



ALBERTA'S HEAVY INDUSTRY MANUFACTURING WORKFORCE: FORGING A BETTER TOMORROW

August 2021

WHO WE ARE

ABOUT CANADIAN MANUFACTURERS & EXPORTERS

Since 1871, we have made a difference for Canada's manufacturing and exporting communities. Fighting for their future. Saving them money. Helping manufacturers grow.

The association directly represents more than 2,500 leading companies nationwide. More than 85 per cent of CME's members are small and medium-sized enterprises. As Canada's leading business network, CME, through various initiatives including the establishment of the Canadian Manufacturing Coalition, touches more than 100,000 companies from coast to coast, engaged in manufacturing, global business, and service-related industries.

CME's membership network accounts for an estimated 82 per cent of total manufacturing production and 90 per cent of Canada's exports.

ACKNOWLEDGEMENTS

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THANK YOU TO OUR PARTNERS



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HIGHLIGHTS

- This report summarizes the findings from the Alberta Heavy Industry Manufacturing Labour Force Survey, designed to build a comprehensive understanding of the province's heavy industry workforce, including a detailed occupational profile as well as identifying common challenges and strategies related to recruitment, training and development, and diversity and inclusion.
- Due to successive negative economic events, both the industry's output and employment remain below the levels recorded prior to the 2008-09 global financial crisis.
- However, according to the survey, most responding companies expect the industry's output and employment to rise over the near and medium term. This optimism is likely rooted in the expectation of a strong rebound as the pandemic fades.
- Alberta's heavy industry sector employs workers at all skill levels and in both manufacturing and non-manufacturing positions. Key occupations include welders and related machine operators, machinists and machining and tooling inspectors, labourers in metal fabrication, sales and account representatives, shippers and receivers, and production logistics coordinators.
- The average hourly rates of occupational groups in Alberta's heavy industry ranges from \$94.25 an hour for senior leaders to \$18 an hour for labourers in mineral and metal processing.
- At the time of the survey, labour and skills shortages did not appear to be a pressing issue for Alberta's heavy industry manufacturers, likely due to the economic struggles of the province during that period. However, an aging population all but ensures that labour and skills shortages will rear their head in the coming years.
- Alberta's heavy industry manufacturers expressed confidence in the skills of their workforce, saying either that all their staff or nearly all their staff was proficient.
- If any skills gaps have been identified among their workforce, most responding companies are working to address the problem, with more than three-quarters saying that their company has implemented measures to overcome the problem, including providing training.
- Demographic forces indicate that Canada's labour force will continue to become more culturally and ethnically diverse every year, raising the question if Alberta's heavy industry manufacturers are taking steps to recruit or retain individuals from underrepresented groups. The results from the survey were mixed. While all respondents say they have not developed recruiting methods and advertised job positions that specifically target underrepresented groups, most manufacturers say their leadership team includes at least one individual from an underrepresented group.

EXECUTIVE SUMMARY

Canadian Manufacturers & Exporters (CME) and the Alberta Steel Association partnered to conduct the Alberta Heavy Industry Manufacturing Labour Force Survey. The main purpose of the survey was to build a comprehensive understanding of the province's heavy industry workforce, including a detailed occupational profile as well as identifying common challenges and strategies related to recruitment, training and development, and diversity and inclusion. A set of questions also focused on the current business conditions of manufacturers and their expectations for the future.

Alberta's heavy manufacturing industry includes the following seven industries: meat and dairy product manufacturing, paper manufacturing, petroleum and coal product manufacturing, chemical manufacturing, non-metallic mineral product manufacturing, primary metal manufacturing, and fabricated metal product manufacturing. In 2020, the gross domestic product (GDP) of the industry came in at \$13.9 billion in Alberta, equivalent to 63.8% of the province's total manufacturing output and 4.5% of its total economic output.

Unfortunately, given successive negative economic events, including collapsing oil prices, U.S. tariffs on steel, and the COVID-19 pandemic, the industry's production remains below the level recorded prior to the 2008-09 global financial crisis. In fact, real output came in at \$13.9 billion in 2020, down from a peak of \$16.2 billion in 2007. On a positive note, survey participants expect their fortunes to gradually improve over the near and medium term as global economic activity rebounds coming out of the pandemic.

In addition to cutting production, heavy industry manufacturers have also laid off a significant number of workers in recent years. In 2020, employment tumbled by 10.9% to 51,900, the lowest level since 2004. But just like with production, a significant proportion of survey participants expect to add workers to their payrolls over the near term, another sign that the industry will see better days ahead. Specifically, 38% of responding companies expect to increase employment over the next 12 months, while only 15% expect to reduce employment over the same period.

Thanks to the survey, we now have a more complete picture of Alberta's heavy industry workforce, including a detailed occupational profile. Not surprisingly, the industry employs many skilled trades workers. These workers hold technical jobs that usually call for a college diploma or apprenticeship training, and include welders and related machine operators, machinists and machining and tooling inspectors, industrial electricians, and steamfitters and pipefitters.

Heavy industry manufacturers also employ many workers in production and labouring occupations. These are jobs that usually only require on-the-job-training. Key occupational groups in this category include labourers in metal fabrication and labourers in mineral and metal processing. At the same time, the sector employs a significant number of front office staff that involve jobs at all skill levels, including senior leaders, sales and account representatives, and auditors, accountants and bookkeepers. Finally, shippers and receivers, production logistics coordinators, and purchasing and inventory control workers are other in-demand occupations in the industry. These are intermediate-skilled jobs that usually call for high school and/or job-specific training.

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The average hourly rates of occupational groups in Alberta's heavy industry sector vary widely. On average, the highest paid are senior leaders at \$94.25 an hour, followed by manufacturing managers at about \$78 an hour, and sales managers at \$69.50 an hour. At the other end of the spectrum, labourers in mineral and metal processing are the lowest paid occupational group, earning an average of \$18 an hour.

Given that Canadian manufacturers often cite labour and skills shortages as one of their most pressing challenges, this survey included a set of questions on this topic. However, during the time that the survey data were collected, labour and skills shortages did not appear to be a pressing issue for Alberta's heavy industry manufacturers than. This is likely due to the very weak economic conditions that Alberta was experiencing during that period, driven largely by the COVID-19 pandemic. In fact, most firms (62%) said that they are generally not encountering hiring problems. In fact, only one occupational group appears to be causing headaches for recruiters: skilled trades, logistics and manufacturing. Nevertheless, on the infrequent occasion that hiring problems do occur, manufacturers pointed to three specific problems that are most common: applicants lack the required technical skills (60%), there are no or too few applicants (60%), and applicants lack the required work experience (40%).

Along with the experience and skills of job applicants, manufacturers also realize that their long-term success depends on the skills of their current workforce. It is good news, therefore, that survey participants expressed confidence in the skills of their employees. When asked to rate the proficiency of each major occupational group, the most common response for three of the five groups (senior leadership, business finance, and administration, and engineers and managers) was to state that all their staff was proficient. In the two other categories—sales and marketing and skilled trades, logistics and manufacturing—the most common response was to state that nearly all their staff was proficient.

In addition, if Alberta heavy industry manufacturers have identified skills gaps among their workforce, many are working to address the problem. Some 77% of respondents said that their company has implemented measures to overcome the problem of skills gaps, including providing training, while only 8% said they have not done so.

Despite their willingness to upgrade the skills of their workers, research indicates that most companies underinvest in training and development, largely due to concerns over turnover and poaching. Given the wider societal benefits of upskilling the workforce, it follows that governments should provide financial assistance to firms to increase their training activities. In fact, this is exactly what Alberta's heavy industry manufacturers recommend. When asked about the main issues preventing their company from investing more in workforce training, the two most common responses were that the cost of such programs was too high (46%) and that there was a lack of sufficient government incentives (38%).

While labour and skills shortages may not be a major issue now, they are expected to intensify in the coming years as the economy rebounds and as large numbers of baby boomers exit the workforce. And, although businesses have some ability to mitigate labour and skills shortages, there is only so much they can do. Instead, the nature of this problem requires governments to take the lead on this economy-wide issue. When asked what policymakers should do to address this looming challenge, respondents said they are looking for governments to take several actions, including offering stronger incentives for

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companies to invest in automation, finding better ways to attract people to smaller communities, providing tax incentives to hire new workers, offering financial support to help cover worker training expenses, and helping to promote manufacturing jobs to youth.

To replenish the workforce, the Canadian government has been steadily increasing its immigration targets over time. With an aging population and fewer births, immigration is expected to account for all of Canada's net labour force growth between 2018 and 2040. This means that the country's labour force will continue to become more culturally and ethnically diverse every year. This, in turn, suggests that attracting and hiring a diverse workforce will become an increasingly important strategy for recruiters and hiring managers.

This raises the question if Alberta's heavy industry manufacturers are taking steps to recruit or retain individuals from underrepresented groups. The results from the survey were mixed. On the one hand, all respondents say they have not developed recruiting methods and advertised job positions that specifically target underrepresented groups. But, on the other hand, 70% of manufacturers say their leadership team includes at least one individual from an underrepresented group.

INTRODUCTION

Canadian Manufacturers & Exporters (CME) and the Alberta Steel Association collaborated to conduct the Alberta Heavy Industry Manufacturing Labour Force Survey. Alberta's heavy manufacturing industry includes the following seven industries: meat and dairy product manufacturing, paper manufacturing, petroleum and coal product manufacturing, chemical manufacturing, non-metallic mineral product manufacturing, primary metal manufacturing, and fabricated metal product manufacturing. In 2020, the industry generated \$13.9 billion of GDP and employed 51,900 workers in Alberta.

The main purpose of the survey was to collect accurate and detailed data on the size and composition of Alberta's industrial manufacturing workforce, including employment and wages by occupation, recruitment and retention issues, potential talent shortages and skills gaps of current employees and of job applicants and strategies being used to address these gaps, and workforce participation of underrepresented groups and strategies being used to foster diversity and inclusion in the workplace.

In addition, the survey also provided insights into the current conditions of manufacturers, their expectations for the future, and their most pressing challenges and needs. It also assessed the economic impact of recent major events, including lower oil prices, U.S. tariffs on steel, and the COVID-19 pandemic.

The report is organized as follows. The first section defines the heavy industry sector. Section two highlights the recent economic trends of the sector using publicly available data, while the third section presents the occupational profile of the overall manufacturing sector in Alberta. The fourth section presents the survey results with accompanying analysis, while section five makes recommendations to government. The final section provides concluding remarks.

HEAVY INDUSTRY STRUCTURE

Heavy Industry Definition

We adhered to the North American Industry Classification System (NAICS) when defining Alberta's heavy industry. For the purposes of this study, the heavy industry encompasses the following seven industries defined in the table below: meat and dairy product manufacturing, paper manufacturing, petroleum and coal product manufacturing, chemical manufacturing, non-metallic mineral product manufacturing, primary metal manufacturing, and fabricated metal product manufacturing.

ALBERTA'S HEAVY INDUSTRY: NAICS CODES¹

Industry	NAICS	Share of mfg.
Meat and dairy product manufacturing	3115 and 3116	Establishments primarily engaged in manufacturing meat and dairy products
Paper manufacturing	322	Establishments primarily engaged in manufacturing pulp, paper and paper products
Petroleum and coal product manufacturing	324	Establishments primarily engaged in transforming crude petroleum and coal into intermediate and end products, including petroleum refining
Chemical manufacturing	325	Establishments primarily engaged in manufacturing chemicals and chemical preparations, from organic and inorganic raw materials
Non-metallic mineral product manufacturing	327	Establishments primarily engaged in manufacturing non-metallic mineral products like clay, glass, cement, and lime and gypsum
Primary metal manufacturing	331	Establishments primarily engaged in smelting and refining ferrous and non-ferrous metals from ore, pig or scrap in blast or electric furnaces
Fabricated metal product manufacturing	332	Establishments primarily engaged in forging, stamping, forming, turning and joining processes to produce ferrous and non-ferrous metal products

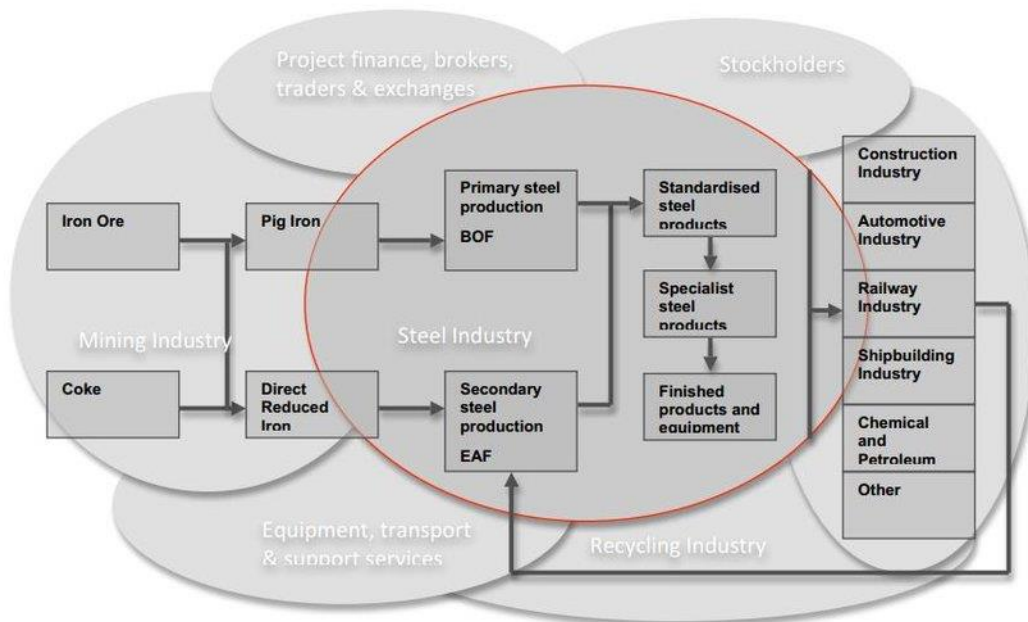
Source: Statistics Canada.

¹ Statistics Canada, "North American Industry Classification System (NAICS) Canada 2017 Version 1.0."

