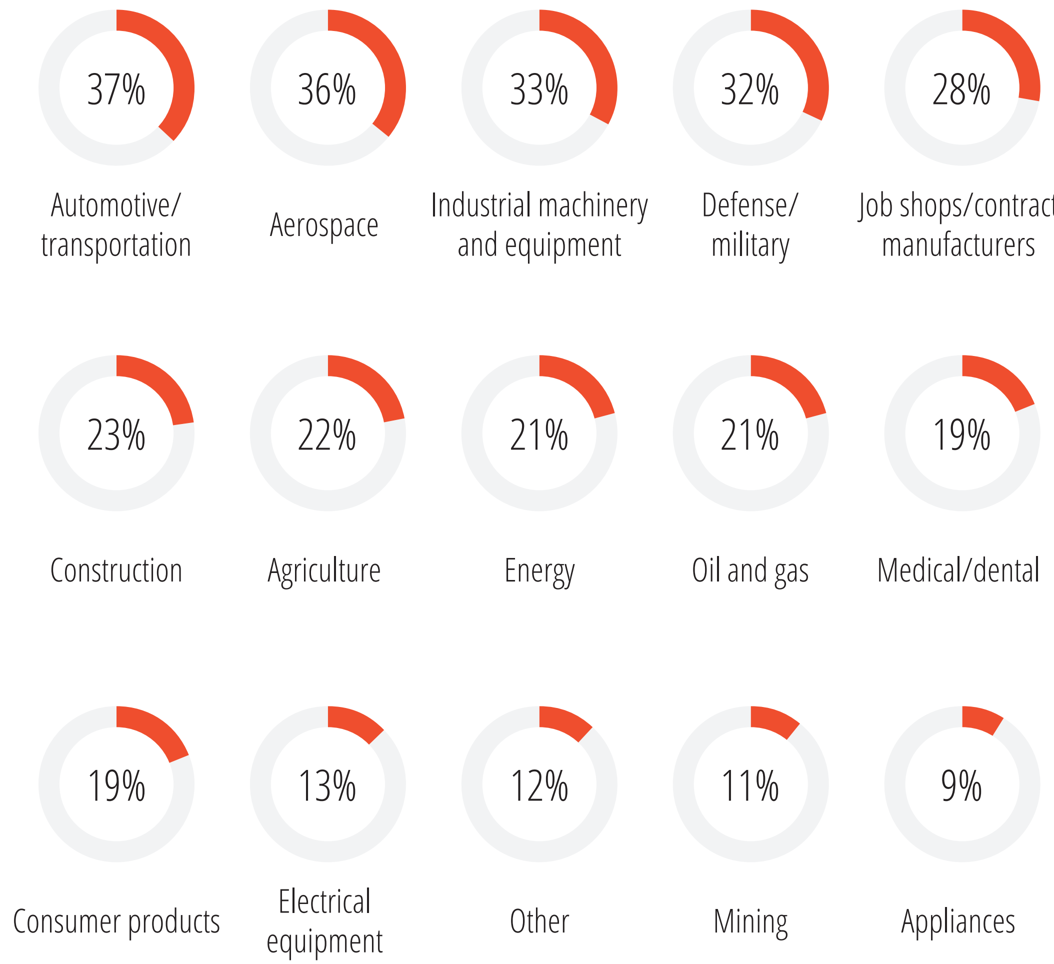
YEARS OF EXPERIENCE

SNAPSHOT OF RESPONDENTS' COMPANIES

NUMBER OF MANUFACTURING EMPLOYEES AT COMPANY



INDUSTRIES SERVED



TYPE OF COMPANY

37%	Job shop supplying multiple end-user markets
21%	Job shop dedicated primarily to single market
18%	Original equipment manufacturer (OEM)
13%	Other manufacturer
11%	Contract manufacturer for a few large customers

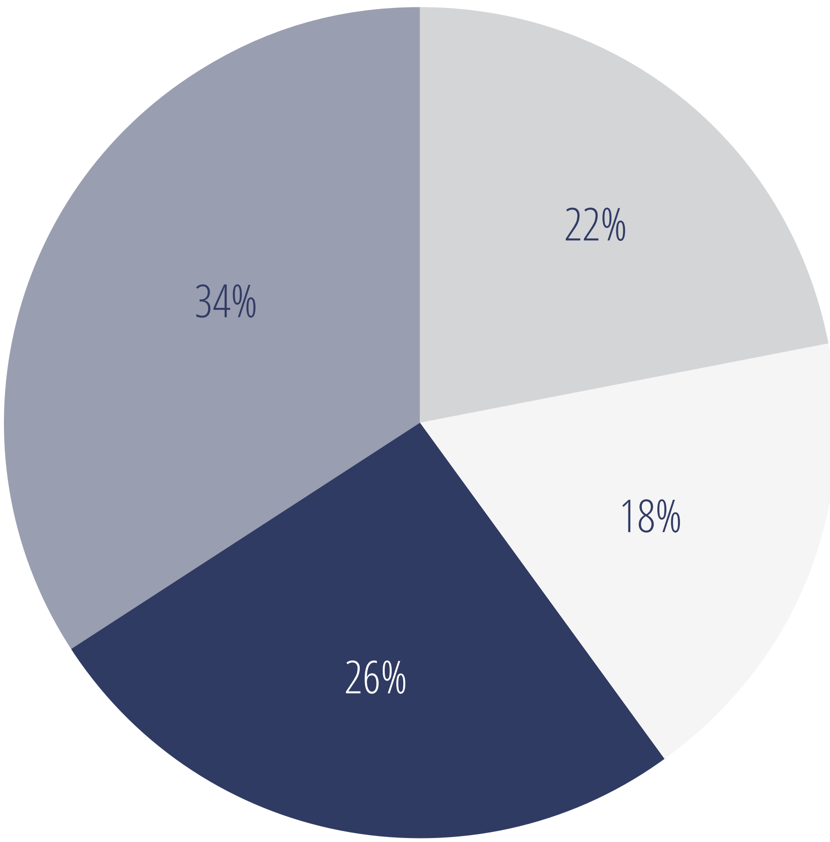
MAIN CHALLENGES

Respondents were asked about 11 of the most common challenges in metalworking businesses. As expected, finding qualified labor appears to be the most critical challenge.

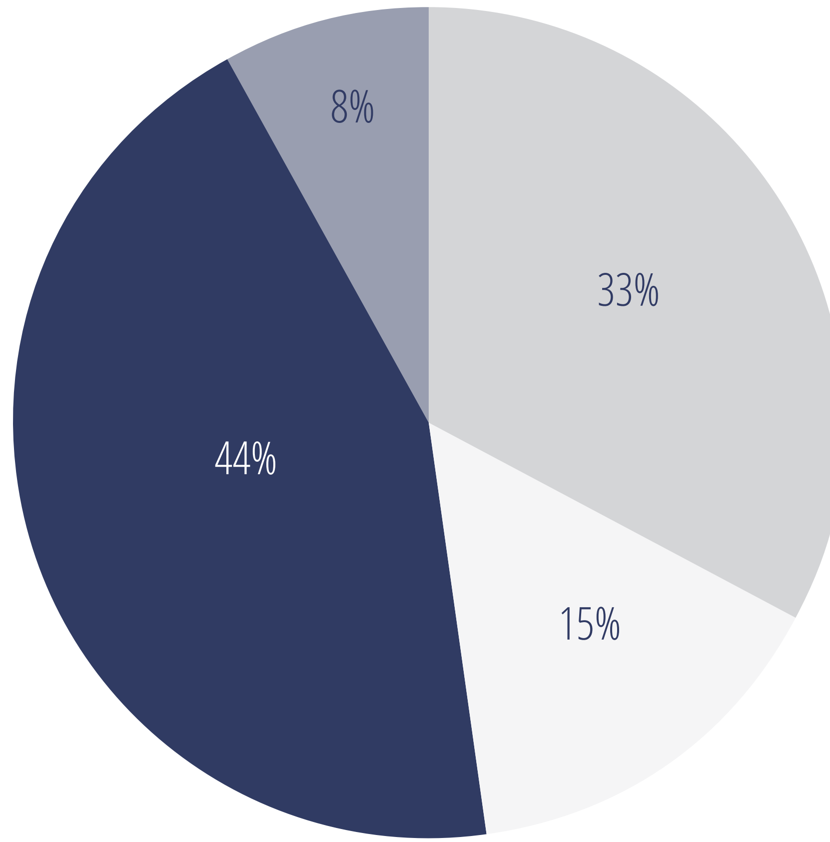
IMPACT OF GOVERNMENT AND POLICIES

While 34% of respondents indicated the current presidential administration has positively impacted their business, 44% indicated that the tariffs have had a negative impact.

How have the policies of the current presidential administration impacted your business?



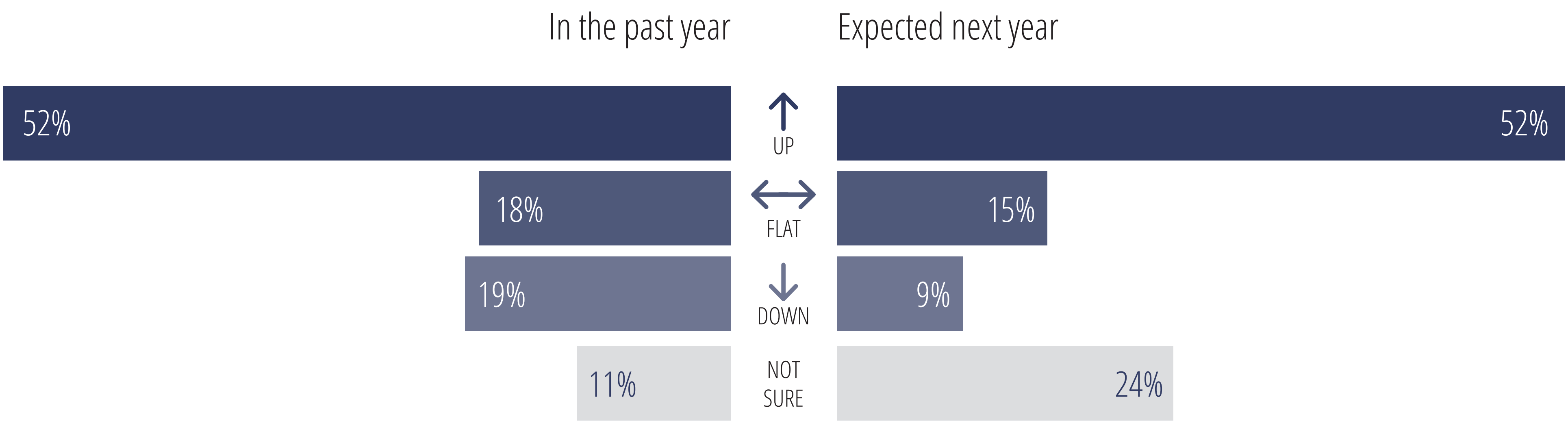
How have the recent tariffs on products and materials impacted your business?



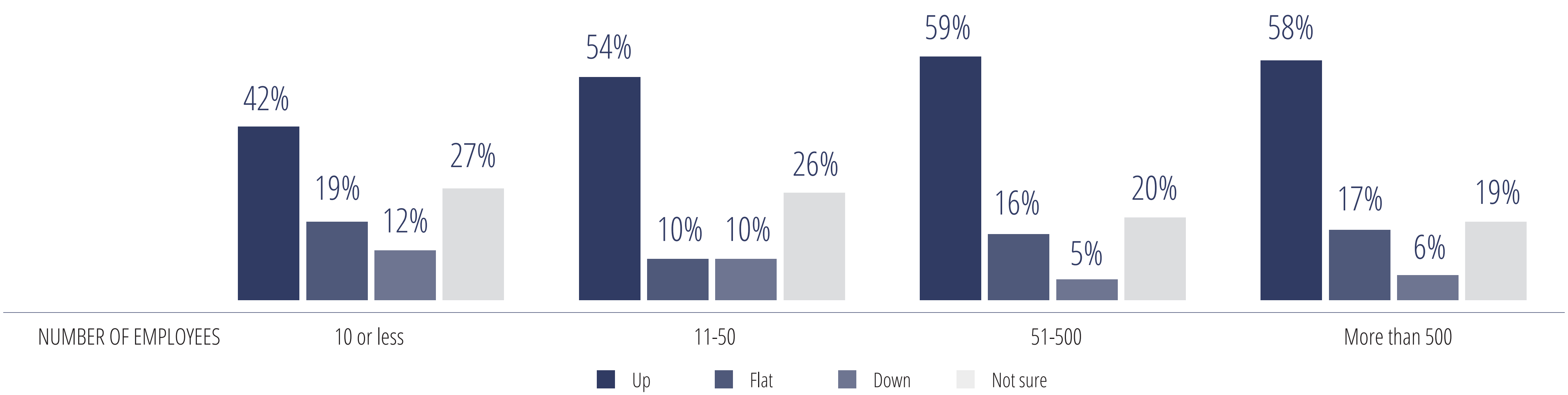
Negative impact | Positive impact | No impact | I don't know

BUSINESS PERFORMANCE AND GROWTH

Most respondents have an optimistic view of the next 12 months based on current conditions and recent performance. Eighty percent of respondents who reported growth in the past year expect growth to continue. Among businesses who reported that their business was down in the previous 12 months, 42% anticipate their business will remain flat or experience growth in the next 12 months.



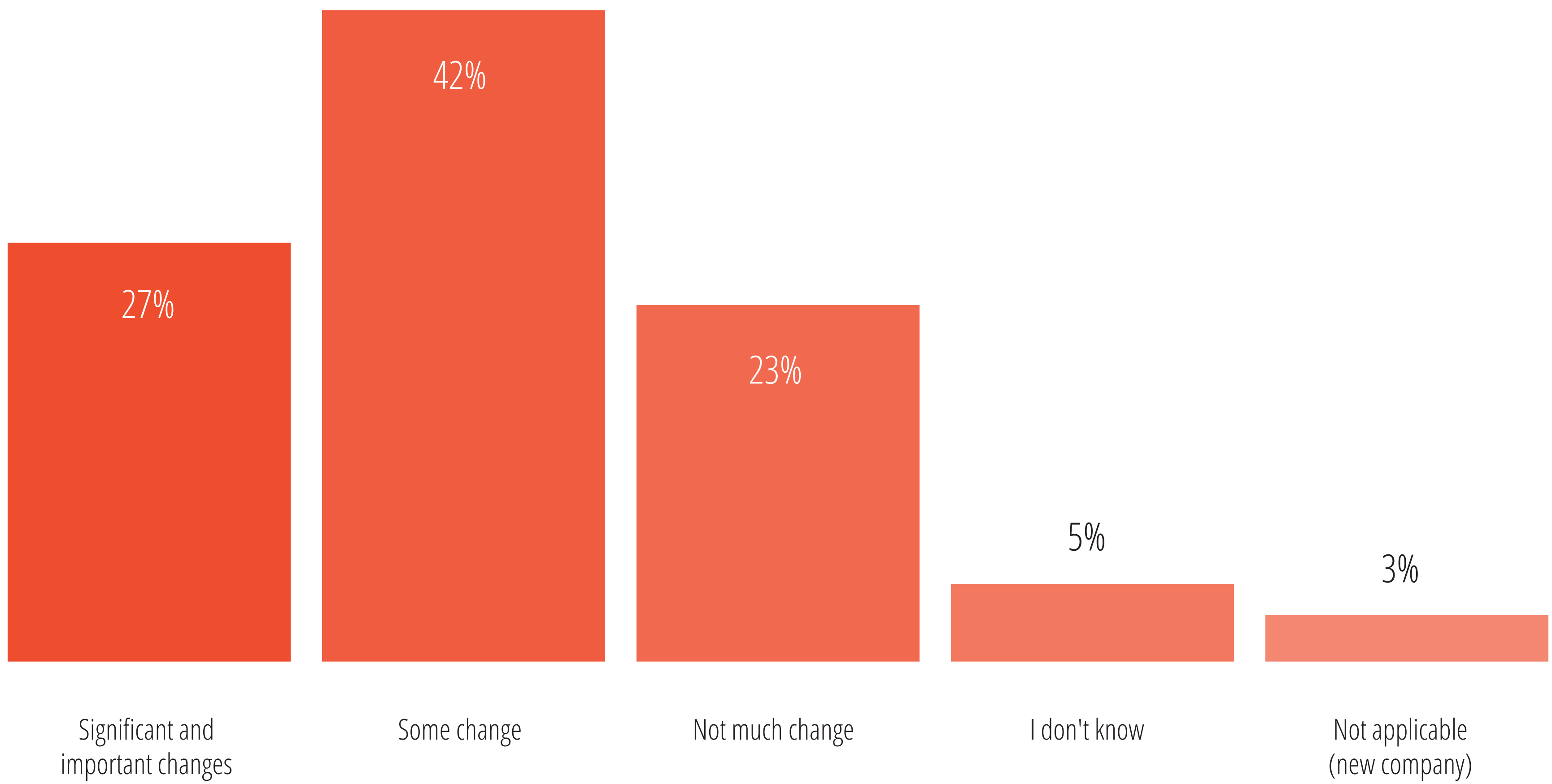
Small shops (10 employees or less) tend to have a more pessimistic view of their future than any other company size.