TEXT BOX: FOCUS ON THE STEEL INDUSTRY

Steel is one of the key products manufactured by Alberta’s heavy industry. The global emergence of the steel industry is attributed to the invention of Bessemer steel-making process in 1855 in the United Kingdom.² The modern steel industry can be decomposed into three types of producers: integrated mills, mini-mills, and steel processors. Integrated mills, also known as primary steel producers, use blast furnaces to make pig iron from iron and coke, which is then melted into raw steel in basic oxygen furnaces (BOF).³ Mini-mills, also known as secondary steel producers, melt recycled scrap steel into both semi- and finished products in electric arc furnaces (EAF).⁴ The third type of producers are steel processors who make standardized steel products, specialist steel products, and finished products and equipment. It is this third category that is the focus of this paper.

STEEL INDUSTRY SUPPLY CHAIN



Source: Allwood, “The Structure of the Steel Industry.”

The diagram above illustrates a typical steel industry supply chain. Key raw materials needed in steelmaking include iron ore, coal, limestone, and recycled steel.⁵ Steel from the steel industry is used as an intermediate input in several industries, including in construction, automotive, railway, shipbuilding,

² Allwood, “The Structure of the Steel Industry.”

³ Blonigen et al., “Are All Trade Policies Created Equal? Empirical Evidence for Nonequivalent Market Power Effects of Tariffs and Quotas.”

⁴ Blonigen et al.

⁵ World Steel Association, “Fact Sheet: Steel and Raw Materials.”

and chemical and petroleum. In short, steel is an essential input in infrastructure, transportation, energy, defence, and construction.

In Alberta, the steel manufacturing industry is closely tied to the oil and gas industry. According to Statistics Canada's 2017 symmetric input-output tables, of all the steel used as an intermediate input in the production of other goods in the province, a little over one-quarter is used by the oil and gas engineering construction industry and a little over one-fifth is used by the oil and gas extraction industry.

The rest of the construction industry is also a big user of steel. Close to 30% of all the steel used as an intermediate input is used by the non-oil and gas construction industry, including residential and non-residential building construction. Finally, about 15% of all the steel used as an intermediate input is used by the manufacturing industry, including the steel industry itself.

KEY TRENDS

ALBERTA’S HEAVY INDUSTRY MANUFACTURING: BY THE NUMBERS (2020)

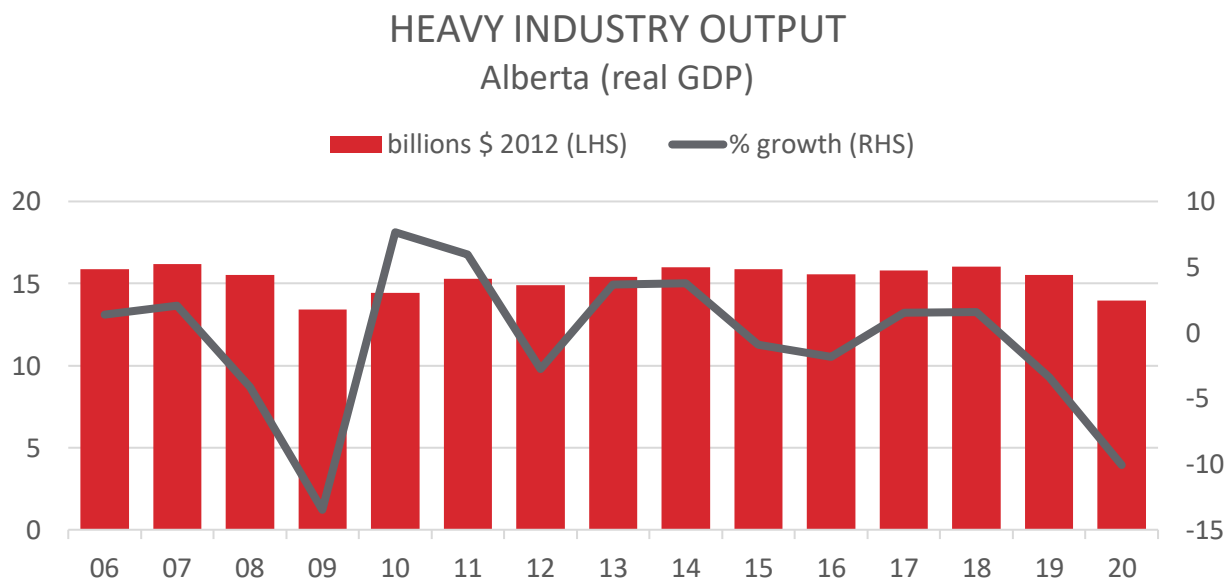
	Level	Share of mfg.	Share of GDP
Gross domestic product (billions \$ 2012)	\$13.9	63.8%	4.5%
Employment (thousands)	51.9	45.1%	2.4%
Merchandise exports (billions \$)	\$17.8	63.7%	19.4%

Sources: CME; Statistics Canada.

Output

Real GDP in Alberta’s heavy industry sector fell by 10.1% to \$13.9 billion in 2020, a clear indication of how much the COVID-19 pandemic has hurt the industry. That said, industry trends were going in the wrong direction even before the crisis hit in early 2020. In fact, the sector never fully recovered from the previous recession in 2008-09. Output peaked at \$16.2 billion in 2007 before the global financial crisis hit and has not reached that level since.

In 2020, heavy industry accounted for 63.8% of the province’s total manufacturing output and 4.5% of its total economic output.

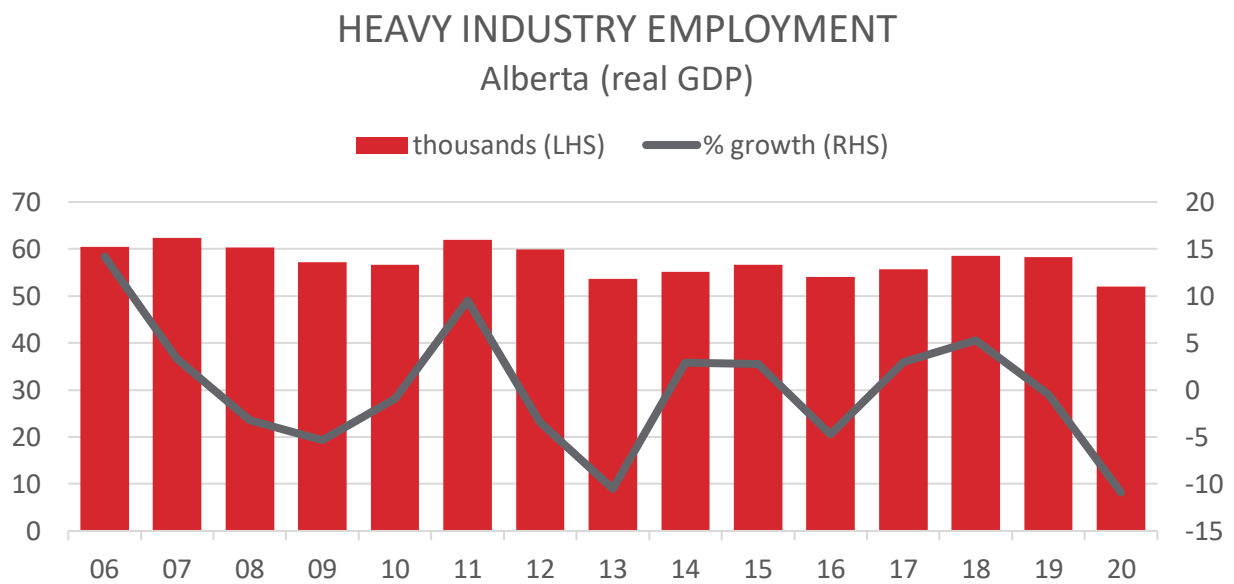


Sources: CME; Statistics Canada.

Employment

Heavy industry manufacturers responded to the pandemic-induced drop in demand by laying off a significant number of workers. In 2020, employment tumbled by 10.9% to 51,900, the lowest level since 2004. Like output, employment in the industry peaked in 2007. In that year, 62,400 people worked in this industry.

In 2020, Alberta’s heavy industry accounted for 45.1% of the province’s manufacturing workforce and 2.4% of the province’s total employment. Its share of employment is lower than its share of output, attributable to the fact that it is a very capital-intensive industry and thus has a very high productivity level.

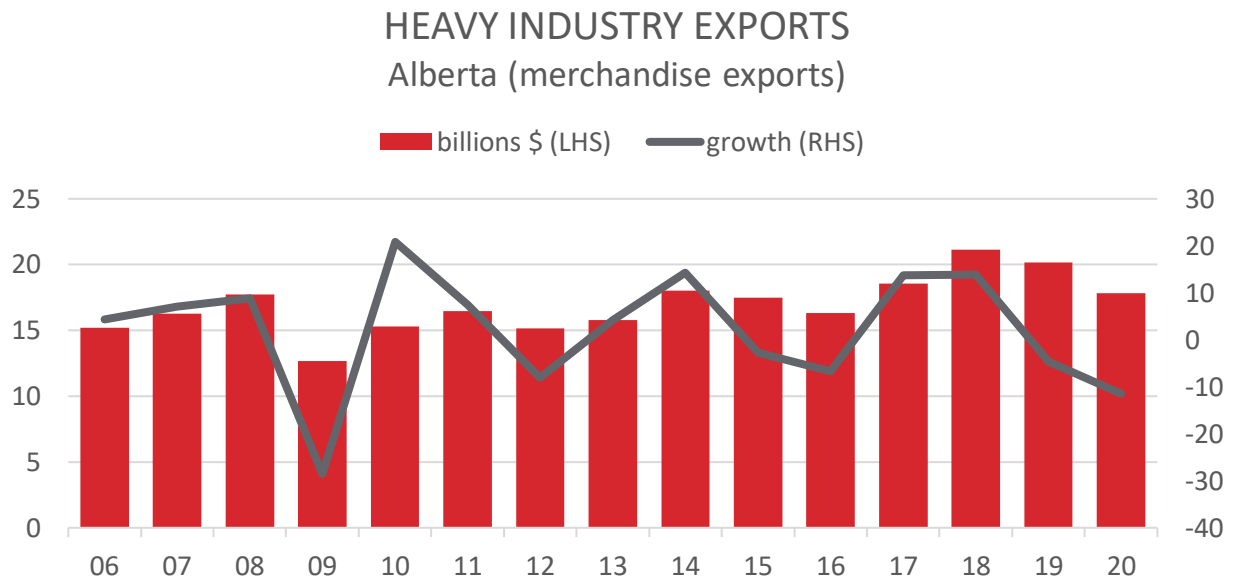


Sources: CME; Statistics Canada.

Trade

Export activity was also hampered by the COVID-19 pandemic. Heavy industry exports from Alberta declined 11.5% to \$17.8 billion in 2020, adding to the 4.5% contraction recorded in 2019. But, in contrast to output and employment, heavy industry exports had more than fully recouped their global financial crisis-related losses before the pandemic started. Indeed, exports reached a record \$21.1 billion in 2018, up from \$17.7 billion in 2008.

In 2020, heavy industry exports accounted for 63.7% of manufactured goods exports and 19.4% of total merchandise exports.

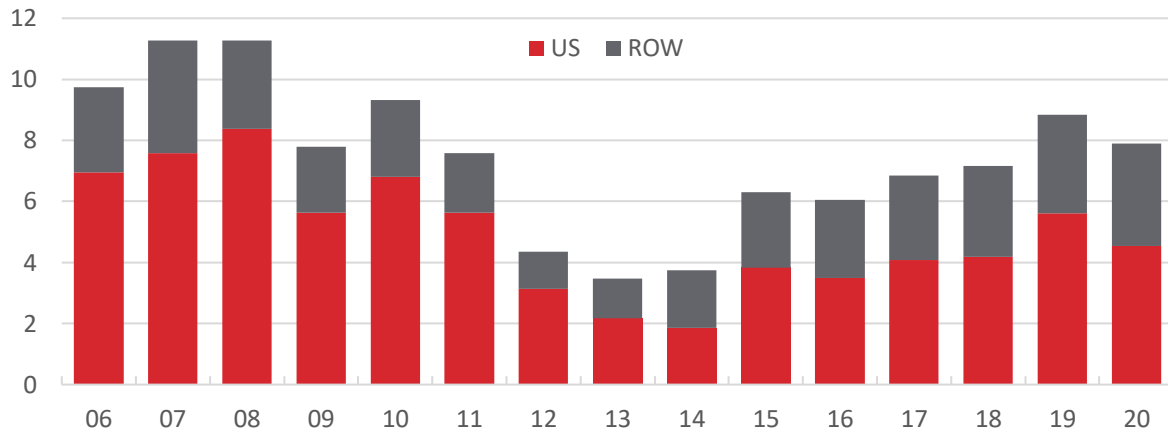


Sources: CME; Statistics Canada.

As is often the case with Canada’s manufactured goods, Alberta’s heavy industry’s largest export market is the United States. In 2020, the industry shipped 63.7% of its exports south of the border. This share was close to its long-term average of 65.8% recorded between 2002 and 2019. Other major export markets for Alberta’s heavy industry products include China, Japan, Mexico, and South Korea.

Alberta runs a persistent trade surplus in heavy industry goods, meaning that it exports more of these goods than it imports. While the surplus narrowed steadily over the first half of 2010s, it has been widening again in recent years. Specifically, the trade surplus averaged \$7.4 billion between 2016 and 2020, up from an average of \$5.1 billion between 2011 and 2015. Over the last ten years, Alberta’s heavy industry ran a trade surplus of \$3.9 billion per year with the U.S. and a trade surplus of \$2.4 billion per year with the rest of the world.

HEAVY INDUSTRY TRADE BALANCE Alberta (billions \$)



Sources: CME; Statistics Canada.

The source of Alberta’s heavy industry imports is much more concentrated than its exports. In 2020, about 80% of these exports came from the U.S., up from 77.2% in 2002. The next largest source was China, which accounted for 7.4% of heavy industry exports in 2020. China’s importance as a source of Alberta’s heavy industry imports has been increasingly steadily over time. In 2002, it accounted for just 2.2% of these imports. China has been taking market share from many countries, most notably the United Kingdom. Indeed, the UK saw its share of Alberta’s heavy industry imports fall from 3.7% in 2002 to just 0.7% in 2020.

OCCUPATIONAL PROFILE OF ALBERTA'S MANUFACTURING SECTOR

The occupational profile of Alberta's heavy industry can be gleaned by examining the province's manufacturing industry, of which detailed occupational data are available through Statistics Canada's Labour Force Survey (LFS) Public Use Microdata File (PUMF). The PUMF files enable us to break down manufacturing employment by 40 different occupations. The heavy industry accounts for about 45% of the province's manufacturing employment, so it is safe to assume that its occupational profile follows a similar structure to that as the overall industry, and thus provides hints about which occupations are in demand in the heavy industry sector.