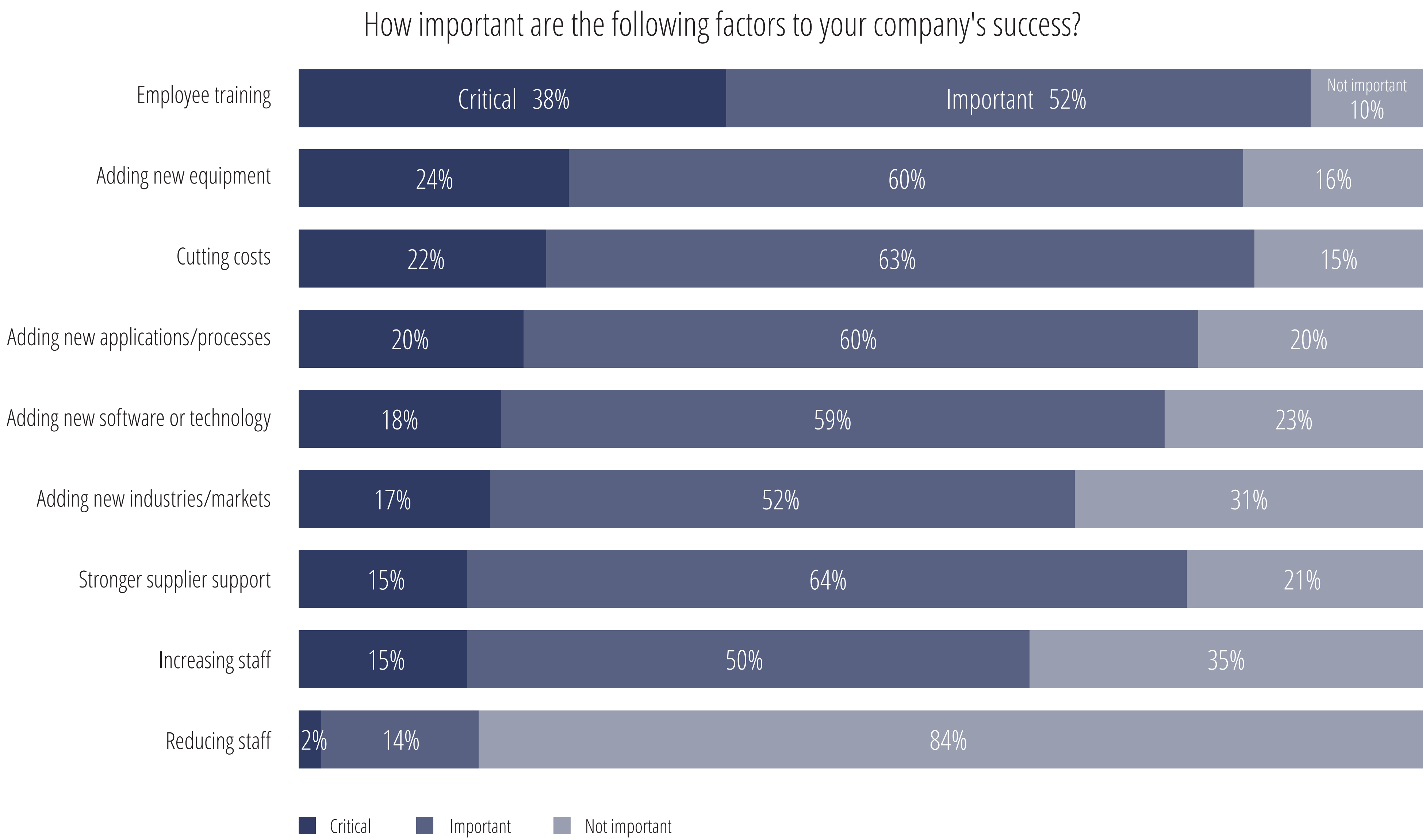
PACE OF CHANGE

Change is pervasive across the industry with most companies reporting that there has been some change or significant change. There is also a strong correlation between higher pace of change and business performance – 81% of companies who experienced growth of more than 10% in the past 12 months also indicated that they were undergoing more change.

Which statement best describes the pace of change at your company over the past year?