ALBERTA'S HEAVY MANUFACTURING INDUSTRY: TOP OCCUPATIONS

	2019
Processing and manufacturing machine operators and related production workers	24,373
Processing, manufacturing and utilities supervisors and central control operators	17,883
Industrial, electrical and construction trades	12,364
Assemblers in manufacturing	12,270
Labourers in processing, manufacturing and utilities	10,855
Maintenance and equipment operation trades	7,419
Administrative and financial supervisors and administrative occupations	6,629
Middle management occupations in trades, transportation, production and utilities	5,890
Professional occupations in natural and applied sciences	5,834
Technical occupations related to natural and applied sciences	5,047
Distribution, tracking and scheduling coordination occupations	4,914
Office support occupations	3,451
Sales representatives and salespersons - wholesale and retail trade	3,385
Transport and heavy equipment operation and related maintenance occupations	2,641
Professional occupations in business and finance	2,451

Sources: CME; Statistics Canada.

The table above presents the top 15 occupations in Alberta's manufacturing sector in 2019. The top six occupations are those that are typically associated with manufacturing activities. Of these, the top occupation was the only one that had more than 20,000 workers in 2019: processing and manufacturing machine operators and related production workers. The next four occupations counted more than 10,000 workers each in 2019: processing, manufacturing and utilities supervisors and central control operators; industrial, electrical and construction trades; assemblers in manufacturing; and labourers in processing, manufacturing and utilities.

Manufacturing companies also employ many workers in non-manufacturing occupations. Top non-manufacturing occupations in 2019 included: administrative and financial supervisors and administrative

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occupations; professional occupations in natural and applied sciences; and technical occupations related to natural and applied sciences.

SURVEY RESULTS

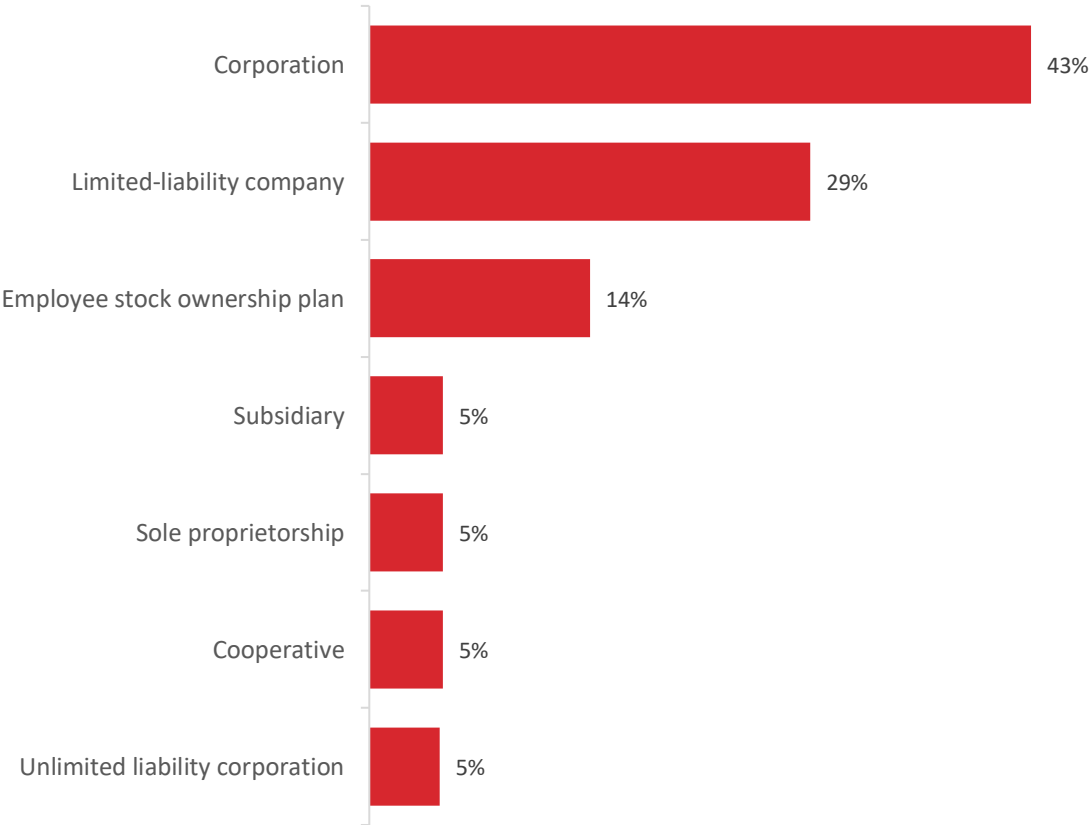
The Alberta Heavy Industry Labour Market Survey was designed to build a comprehensive picture of Alberta’s heavy industry workforce. Along with capturing these human resources issues, the survey also asked questions designed to create a profile of the industry, measure its recent performance, and assess its near and medium-term prospects. This section presents the survey results with accompanying analysis.

RESPONDENT PROFILE

The first few survey questions were designed to build a respondent profile.

What is the legal form of your company?

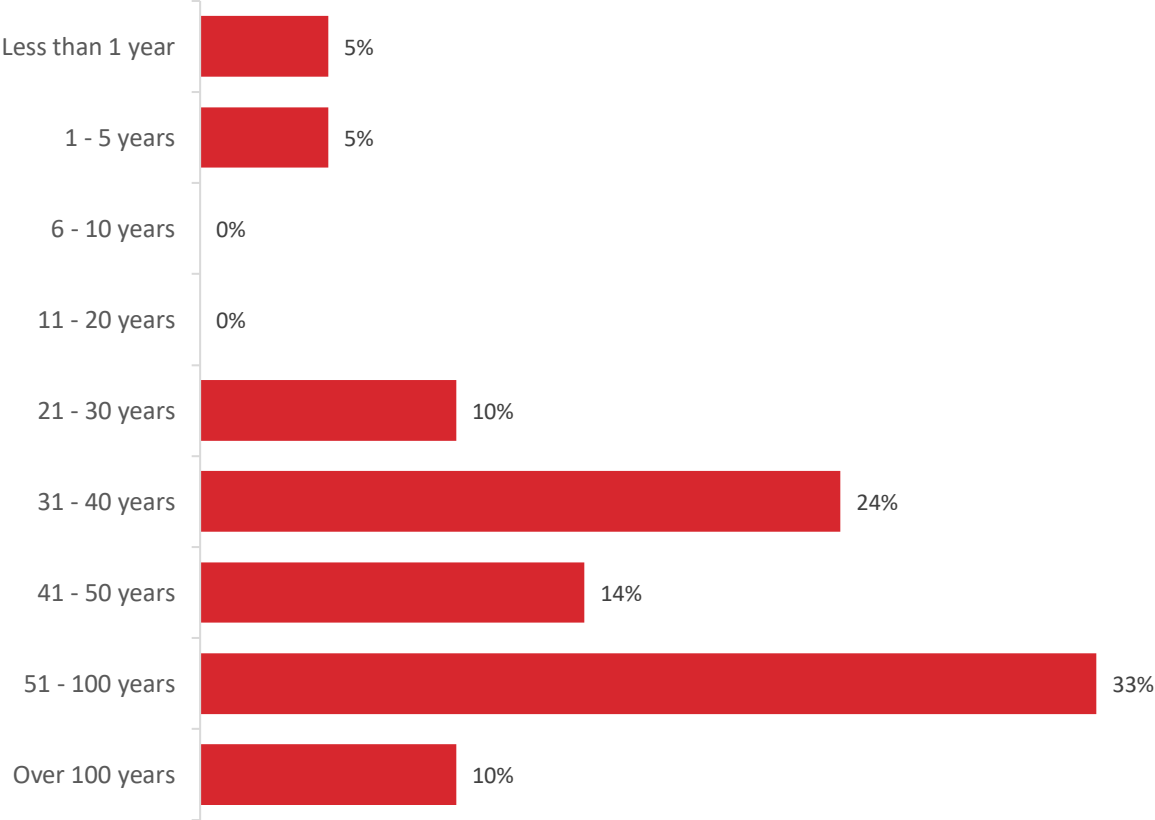
Respondents represented a broad range of company structure types. More than 40% of participants identified as a legal corporation, around 30% said they were structured as a limited liability company (LLC), and 14% said they were organized as an employee stock ownership plan (ESOP). Other respondents said they were structured as a subsidiary, a sole proprietorship, a cooperative, or an unlimited liability company.



Source: CME.

How long has your company been operating in Alberta?

Most companies that responded to the survey have been operating in Alberta for a long time. In fact, 90% of respondents have been in business for over 20 years. Of this group, one-third have been operating between 51 and 100 years, while another 10% have been operating for over 100 years. Nevertheless, there was participation from a few companies that are either relatively young or at least relatively new to Alberta. About 10% of respondents said they have been operating in Alberta for five years or less. Of this group, half have been in business for less than one year.

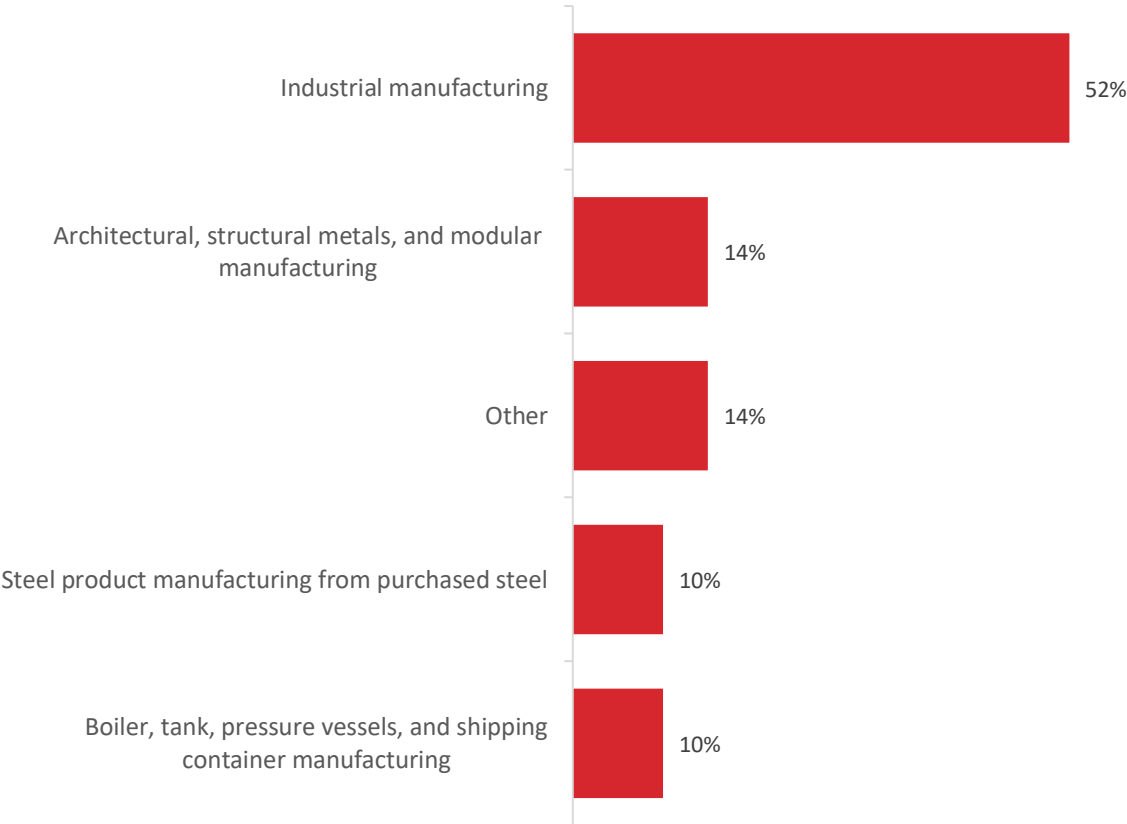


Source: CME.

What would you say is the primary activity of your business?

A few questions were designed to focus more closely on the steel industry, rather than on the broader heaving manufacturing sector. For example, when we asked respondents to identify the primary activity of their business, we limited the options to key steel industry activities in Alberta. According to the results of this question over half of businesses (52%) categorized their activities under the industrial manufacturing sector, by far the most common response. This sector includes establishments primarily engaged in fabricating metal products.

Around 14% said their activities fell under the architectural, structural metals, and modular manufacturing industry. This industry includes establishments primarily engaged in fabricating plate work and structural products by cutting, punching, bending, shaping and welding purchased steel plate, and manufacturing doors, windows, and other ornamental and architectural metal products.



Source: CME.

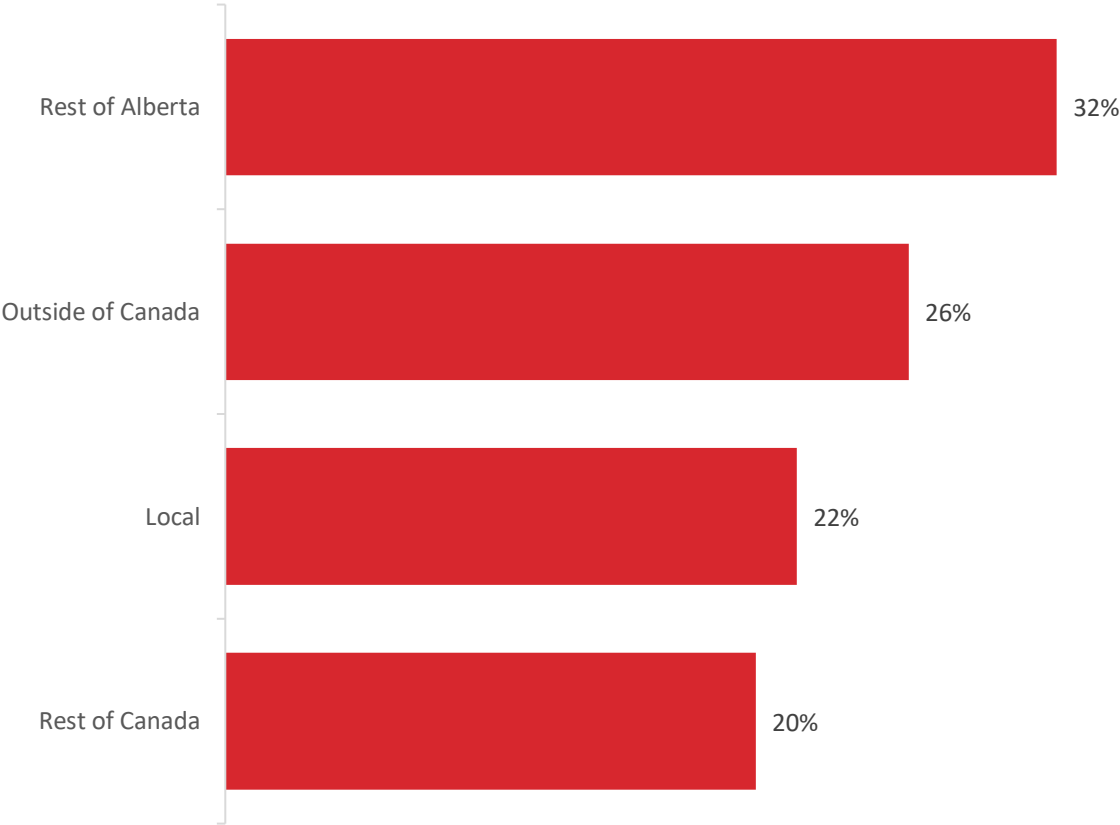
About 10% categorized their company’s activities under the steel product manufacturing from purchased steel sector. This industry comprises establishments primarily engaged in drawing wire or rolling sheets, strips and bars from purchased iron or steel. The same proportion said their company belonged in the boiler, tank, pressure vessels, and shipping container manufacturing industry.