CRITICAL SUCCESS FACTORS

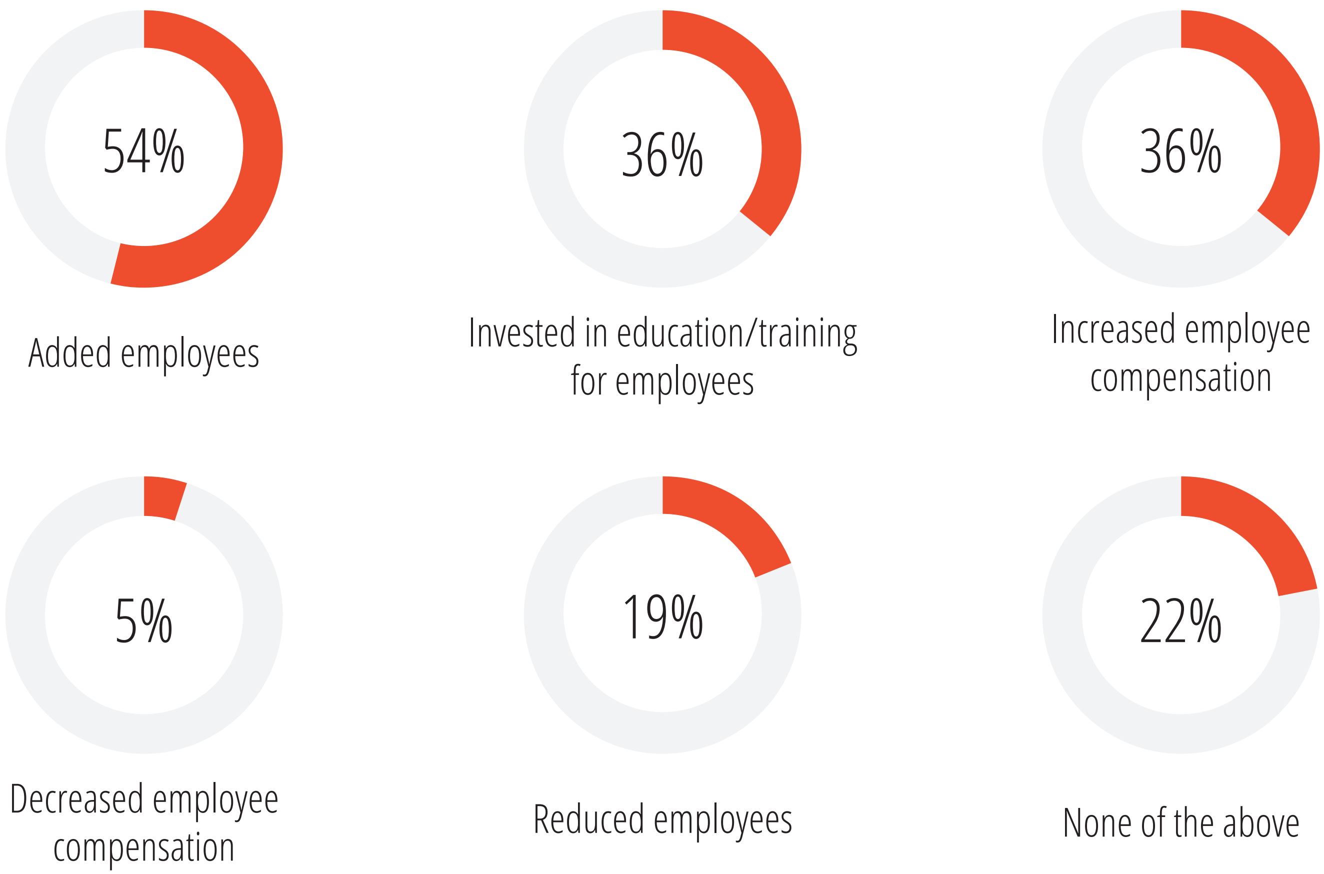


INVESTMENTS IN WORKFORCE

Almost 80% of respondents stated that workforce-related actions were taken.

Despite employee training being considered one of the most critical success factors, only 36% of respondents stated that their company has invested in employee education or training in the past year.

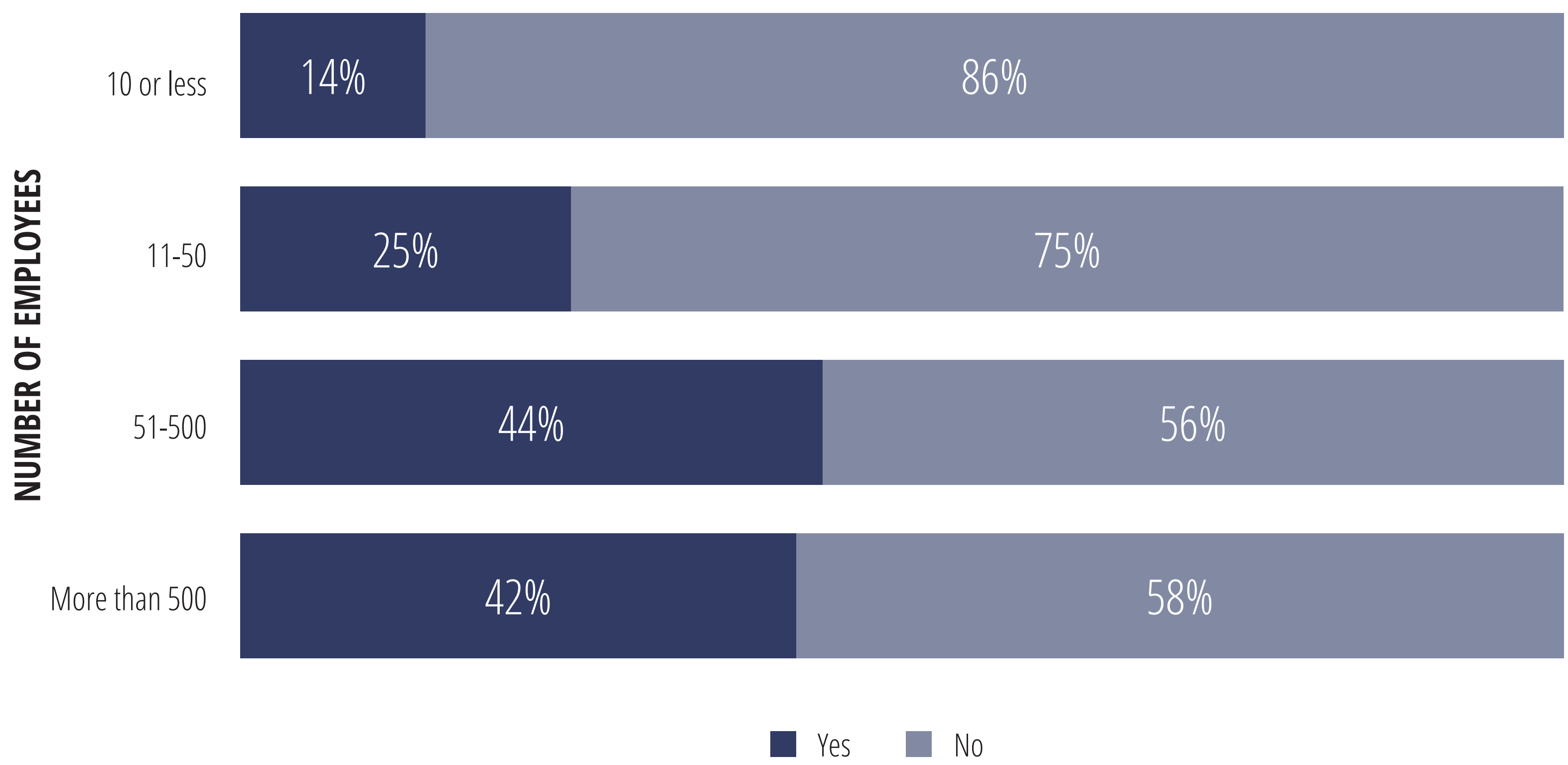
Which of the following changes have you made in the past year?



APPRENTICESHIP PROGRAMS

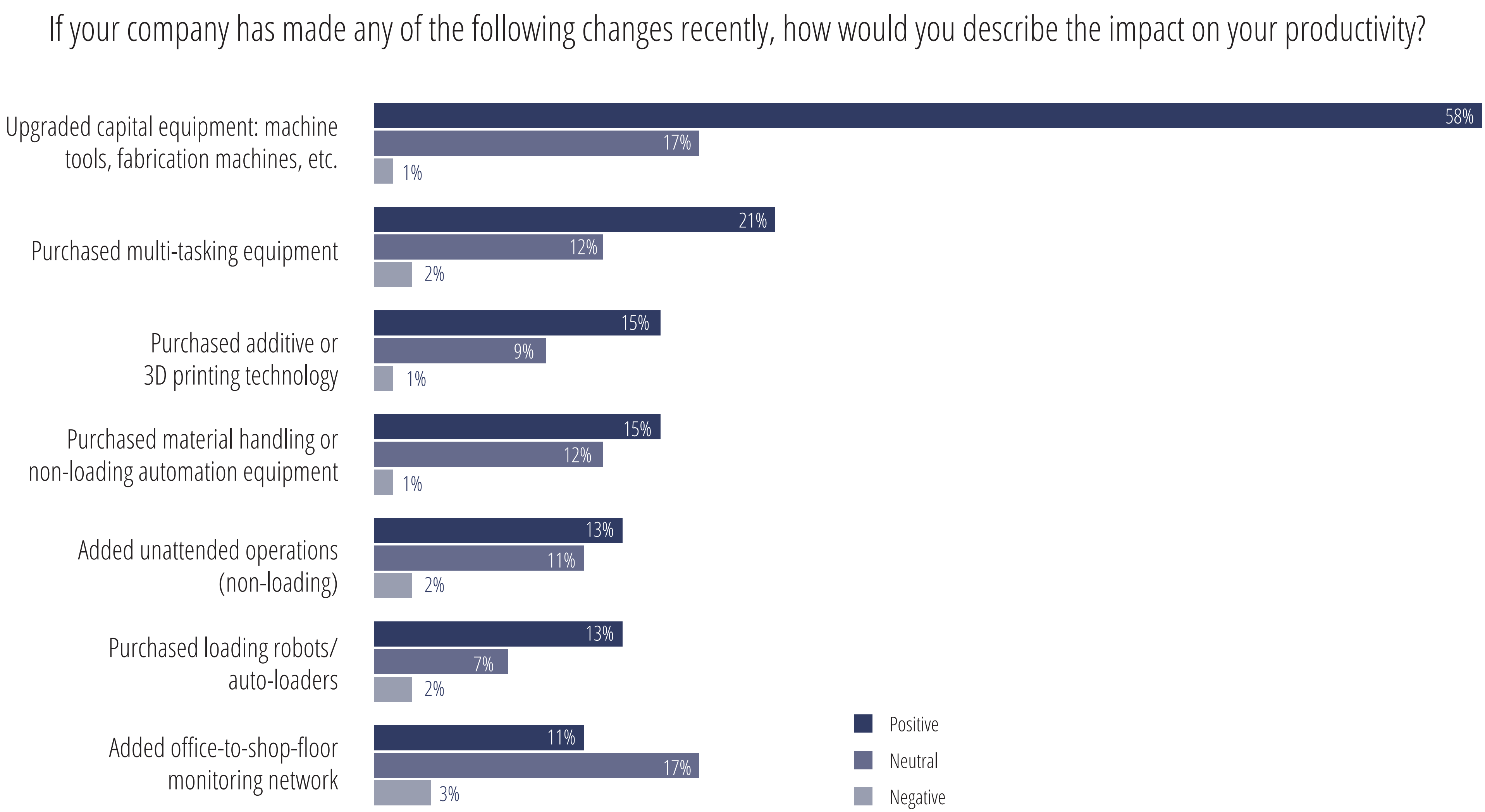
Despite the pervasive difficulty in finding qualified labor, only 29% of all respondents currently participate in apprenticeship programs. Larger companies are much more likely to have apprentice programs. Accelerating involvement in these types of programs could help fill the positions of retiring employees.