Finally, 14% of survey participants said that their company’s activities fell outside the four sectors explicitly listed in the survey question.

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Using an average of the past three years, could you please give us approximately the percentage distribution of the market sales of your products or services?

Based on an average of responses, most manufacturers focus their activities on the domestic market. In fact, according to our survey, almost three-quarters of sales were generated in Canada, of which 54% were in Alberta and 20% were in another province. The remaining one-quarter of sales were generated through international transactions.



Source: CME.

Under normal business conditions, what would be the highest value of the production capacity of your business today? What the percentage of its normal production capacity did your business operating at in the following periods?

The survey also asked respondents to estimate the highest value of their businesses' production capacity in Alberta today. At the time of the survey, participants had combined production capacity of \$1.1 billion.

	2013	2019	2020	2021	2022	2023
Capacity utilization rate (%)	66.8	50.6	41.8	51.5	58.9	63.2

Source: CME.

Given economic conditions at the time the survey was conducted, respondents estimated that they were operating at just 41.8% of full capacity in 2020, down from 50.6% in 2019 and 66.8% in 2013. On the positive side, they expect things to gradually improve over the medium term, with the average capacity utilization rate rising to 51.5% in 2021, 58.9% in 2022, and 63.2% in 2023.

What was your business' total revenue during the following reporting periods and what do you expect it to be over the medium term?

Revenue trends follow a similar pattern to that of capacity utilization. Survey participants together generated \$630.4 million in revenue in 2013. This rose to over \$705.6 million in 2019 before plunging to \$454.0 million in 2020. Revenue is expected to improve somewhat over the medium term, climbing from \$549.0 million in 2021 to \$607.0 million in 2023. Unfortunately, revenue is not expected to return to pre-pandemic levels before 2024.

	2013	2019	2020	2021	2022	2023
Revenue (millions \$)	630.4	705.6	454.0	549.0	565.0	607.0

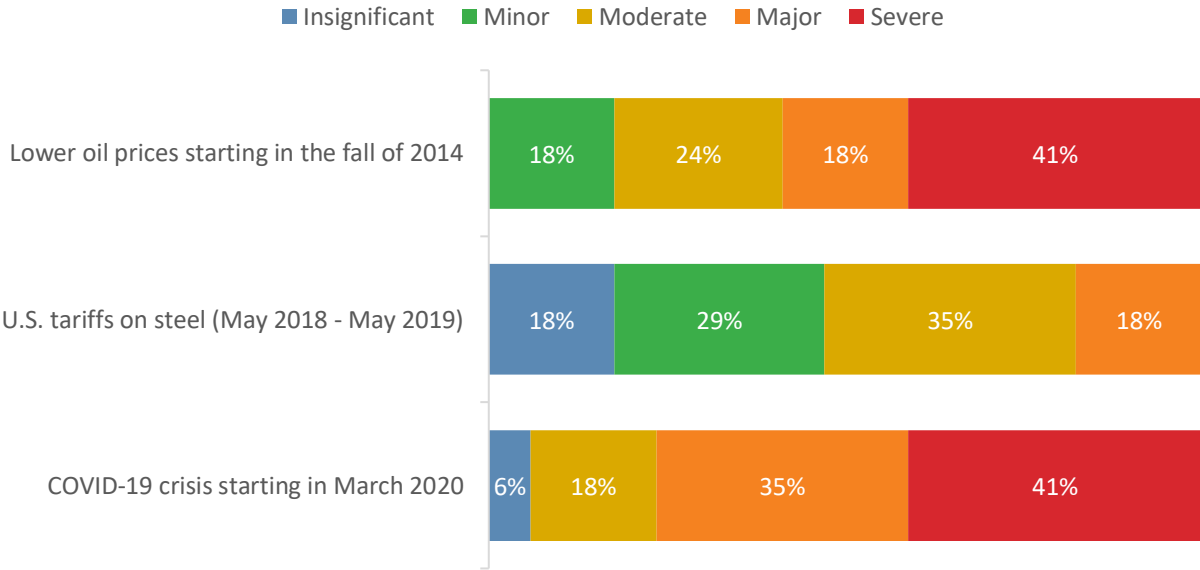
Source: CME.

BUSINESS PERFORMANCE, STRATEGY AND OUTLOOK

The next series of questions asked participants to identify their companies’ greatest strengths, biggest challenges, areas needed for improvement, and other issues related to business strategy.

To the best of your knowledge, how much of a negative impact have the following major economic shocks had, or are continuing to have, on the demand for your products?

For this question, we again wanted to focus on Alberta’s steel industry, as it has endured several major negative economic events over the past number of years. In particular, we wanted to gauge the extent of the impact of three major ones in particular: the significant drop in oil prices starting in late 2014, the imposition of U.S. steel tariffs between May 2018 and May 2019, and the COVID-19 pandemic. Judging from the survey results, the COVID-19 crisis hit the industry the hardest, followed by the drop in oil prices, and then U.S. tariffs. Over three-quarters of survey participants rated the impact of the COVID-19 pandemic as major or severe, while a little less than 60% felt the same way about the drop in oil prices. In contrast, no one rated the impact of U.S. tariffs as severe, and just 18% said the impact had a major impact on their operations.



Source: CME.

What do you believe are your company’s greatest strengths?

Alberta’s heavy industry manufacturers are confident that they make high-quality products and, as a result, have an excellent reputation. When asked what they thought were their greatest strengths, 82% of businesses pointed to customer satisfaction as one of their top three—far and away the most common response. With customer satisfaction comes positive brand recognition—something 41% of respondents believed was also a major strength. The same proportion believe that their company is strong at developing innovative new products or processes, an important attribute of successful companies in a such a competitive industry.

At the other end of the spectrum, no one rated after-sales service or making good hiring decisions as strengths, while a mere 6% said their companies provided effective workforce training. This implies that Alberta’s heavy industry manufacturers feel they are well-known for making good products, but their ability to succeed could be being hampered by human resources challenges.



Source: CME.

What are the biggest challenges you are facing right now?

Alberta’s heavy industry manufacturers were clearly concerned about economic conditions, not surprising given that the survey was conducted in the middle of a severe recession that has hit the oil and gas industry, a key customer, especially hard. Indeed, 73% of survey participants rated a weaker domestic economy as their most pressing challenge, by far the most common response.

Respondents were also especially worried about the cost of doing business. Nearly half of respondents included insurance costs among their top three choices. A high proportion also pointed to transportation and logistics costs (40%), increased raw material costs (40%), an unfavourable tax and regulatory climate (40%), and increased labour costs (33%) as cost-related challenges.

At the other end of the spectrum, only 7% of respondents were having trouble accessing COVID-19 tests and PPE. This was a huge issue for companies when the pandemic first hit, but the results of this survey suggest that this problem has largely been addressed.

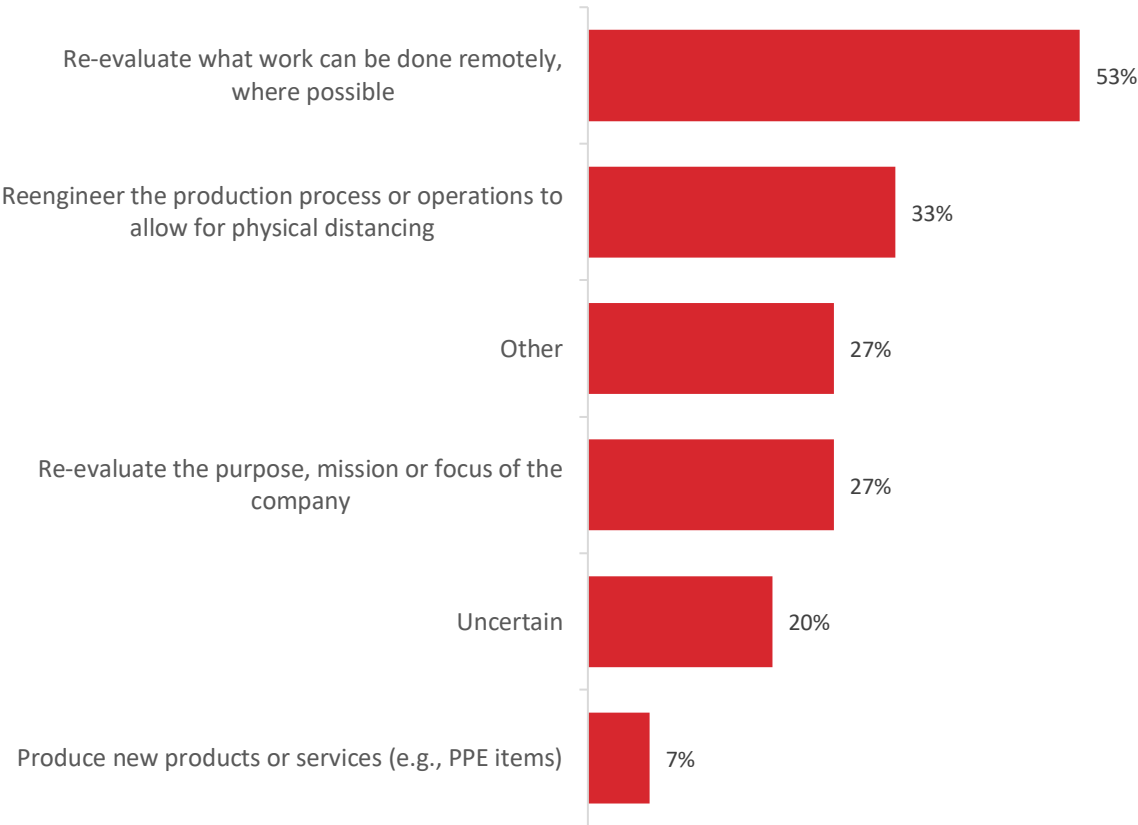


Source: CME.

Has the COVID-19 outbreak forced you to take any of the following actions?

COVID-19 has had a tremendous impact on all aspects of our lives, including on the economy and the manufacturing sector. To gauge the short-term effects of the pandemic, we added a question related to this topic. When the pandemic started, Canadian companies were forced to adapt quickly to ensure operational continuity and employee safety. This was especially true for manufacturers, given that most have remained in operation throughout the pandemic, owing to the sector’s essential status.

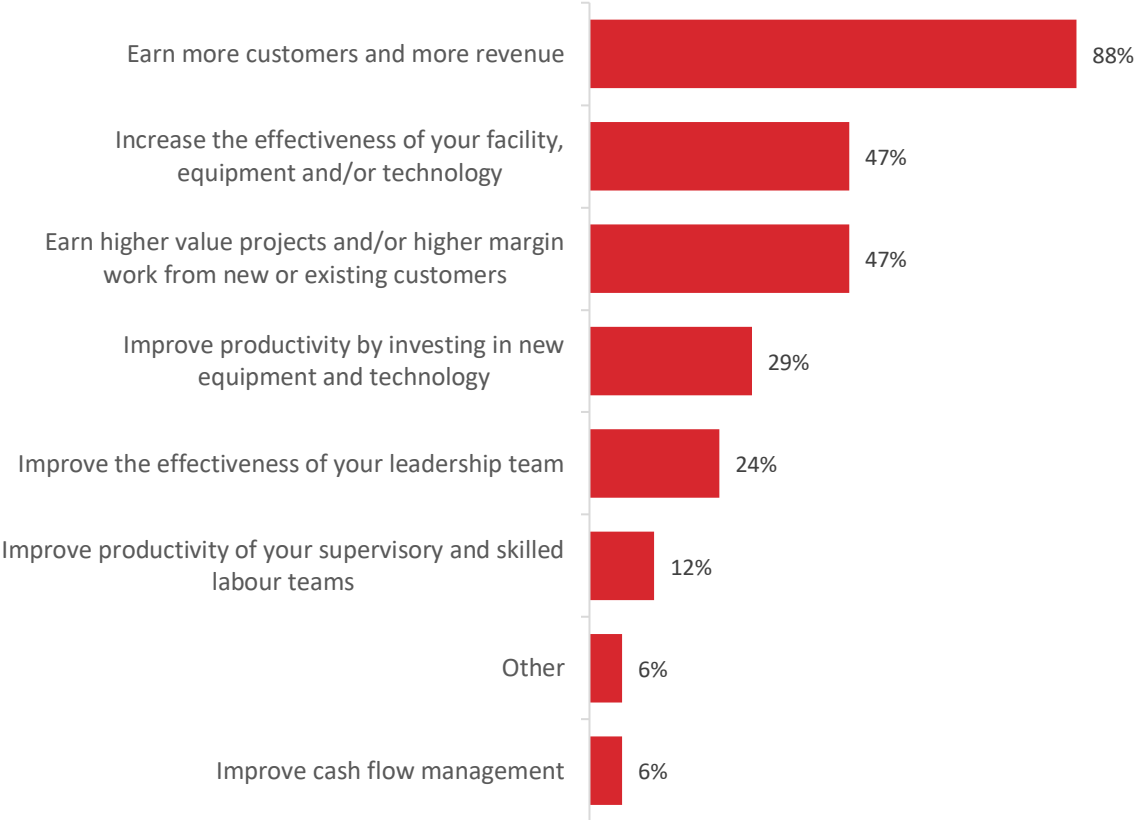
Over half of those surveyed said that the pandemic forced them to re-evaluate what work can be done remotely, a trend that can be observed in many areas of the economy. At the same time, one-third of survey participants also said they had reengineered the production process to allow for physical distancing. A little under 30% also said that COVID-19 has forced their business to re-evaluate the purpose, mission or focus of the company. Finally, 7% of companies said the pandemic had convinced them to produce new products or services, including PPE.