Is your company currently participating in any apprenticeship programs?



IMPACT OF NEW OR UPGRADED EQUIPMENT ON PRODUCTIVITY

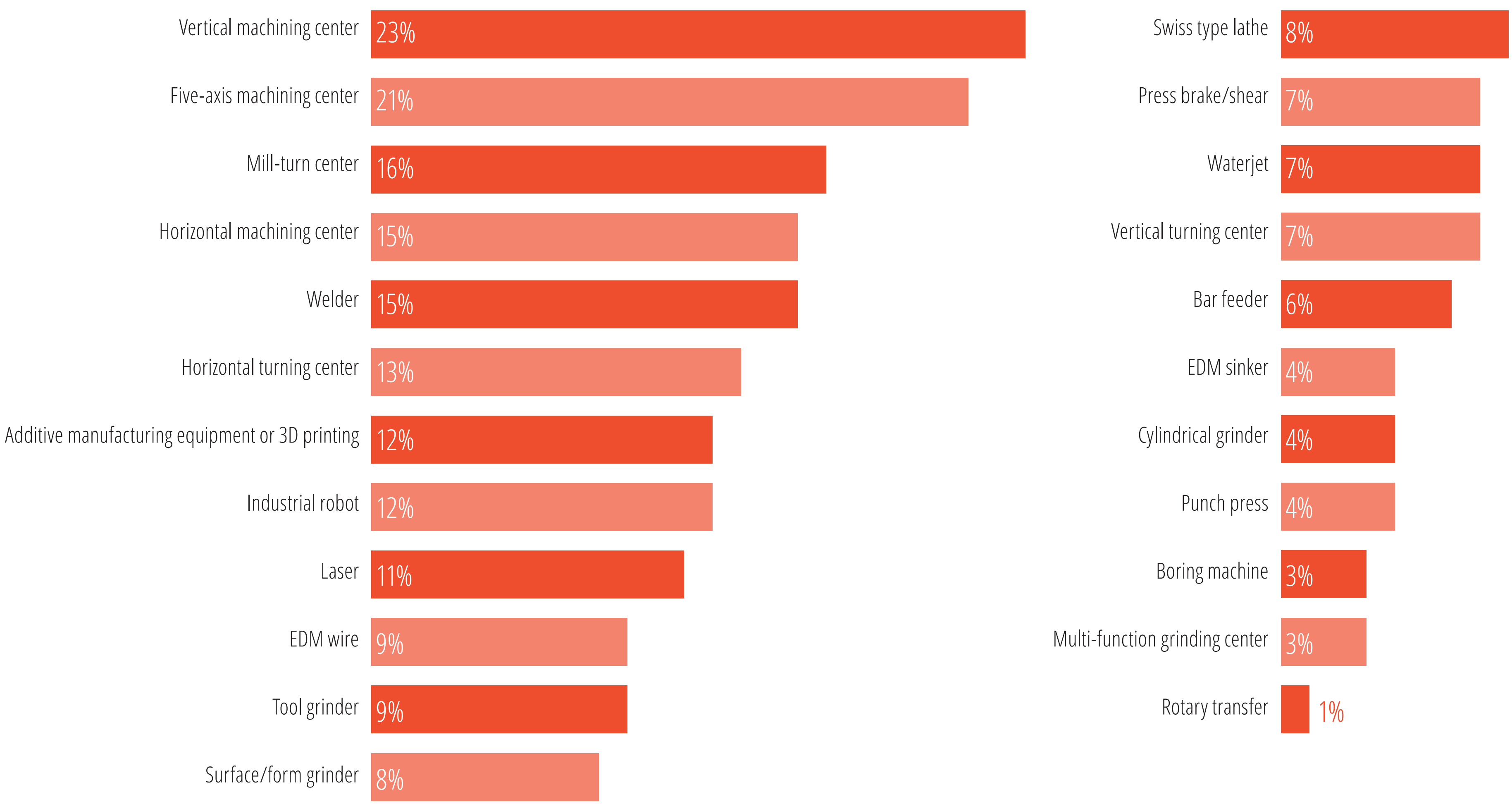
Eighty-five percent of respondents stated that their company recently purchased or upgraded capital equipment. Regardless of the type of equipment purchased, respondents stated that they either had a positive or neutral influence on productivity.



NEW EQUIPMENT FORECAST

Eighty-one percent of respondents are likely to purchase new equipment over the next 12 months. Fifty-eight percent of respondents are likely to buy more than one piece of equipment.

Which type(s) of equipment do you think your company is likely to purchase over the next 12 months?