Source: CME.

To secure the required improvements for your business, which items would you rank as a top priority?

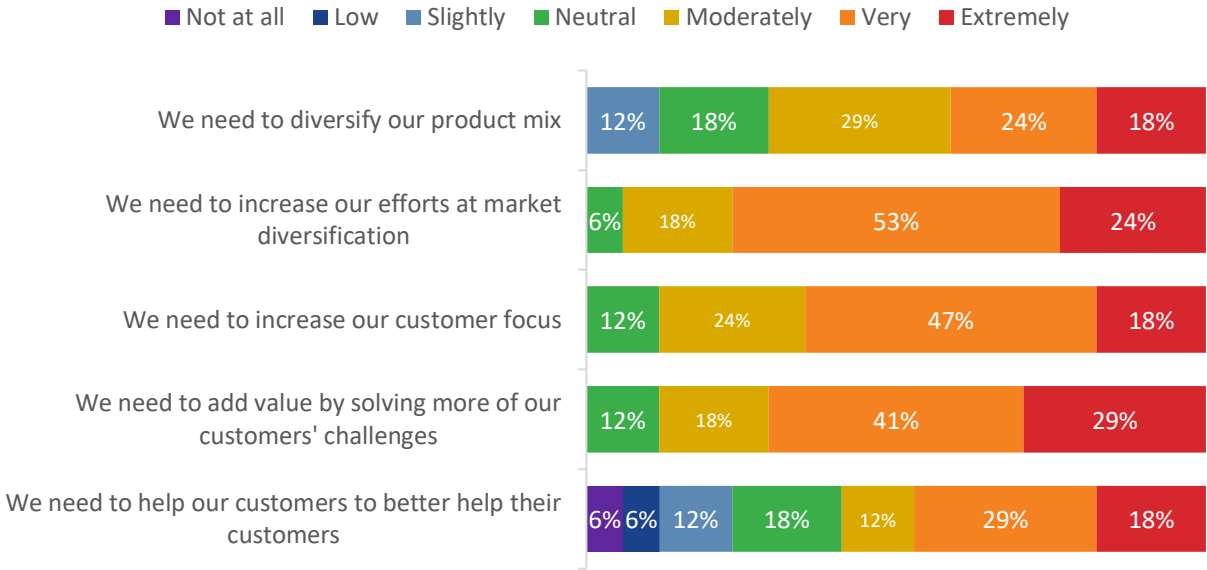
When asked to rank the top priorities needed to improve their businesses, the top choice was to earn more customers and more revenue. Close to 90% of respondents selected this item as one of their top three priorities. Some 47% of Alberta’s heavy industry manufacturers also said they need to increase the effectiveness of their facility, equipment and technology. The same proportion also said their company needed to earn higher value projects or higher margin work for new or existing customers.



Source: CME.

When considering a growth strategy for your business, how important are the following statements to you?

When considering a growth strategy for their business, the survey results suggest that the most important strategy for Alberta’s heavy industry sector is to increase their efforts at market diversification. This statement was rated very or extremely important by over three-quarters of respondents. Survey participants also believe that adding value by solving more of their customers’ challenges should be an integral part of their business growth strategy, with over 70% rating this statement as very or extremely important. Rounding out the top three, according to the survey results, is the need to increase the customer focus of the company, rated as very or extremely important by just under two-thirds of respondents.



Source: CME.

HEAVY INDUSTRY WORKFORCE PROFILE

The main objective of the survey was to collect accurate and detailed data on the size and composition of Alberta’s industrial manufacturing workforce. This section presents these figures.

What was your company's level of employment in the following three periods?

Like the official data for the overall industry, the survey indicated that the level of employment in Alberta’s heavy industry sector has been trending downward in recent years. The companies that responded to our survey employed a total of 723 workers in 2020, down from 1,076 in 2019 and 2,116 in 2013. In other words, employment shrank by two-thirds in the span of about eight years.

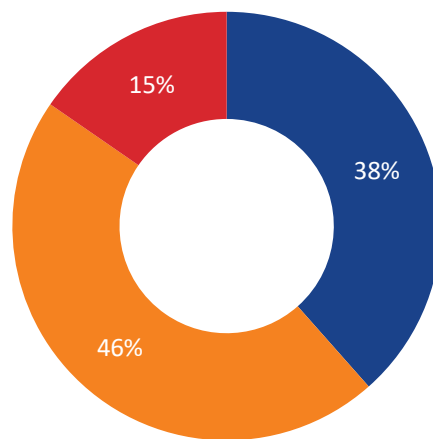
	2013	2019	2020-21
Employment	2,116	1076	723

Source: CME.

Considering the situation of your business today, employment in your organization over the next 12 months will:

We also asked survey participants to predict the level of employment in their organization over the next 12 months. On the positive side, many more participants (38%) expected employment to increase than to decrease (15%). This could be a sign that companies are encouraged that the economy will rebound sharply as the pandemic recedes. Still, by far the most frequent response was that employment would remain largely unchanged, a choice of 46% of survey participants.

■ Increase ■ Change little ■ Decrease



Source: CME.

All respondents that predicted their companies would see employment levels fall over the next 12 months said it would be attributable to a reduction in production due to insufficient demand. Those

who think that employment will rise in the coming months pointed to a variety of reasons, including an expansion of production, an increase in R&D spending, and the consequence of an aggressive sales growth plan.

What was and is your firm's employment by occupation?

We also asked respondents to break down the total employment figures into specific occupational groups. The detailed data are presented in the table below. Not surprisingly, many workers are in skilled trades. These are technical jobs that usually call for a college diploma or apprenticeship training. In 2020-21, some of the larger occupational groups in the heavy industry sector included welders and related machine operators (54), machinists and machining and tooling inspectors (43), industrial electricians (20), and steamfitters and pipefitters (20).

At the same time, heavy industry manufacturers also employed many workers in production and labouring occupations, jobs that usually only require on-the-job-training. In 2020-21, key occupational groups in this category included labourers in metal fabrication (43) and labourers in mineral and metal processing (16).

The sector also employed a significant number of front office staff. These include jobs at all skill levels, including management jobs and professional jobs that usually call for a degree from a university. Among these occupations, important ones in 2020-21 included senior leaders (28), sales and account representatives (35), and auditors, accountants and bookkeepers (19).

Finally, shippers and receivers (29), production logistics coordinators (18), and purchasing and inventory control workers (12) are other important occupations in the industry. These are intermediate-skilled jobs that usually call for high school and/or job-specific training.

CANADIAN MANUFACTURERS & EXPORTERS

	2013	2019	2020-21
Senior leaders	23	34	28
Sales managers	12	15	9
Marketing, and public relations professionals	7	7	5
Technical sales specialists and estimators	18	24	18
Sales and account representatives	34	33	35
Auditors, accountants & bookkeepers	24	29	19
Human resources and recruitment officers	10	14	8
Manufacturing managers	17	21	12
Supervisors and foremen	41	40	19
Engineers	29	19	14
Shippers and receivers	26	26	29
Production logistics coordinators	21	31	18
Purchasing and inventory control workers	21	36	12
Machinists and machining and tooling inspectors	30	29	43
Sheet metal workers	0	0	0
Boilermakers	0	0	0
Structural metal and platework fabricators and fitters	23	17	16
Ironworkers	150	6	11
Welders and related machine operators	145	68	54
Industrial electricians	309	34	20
Steamfitters and pipefitters	200	20	20
Construction millwrights and industrial mechanics	82	54	12
Crane operators	21	11	9
Transport truck drivers	9	4	4
Machine operators, mineral and metal processing	482	282	10
Metalworking and forging machine operators	9	11	11
Labourers in mineral and metal processing	60	32	16
Labourers in metal fabrication	125	52	43
Other staff	71	54	59

Source: CME.

What is the most common typical average hourly rate that you pay for the following occupations?

Relatedly, we asked respondents to approximate the average hourly wage rate for each occupational group employed in their organization. On average, the highest paid are senior leaders at \$94.25 an hour, followed by manufacturing managers at about \$78 an hour and sales managers at \$69.50 an hour. At the other end of the spectrum, labourers in mineral and metal processing are the lowest paid occupational group, earning on average of \$18 an hour. That said, this is still above the minimum wage in all provinces and territories.

CANADIAN MANUFACTURERS & EXPORTERS

	Hourly Wage Rate
Senior leaders	94.25
Sales managers	69.50
Marketing, and public relations professionals	30.00
Technical sales specialists and estimators	55.06
Sales and account representatives	57.25
Auditors, accountants & bookkeepers	52.50
Human resources and recruitment officers	40.00
Manufacturing managers	78.13
Supervisors and foremen	44.69
Engineers	65.94
Shippers and receivers	33.00
Production logistics coordinators	33.33
Purchasing and inventory control workers	28.44
Machinists and machining and tooling inspectors	38.33
Sheet metal workers	N/A
Boilermakers	N/A
Structural metal and platework fabricators and fitters	37.42
Ironworkers	40.00
Welders and related machine operators	38.06
Industrial electricians	40.00
Steamfitters and pipefitters	N/A
Construction millwrights and industrial mechanics	40.00
Crane operators	35.50
Transport truck drivers	31.50
Machine operators, mineral and metal processing	34.67
Metalworking and forging machine operators	26.75
Labourers in mineral and metal processing	25.00
Labourers in metal fabrication	18.00
Other staff	36.00

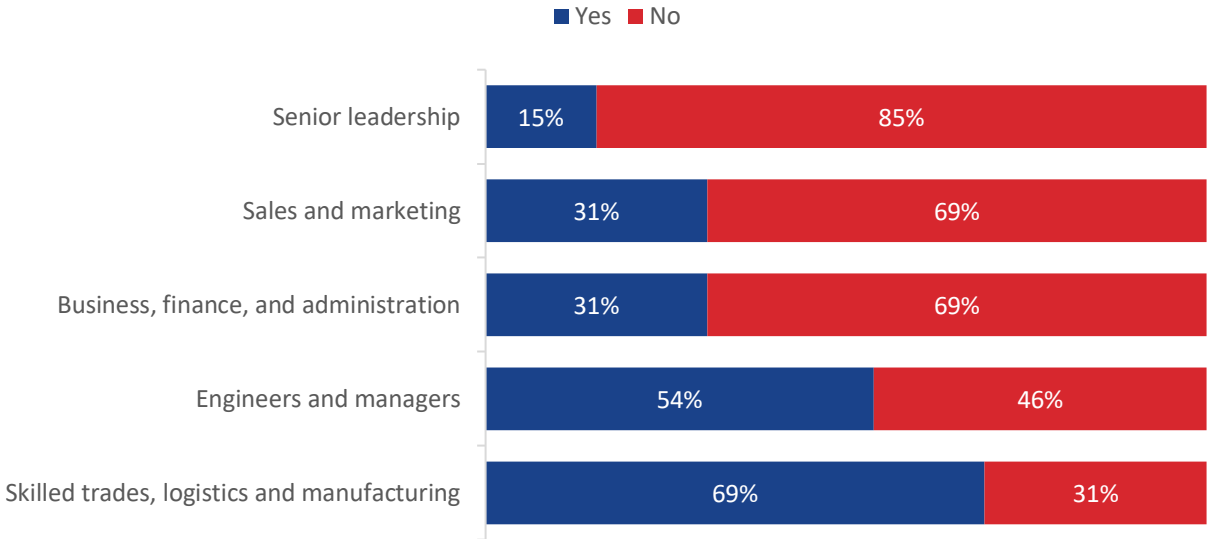
Source: CME.

RECRUITMENT

Manufacturers often cite labour and skills shortages as one of their most pressing challenges, though at the time the survey data were collected, this appeared to be less of an issue for Alberta’s heavy industry manufacturers, likely due to the weak economic conditions during that period. However, a rapidly aging population suggests that most industries will see labour challenges mount in the coming years. Given this context, the survey asked a series of questions related to the subject of recruitment.

In the past 12 months, have you tried to hire any of the following occupation groups?

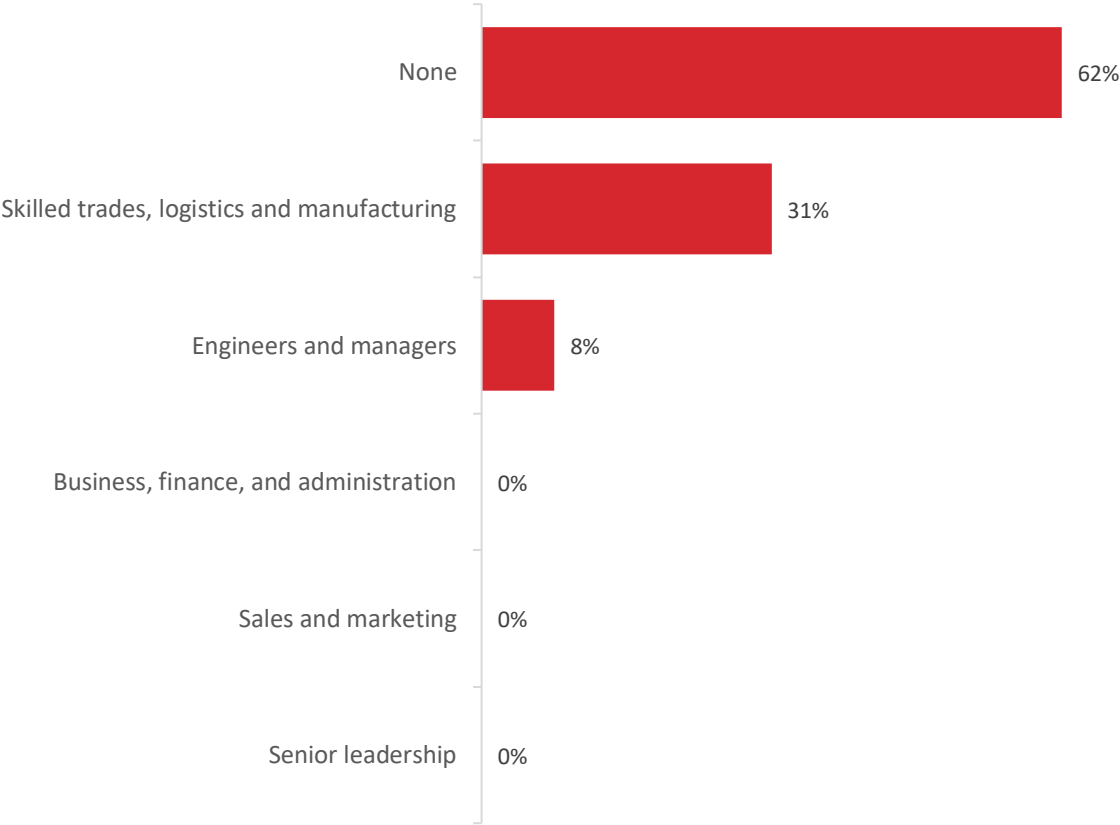
The survey asked Alberta’s heavy industry manufacturers if they have tried to hire anyone over the past 12 months in each of five major occupational groups. Given that the business climate was very weak during the survey period, it is not a surprise that overall recruitment efforts were relatively low. Only two occupational groups appeared to be seeing high recruitment efforts: engineers and managers and skilled trades, logistics and manufacturing.