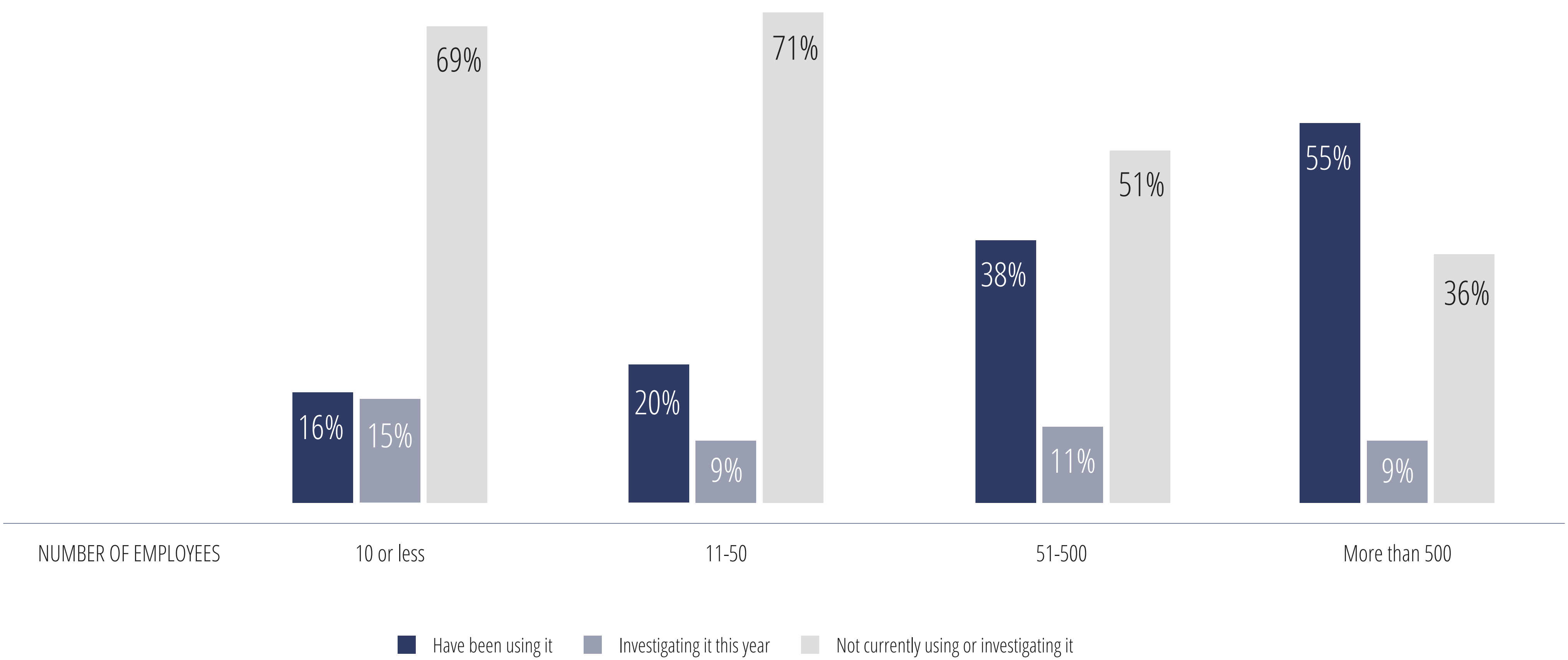


THE ADOPTION OF ADDITIVE MANUFACTURING

Seventy-two percent of respondents are not currently using additive manufacturing technology and most of them are not currently planning to investigate it any time soon. The percentage, however, varies significantly depending on the company size.

Most respondents who indicated that are currently using additive manufacturing technology have been using it for less than 3 years.

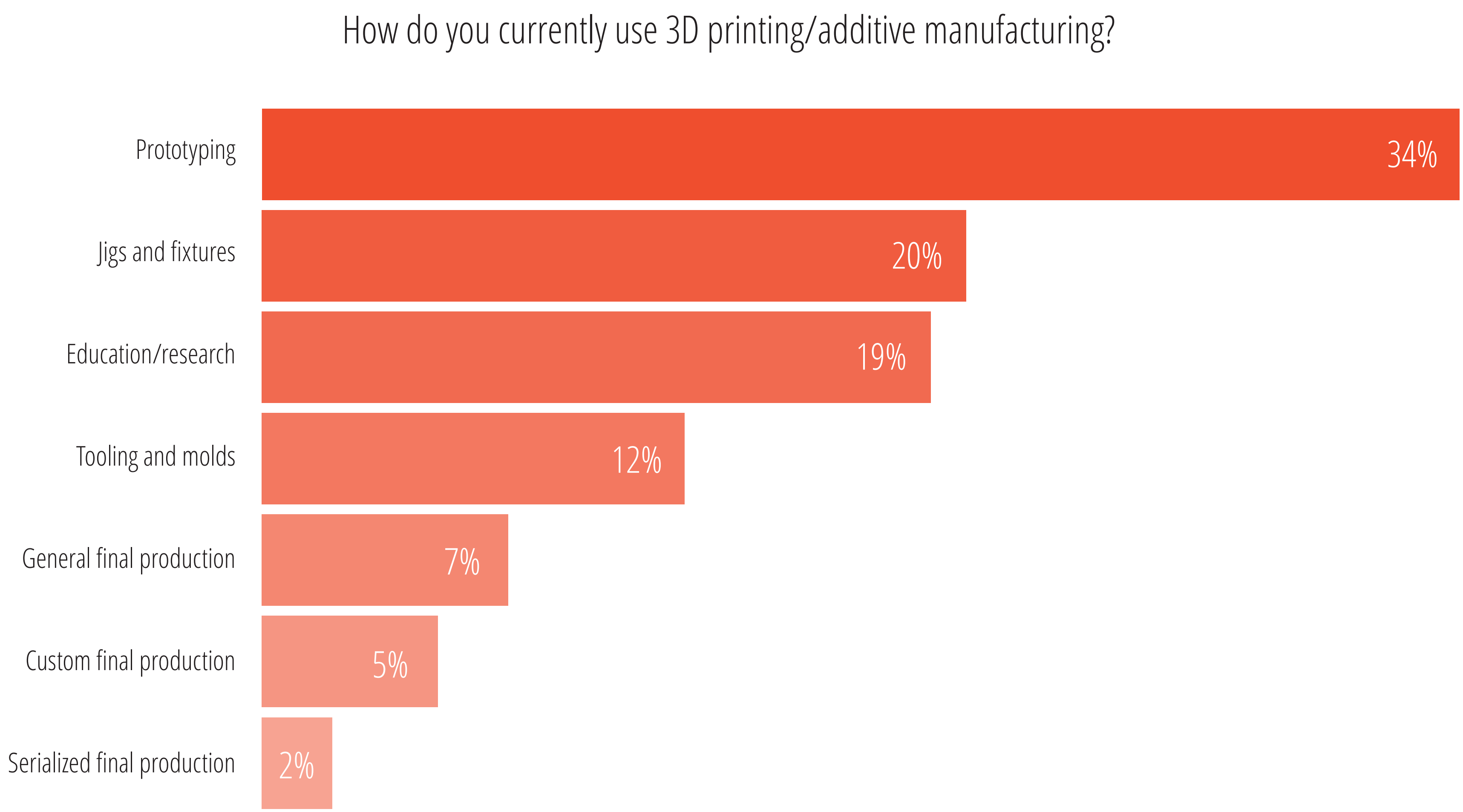
Which best describes your current use of 3D printing/additive manufacturing?



ADDITIVE MANUFACTURING APPLICATIONS

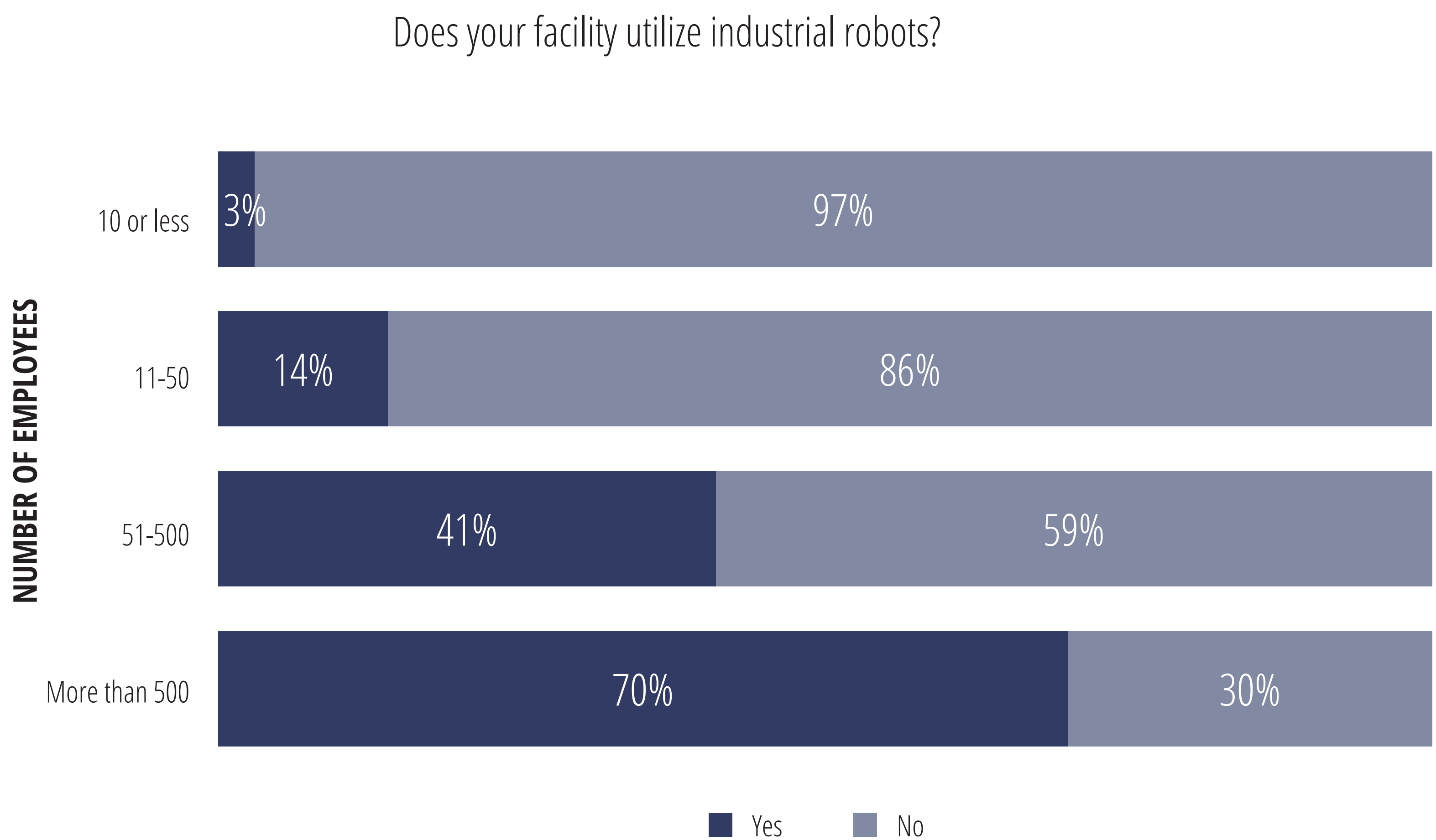
Most respondents who integrated additive manufacturing into their operations utilize the technology for non-production applications.