Source: CME.

In which occupation groups did you encounter hiring problems?

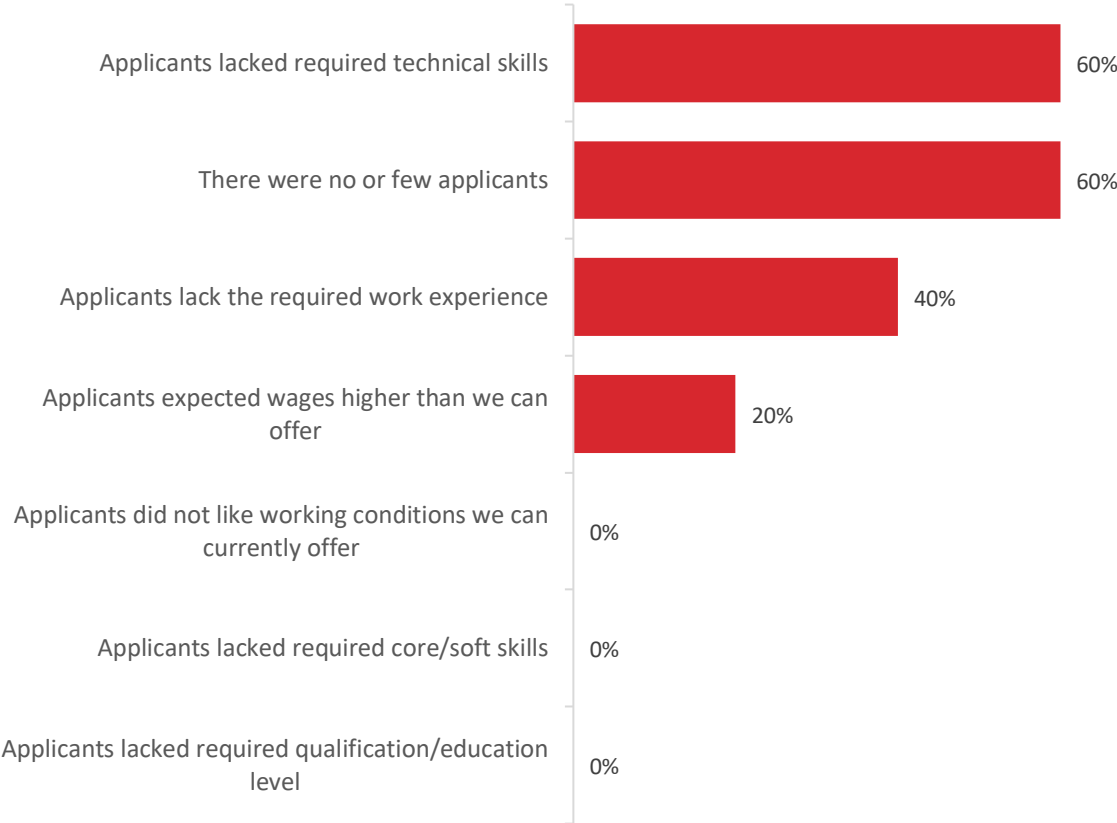
Most firms indicated that they are generally not encountering hiring problems, again likely due to weak economic conditions. In fact, 62% of survey participants said they were not encountering problems in any occupational group—by far the most common response. Only one occupational group appears to be causing headaches for recruiters—31% of respondents said they were having trouble recruiting workers in the skilled trades, logistics and manufacturing occupational group. Issues finding workers in this latter occupational group lines up with the results of broader CME surveys and the challenges faced by other industries.



Source: CME.

If in the previous question you mentioned encountering hiring problems, what specific problems did you encounter?

As a follow up, we asked respondents to expand on these hiring challenges by ranking the specific problems they are encountering. When hiring problems occur, three specific problems are most common: applicants lack the required technical skills (60%), there are no or too few applicants (60%), and applicants lack the required work experience (40%).



Source: CME.

What has been the average percentage staff turnover over the following periods?

Turnover does not seem to be a major issue these days for Alberta's heavy industry manufacturers. Between 2019 and when the survey closed in mid-2021, the average staff turnover rate was 4.9%. This is much lower than the sector's average rate of 7.5% in 2015-19. This relatively low turnover could be partly attributable to the Canada Emergency Wage Subsidy (CEWS), which has helped businesses keep their employees on payroll during the crisis.

	2015-19	2019-Present
Staff turnover rate	7.5	4.9

Source: CME.

Approximately, how many employees in each occupational group retired in 2019?

Canada's population is aging rapidly, and the large baby boom cohort is leaving the workforce in droves. Despite this powerful demographic trend, survey participants reported very few retirements in all the major occupational groups in 2019. However, companies should expect these numbers to pick up in the coming years.

	Number of retirees (2019)
Senior leadership	2
Sales and marketing	1
Business, finance, and administration	2
Engineers and managers	1
Skilled trades, logistics and manufacturing	5

Source: CME.

Approximately, how many employees in each occupational group left your company in 2019 (excluding retirement)?

Most occupational groups also had low turnover due to reasons not related to retirement. The one exception was the skilled trades, logistics and manufacturing occupational group. In 2019, this group had much higher turnover (118) than all the other groups combined (21). The fact that skilled trades workers are in high demand across the wider manufacturing industry and thus have an easier time finding new jobs at least partly accounts for their higher turnover.

Number of leavers (2019)	
Senior leadership	2
Sales and marketing	7
Business, finance, and administration	6
Engineers and managers	6
Skilled trades, logistics and manufacturing	118

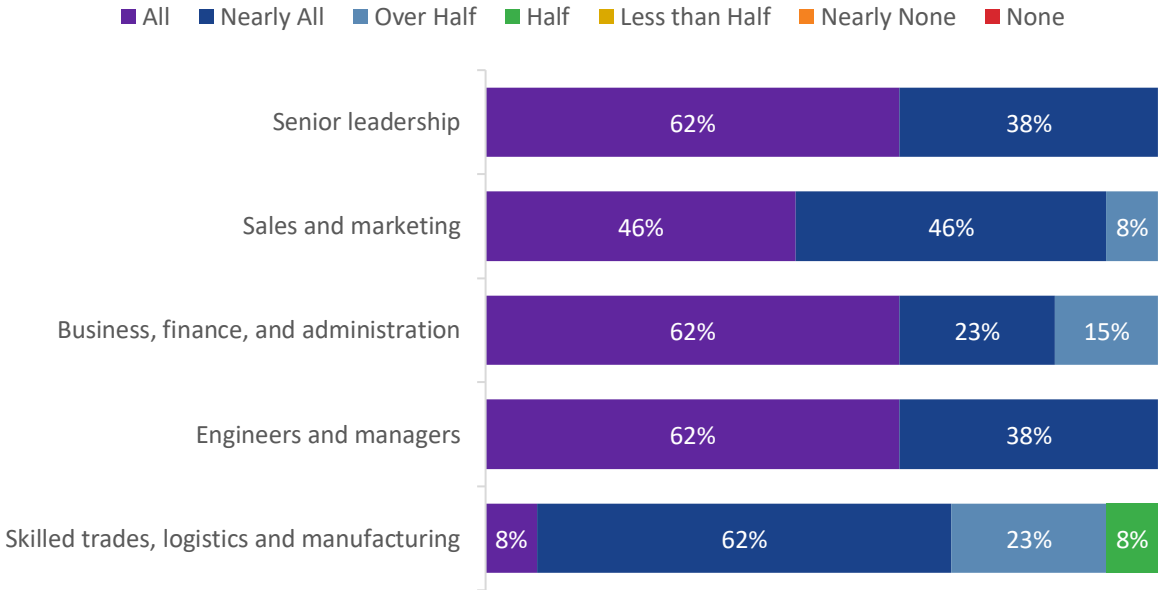
Source: CME.

CURRENT WORKFORCE SKILLS

The next set of survey questions were designed to gather additional insight on the heavy industry’s workforce, but with an emphasis on the skills of current employees.

How many of your existing staff would you regard as being fully proficient at their current job?

Survey participants were largely confident in the skills of their current workforce. When asked to rate the proficiency of each major occupational group, the most common response in three of the five groups (senior leadership, business finance, and administration, and engineers and managers) was to state that all their staff was proficient. In the two other categories—sales and marketing and skilled trades, logistics and manufacturing—the most common response was to state that nearly all their staff was proficient.



Source: CME.

If you mentioned that some employees lacked the necessary skills, could you please indicate which skills were lacking?

Picking up on the results from the previous question, we asked manufacturers that, if any skills were lacking, to identify specific ones. Among senior leadership, organizational and planning skills was ranked as the most likely to be lacking, with two-thirds selecting this option. Somewhat concerningly, one-half of respondents said that, if any skills were lacking among senior leadership, it was leadership skills.

SENIOR LEADERSHIP



Source: CME.

CANADIAN MANUFACTURERS & EXPORTERS

If any skills were found lacking among the sales and marketing occupational group, the most common one cited involved interpreting and communicating information. Respondents expressed less concern over the other listed skills.

SALES & MARKETING



Source: CME.

CANADIAN MANUFACTURERS & EXPORTERS

Like their sales and marketing counterparts, business, workers in the finance and administration occupational group were also found to be lacking in the ability to interpret and communicate information. Half of responding companies flagged this skill.

BUSINESS, FINANCE & ADMINISTRATION



Source: CME.

If engineers and managers are lacking in any skills, they are believed to be lacking in organizational and planning skills and in “learn to learn” skills. The fact that engineers and managers may be deficient in these two skills was a unanimous choice among survey participants.

ENGINEERS & MANAGERS



Source: CME.

Finally, among skilled trades, logistics and labourers, all of Alberta’s heavy industry manufacturers indicated that, if any skills were lacking among this occupational group, it was computer skills and “learn to learn” skills, both unanimous choices. In addition, 90% of survey participants cited deficient technical skills as another area of concern.

SKILLED TRADES, LOGISITCS & LABOURERS

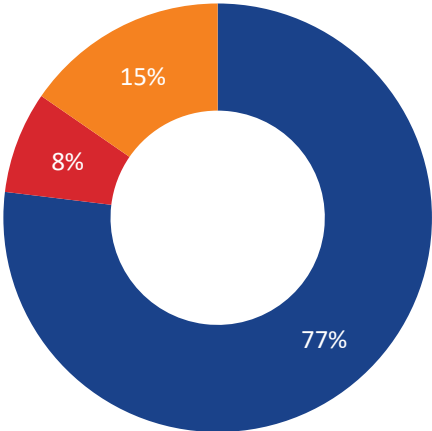


Source: CME.

Has your company implemented any measures to overcome the problem of skills gaps?

If Alberta heavy industry manufacturers have identified skills gaps among their workforce, many are working to solve the problem. Some 77% of respondents said that their company has implemented measures to overcome the problem of skills gaps, while only 8% said they have not done so.

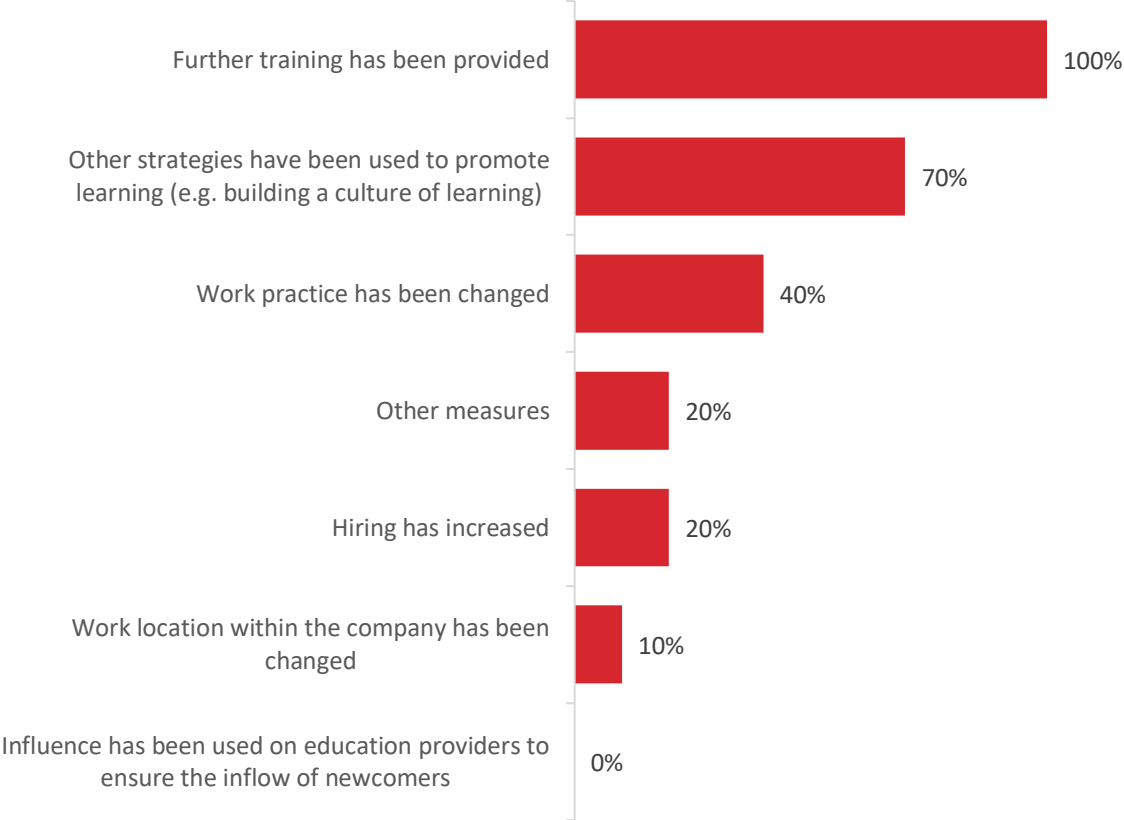
■ Yes ■ No ■ Does not apply to me



Source: CME.

If yes, what is being done to overcome the problem?

Picking up on the results from the previous question, we then asked the province’s heavy industry manufacturers to identify specific actions that have been taken to overcome the problem of skills gaps. All respondents said that they have provided further training, a logical response to the problem of skills shortages. In addition, 70% of participants said they have pursued other strategies besides training to promote learning. An example of such strategies includes building a culture of learning. This was the second most common response.

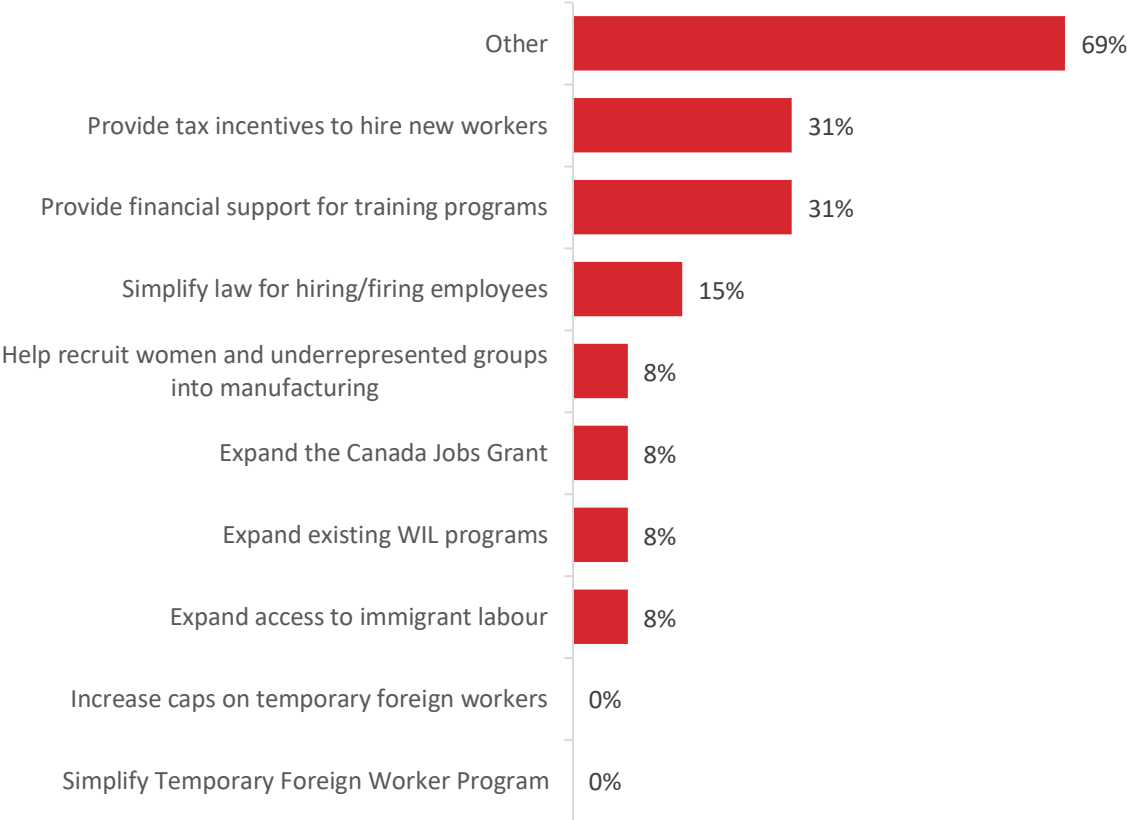


Source: CME.

What programs or policies would best help you address immediate labour and skills shortages?

While businesses have some ability to mitigate immediate labour and skills shortages, there is only so much they can do. Instead, the nature of this problem requires governments to take the lead on this economy-wide issue. The survey gave respondents nine specific policies or programs to choose from, but many preferred to write in their own preferred solutions. These write-in solutions included offering stronger incentives for investing in automation, thus reducing the need for labour. Other respondents suggested finding ways to attract people to smaller communities, while others stated that they currently have no issues with recruitment, so the question was moot.

Besides these solutions, nearly one-third of respondents suggested that governments should provide both tax incentives to hire new workers and financial support to help cover worker training expenses.

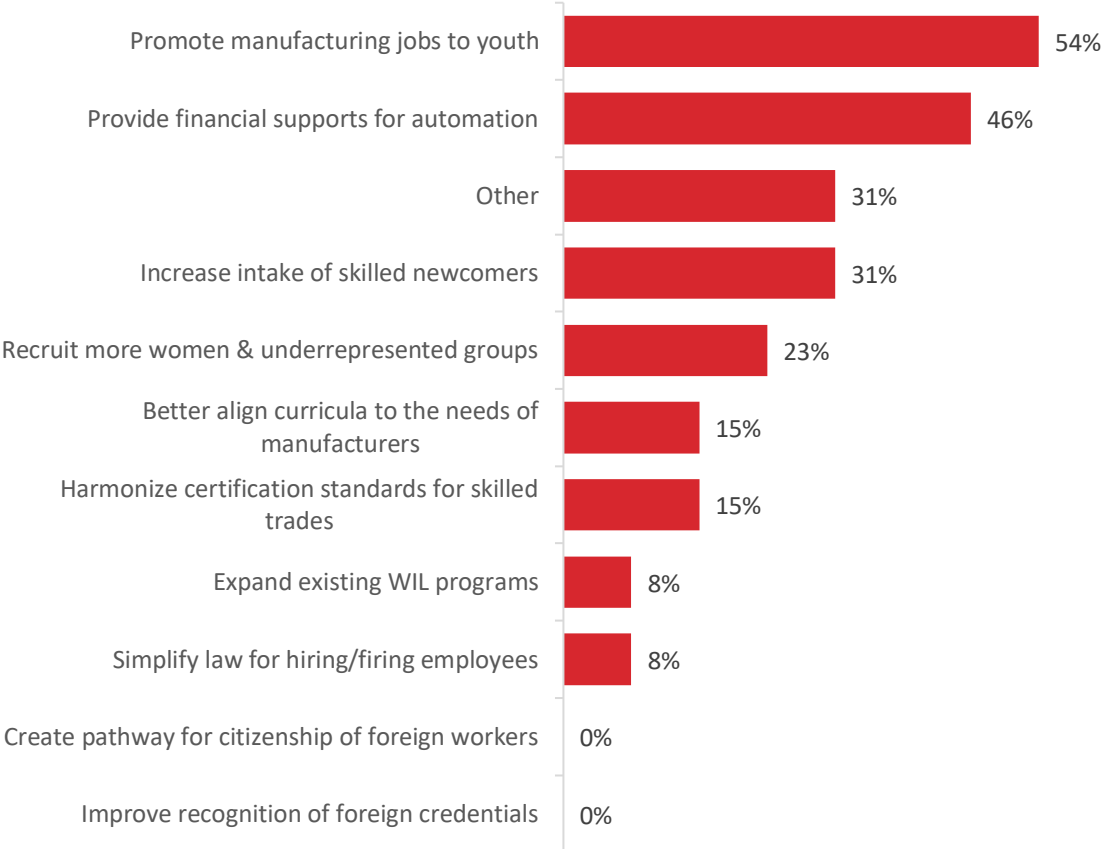


Source: CME.

CANADIAN MANUFACTURERS & EXPORTERS

What programs or policies would best help you address labour and skills shortages over the long term?

The same question was asked again but with a focus on finding ways to address long-term labour and skills shortages. When considering long-run solutions, over half of respondents would like policymakers do a better job of promoting manufacturing jobs to youth, thus increasing the pool of workers, while a little less than a half would like governments to provide financial supports to promote automation, thereby reducing labour needs.



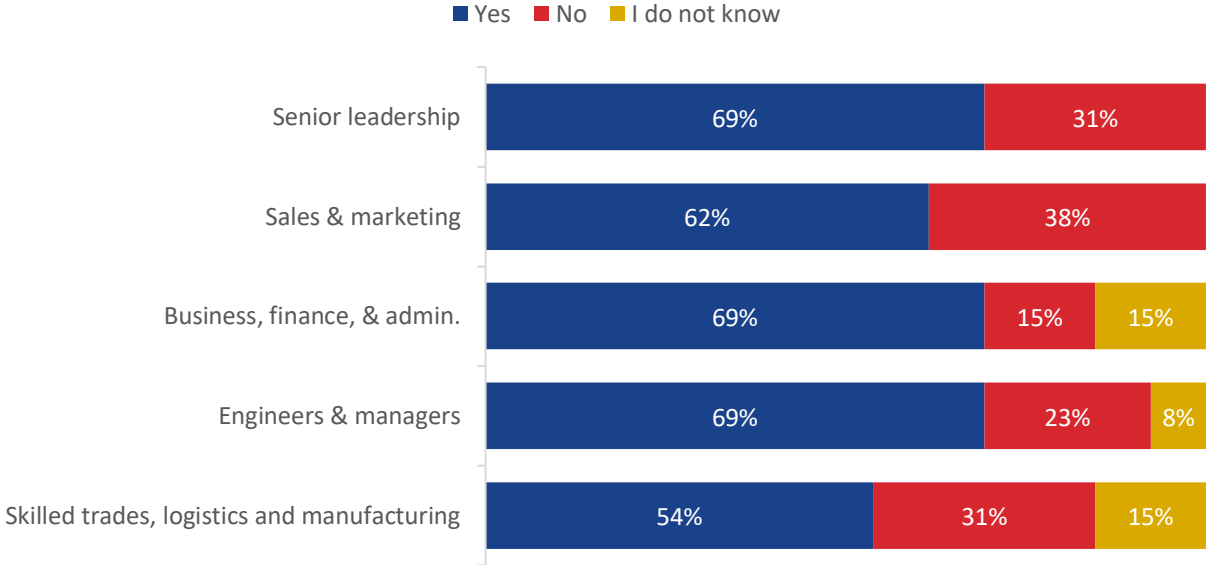
Source: CME.

WORKFORCE DEVELOPMENT

If skills gaps do exist, one avenue to help address them is through training and development. To gauge the industry’s efforts in this area, the next set of questions focused on workforce training and development.

During the past 12 months, have your employees participated in any training courses organized within or outside of the workplace and financed in whole or in part by the company?

The first question in this section asked heavy industry manufacturers if their employees had participated in any training courses financed in whole or in part by the company over the previous 12 months. For all five major occupational groups, more than half of survey participants answered in the affirmative. While over 60% said they had provided training to four occupational groups (senior leadership, sales and marketing, business, finance and administration, and engineers and managers), a somewhat smaller percentage (54%) said they had done the same for workers in the skilled trades, logistics and manufacturing occupational group.



Source: CME.

During the past 12 months, which areas did your company invest in training?

Digging deeper, we asked Alberta’s heavy industry manufacturers to identify what type of training their workers had received. For senior leadership, all had participated in both IT training and in diversity, inclusion and cultural competence training.

SENIOR LEADERSHIP



Source: CME.

CANADIAN MANUFACTURERS & EXPORTERS

Like senior managers, if sales and marketing staff had participated in training over the past year, then all had received IT training. Two-thirds of responding companies said that their employees in sales and marketing had also participated in training courses related to diversity, inclusion and cultural competence.

SALES & MARKETING



Source: CME.

CANADIAN MANUFACTURERS & EXPORTERS

Continuing with the pattern, all business, finance and administration workers received IT training during the past 12 months. For obvious reasons, all workers in this occupational group had also participated in training related to accounting and finance.

BUSINESS, FINANCE & ADMINISTRATION



Source: CME.

CANADIAN MANUFACTURERS & EXPORTERS

Like their company colleagues, all engineers and managers that participated in any training participated in training related to IT. A high share (83%) also participated in diversity, inclusion and cultural competence training and in training related to regulatory, customer or quality system compliance.

ENGINEERS & MANAGERS



Source: CME.

CANADIAN MANUFACTURERS & EXPORTERS

Finally, all skilled trades, logistics, and manufacturing workers that had received training over the past 12 months participated in environmental protection training and in IT training. At the same time, many of these workers (89%) also participated in training related to occupational health and safety.