However, it is adding value to the production environment as more than 30% of respondents who currently use 3D printing technology find it valuable for applications such as jigs and fixtures or tooling and molds.



THE ADOPTION OF INDUSTRIAL ROBOTS

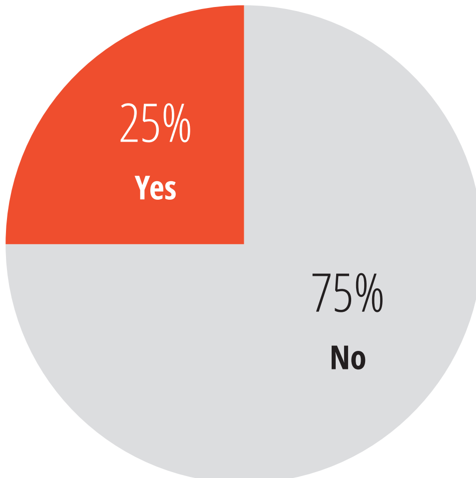
Only 25% of all respondents reported that they are using industrial robots. However, among companies with 150 or more employees, that number jumps to 60% and among companies with more than 500 employees, 70% are using industrial robots.



FUTURE USE OF INDUSTRIAL ROBOTS

Only a quarter of respondents anticipate expanding their use of industrial robots in the next 12 months. However, over half of large companies (more than 500 employees) anticipate an extended use of industrial robots.

Do you anticipate an expanded use of industrial robots within your company in the next 12 months?



Sixty-five percent of companies currently using industrial robots anticipate that their use will expand in the next 12 months.

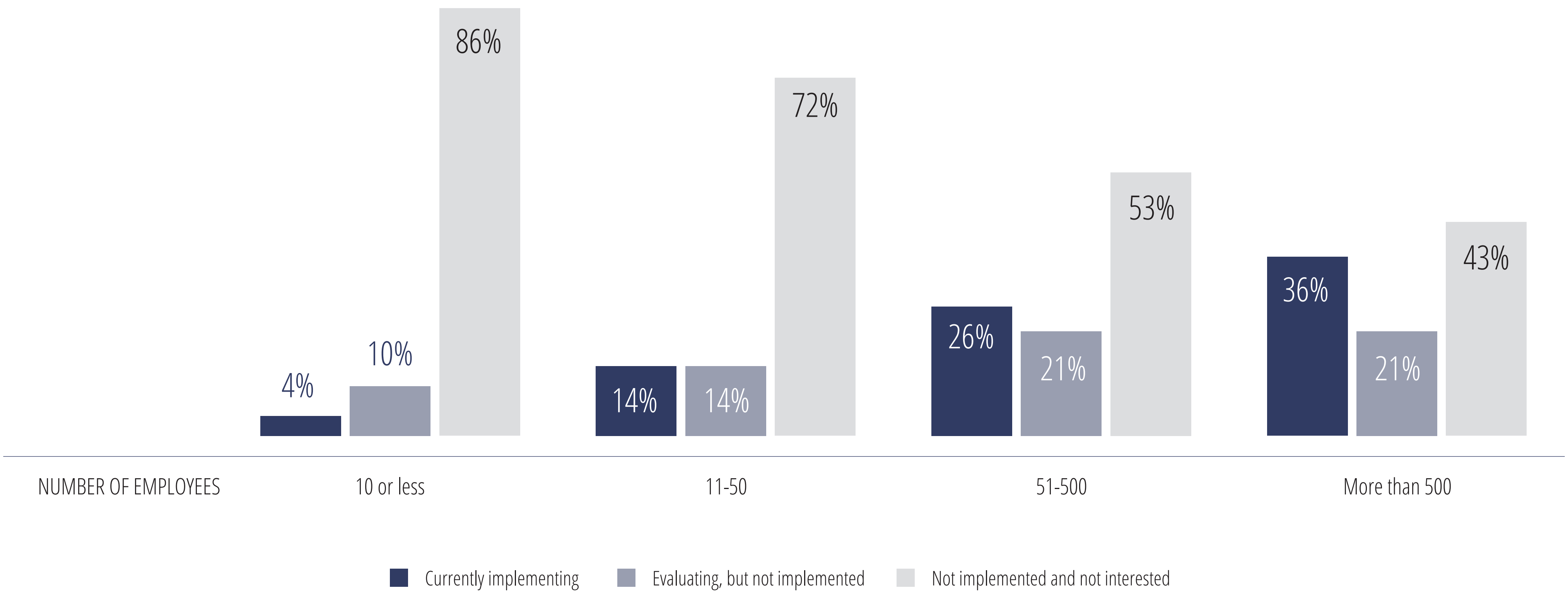
	Not currently using industrial robots	Currently using industrial robots
Not expanding industrial robot usage	**89%**	35%
Expanding industrial robot usage	11%	**65%**

SMART MANUFACTURING TECHNOLOGY

Most respondents are not currently using technology to connect and optimize manufacturing production. Larger companies are more likely to utilize smart manufacturing technology. Most of the companies currently utilizing smart manufacturing technology are at an early stage of the adoption phase.

Smart Manufacturing is the idea of using data and technology to incorporate remote and app-based monitoring to connect and optimize manufacturing production.

What best describes your company's experience with this?



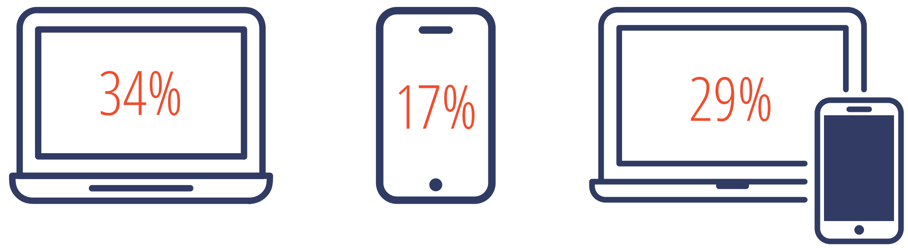
INTERNET AND MOBILE USAGE ON THE SHOP FLOOR

INTERNET ON THE SHOP FLOOR

- 4 out of 5 respondents use internet on the shop floor

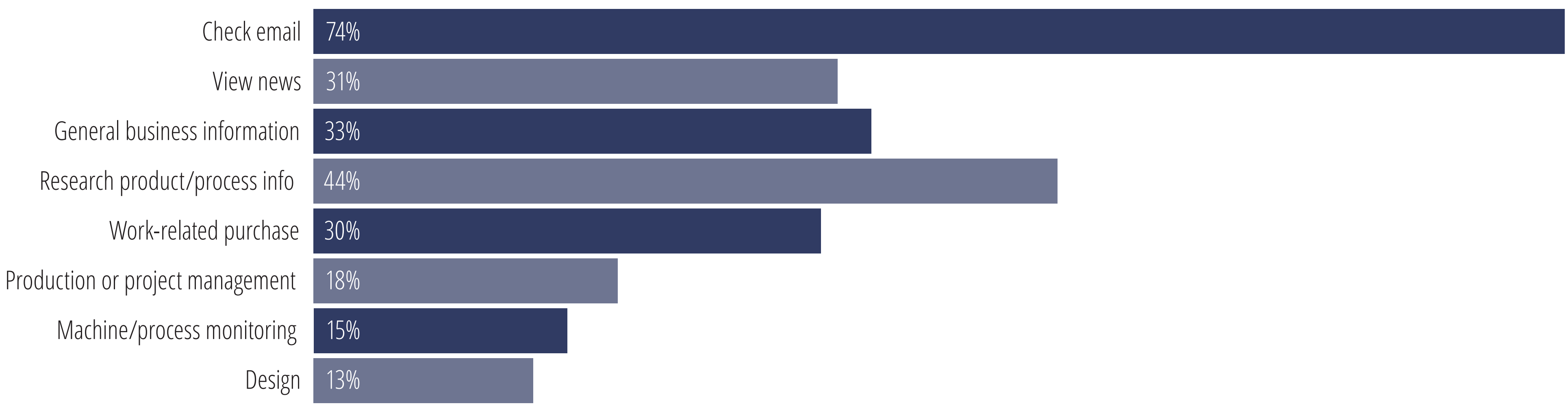
SMARTPHONE VS LAPTOP

- 17% of respondents only use a mobile device to access internet on the shop floor
- 34% of respondents only use a laptop/desktop to access internet on the shop floor



USE OF MOBILE DEVICES

- 74% of respondents use mobile devices to check their emails
- 74% of respondents use mobile devices to either research or purchase work-related products



RESEARCH AND BUYING BEHAVIOR

Sixty-seven percent of respondents start their research for new equipment online. One third of respondents involved in new equipment purchases start their research on search engines. In most cases, respondents contact sales reps after they select a product or define a range of options.

When evaluating new metalworking equipment, tooling or software for purchase, where do you start your search?

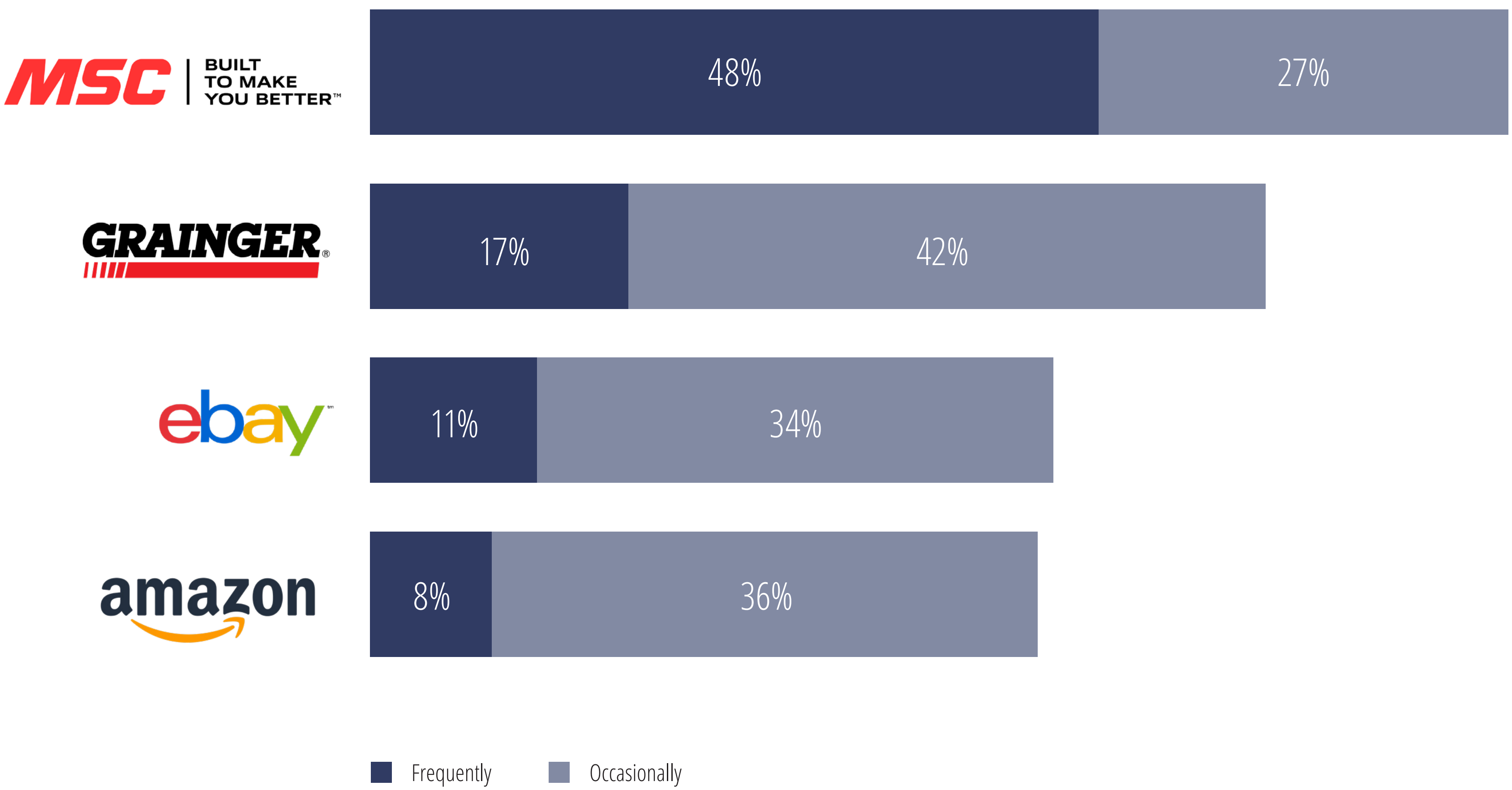
When considering a new product purchase, when does your company typically contact a sales rep or distributor regarding the purchase?

ONLINE STORES

Respondents were asked to indicate how often they use online stores (Amazon, Ebay, etc.) to purchase cutting tools.

- 92% of respondents used at least one of the online resources listed below to purchase cutting tools
- 45% used more than two of the online resources listed below

Have you used any of the following online resources to purchase end mills, drills, inserts or other cutting tools?



MEDIA

TRADE MAGAZINES

36%

Thirty-six percent of all respondents do not subscribe to any industry publications

49%

Forty-nine percent of respondents under the age of 35 do not subscribe to any industry publications

DIGITAL MEDIA

93%

Ninety-three percent of respondents are active on at least one social media channel

80%

Eighty percent of respondents frequently use more than two social media channels

MOST POPULAR INDUSTRY PUBLICATIONS AMONG RESPONDENTS

- 38% *Modern Machine Shop*
- 37% *Manufacturing Engineering*
- 32% *Cutting Tool Engineering*

MOST POPULAR SOCIAL MEDIA AMONG RESPONDENTS

- 87% YouTube
- 63% Facebook
- 57% LinkedIn

ABOUT THE SPONSORS

Thank you for reading and thank you to those who participated in the survey.

Thank you also to the sponsors of this report. In addition to helping make this research and analysis possible, SME and Practical Machinist play important roles in keeping the North American metalworking industry moving forward.

With more than 1.2 million monthly visits, Practical Machinist is the most visited site for metalworking professionals. The free forum provides an easy way to learn techniques, get answers quickly and discuss common challenges with like-minded peers. It's also a source of news and educational content from leading industry publications and suppliers.

PRACTICALMACHINIST.COM

SME is a nonprofit association of professionals, educators and students committed to promoting and supporting the manufacturing industry. The association offers resources for manufacturers, promotes advanced manufacturing technology, and works to develop a skilled workforce.

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