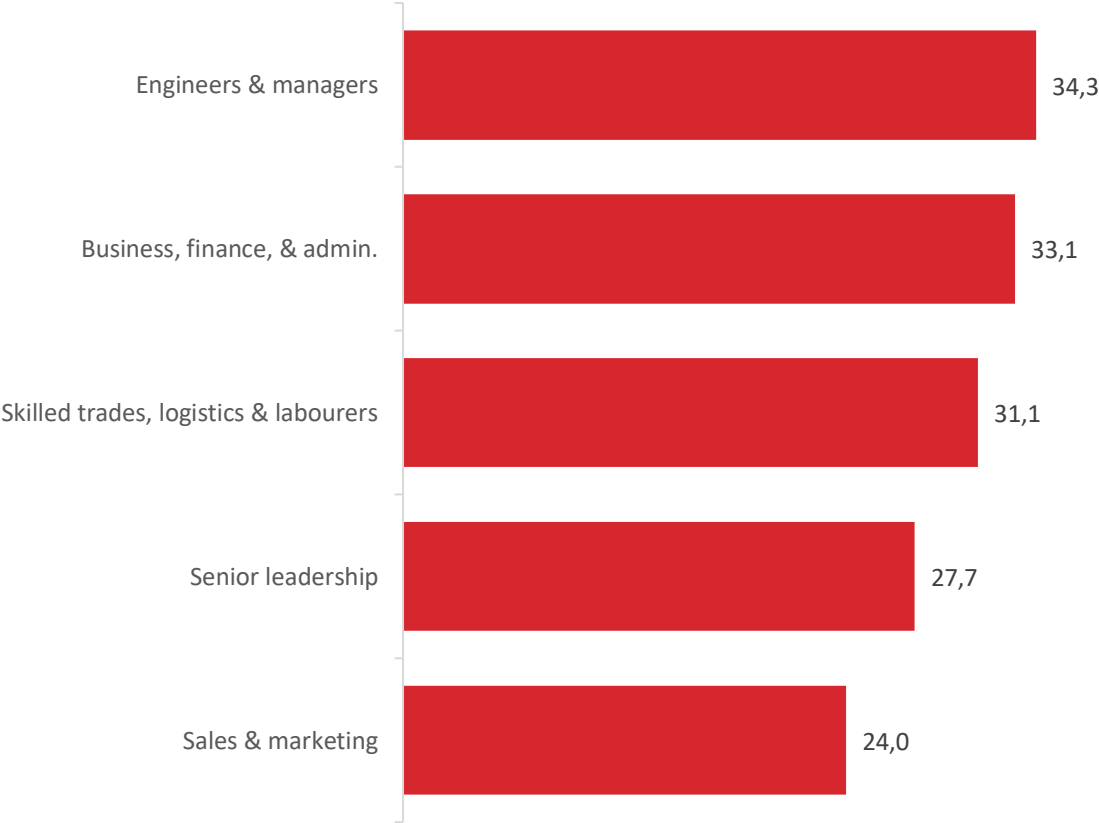
SKILLED TRADES, LOGISITCS & LABOURERS



Source: CME.

What is the average duration in hours of staff participation in training in a typical year in the following occupations?

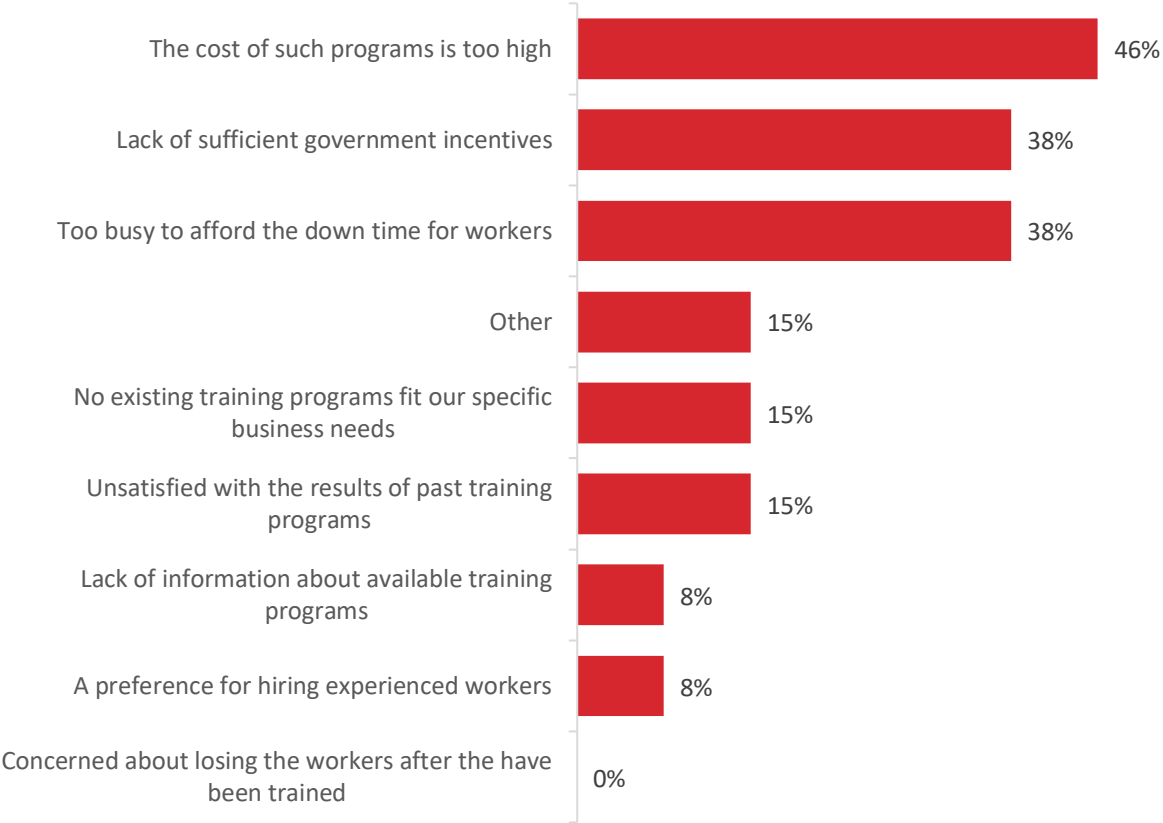
Now that we know a large share of workers participated in training over the past year, we also wanted to know the average duration of this training. Three of five of the five major occupational groups receive an average of more than 30 hours of training in any given year, led by an average of 34.3 hours for engineers and managers. This was followed by business, finance, and administration (33.1 hours) and skilled trades, logistics and labourers (31.1 hours). At the other end of the spectrum, two occupational groups receive less than 30 hours of training in a typical year: the average duration of training for senior leadership and sales and marketing came in at 27.7 hours and 24.0 hours, respectively.



Source: CME.

What are the main issues preventing your company from investing more in workforce training?

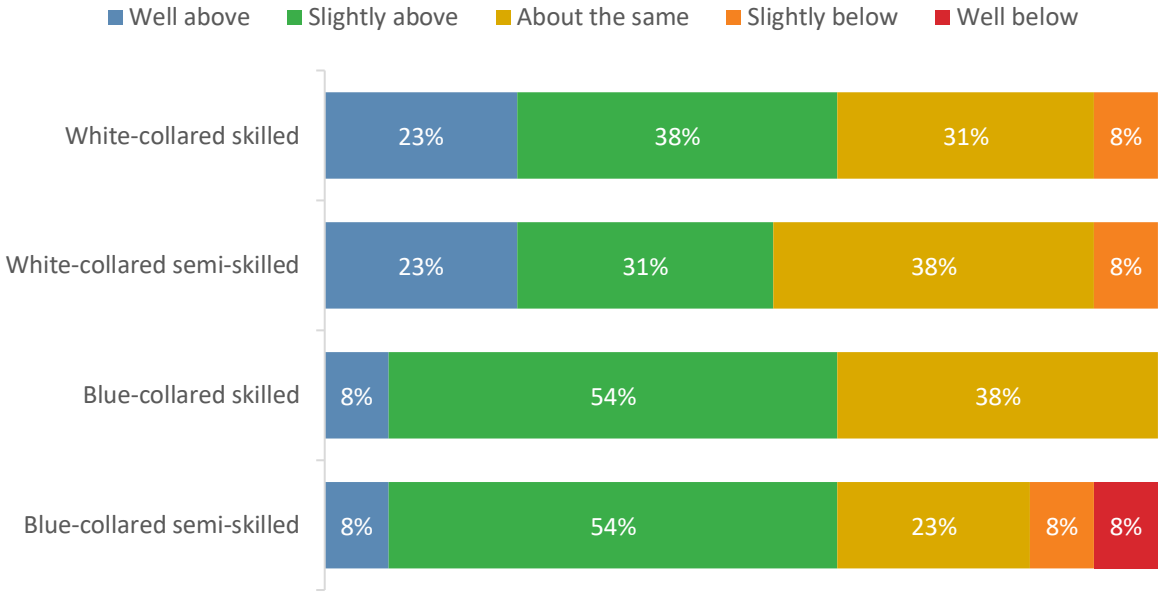
Most research indicates that Canadian organizations underinvest in training and development, owing to concerns over turnover and poaching. Given the wider societal benefits of upskilling the workforce, it follows that governments should provide financial assistance to firms to increase their training activities. In fact, this is exactly what Alberta’s heavy industry manufacturers recommend. When asked about the main issues preventing their company from investing more in workforce training, the two most common responses were that the cost of such programs was too high (46%) and that there was a lack of sufficient government incentives (38%). As well, 38% of respondents also said that they are too busy to afford the down time for workers, another key impediment to workforce training.



Source: CME.

Compared to other employers in the same sector, would you say that the pay and benefits you offer are above, below or about the same?

A company’s ability to retain staff is related to the pay and benefits that they offer. Accordingly, we asked survey participants to estimate whether their compensation packages were above, below or about the same as their competitors. For blue-collared skilled workers, all respondents believed that their pay and benefits were either equal to or above those offered by other employers in the sector. For white-collared skilled and semi-skilled workers, 92% of respondents believed that their total compensation package was at least equal to the industry average, with 8% saying that it was slightly below. Finally, for blue-collared semi-skilled workers, 85% rated their pay and benefits as at least comparable to their industry counterparts, while 16% rated their pay and benefits as below average.

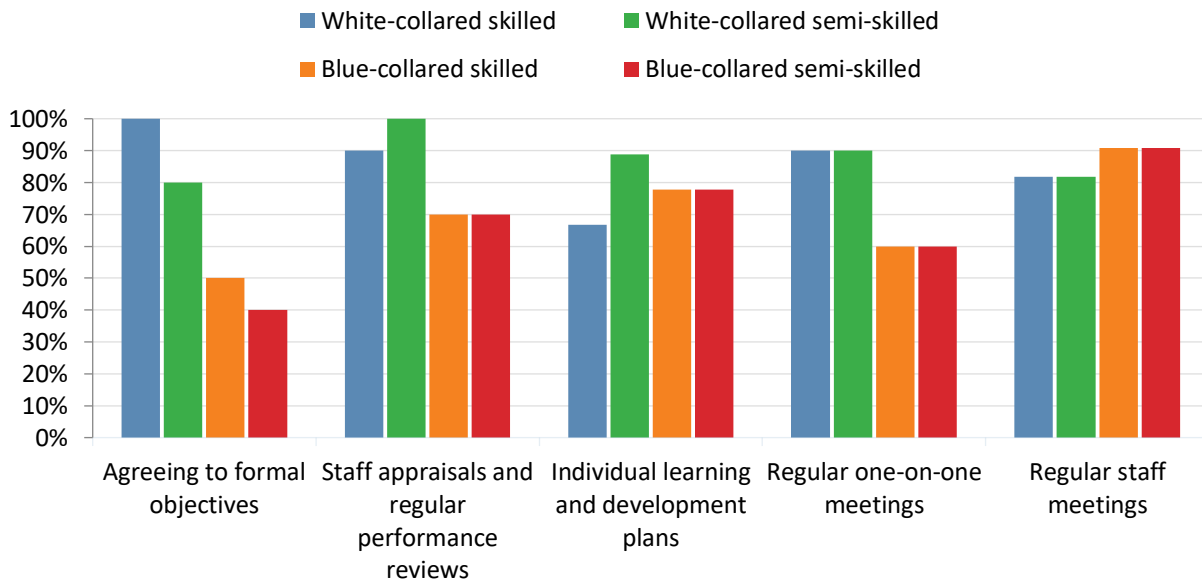


Source: CME.

Which, if any, of the following practices are used to manage performance in your workplace?

Most human resources experts tout the benefits of performance management strategies that are designed to ensure employees activities and output are aligned with the wider objectives of the business. The benefits of such strategies include boosting employee morale, increasing employee retention, and identifying the right employees for promotion.

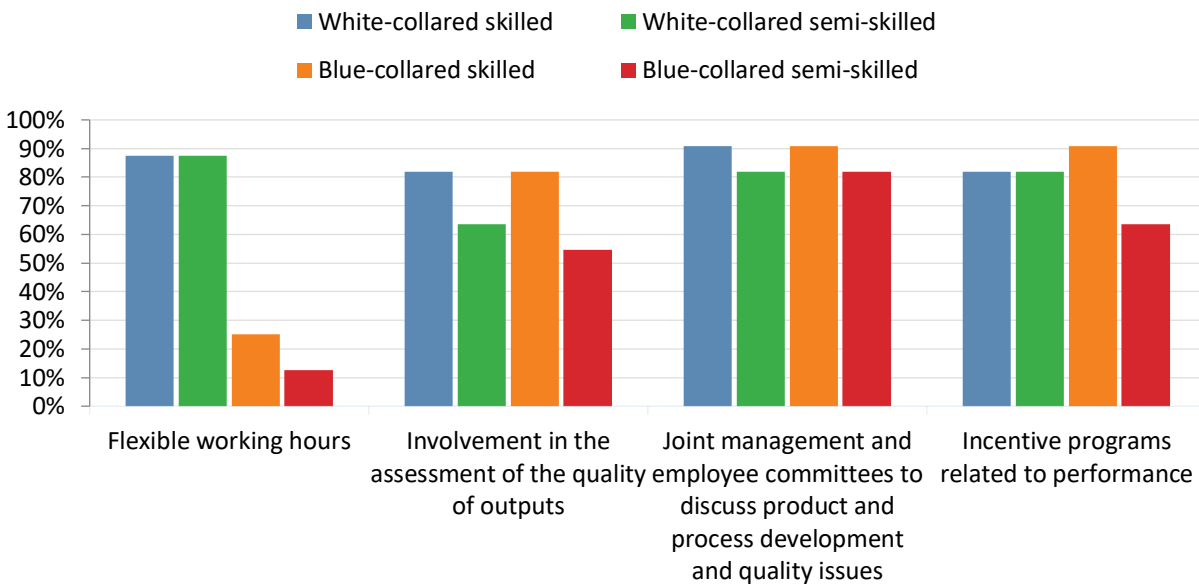
Given this context, we asked survey participants if their companies employed a series of performance management techniques. For white-collared workers, a large percentage of respondents said their companies used a wide array of procedures, including agreeing to formal objectives, regular performance reviews, and regular one-on-one meetings. For blue-collared workers, companies tended to focus on a smaller number of tactics such as individual learning and development plans and regular staff meetings.



Source: CME.

Which, if any, of the following arrangements are available in your workplace?

Along the same lines as the previous question, we also asked Alberta’s heavy industry manufacturers if they employed other common human resources management practices. A large share of respondents (88%) said that their white-collared workers enjoyed flexible working hours. At the same time, a similar proportion indicated that their blue-collared workers were involved in joint management and employee committees to discuss product and process development and quality issues. Finally, most respondents also said that they offered performance incentive programs, though fewer firms offered these to blue-collared semi-skilled workers.



Source: CME.

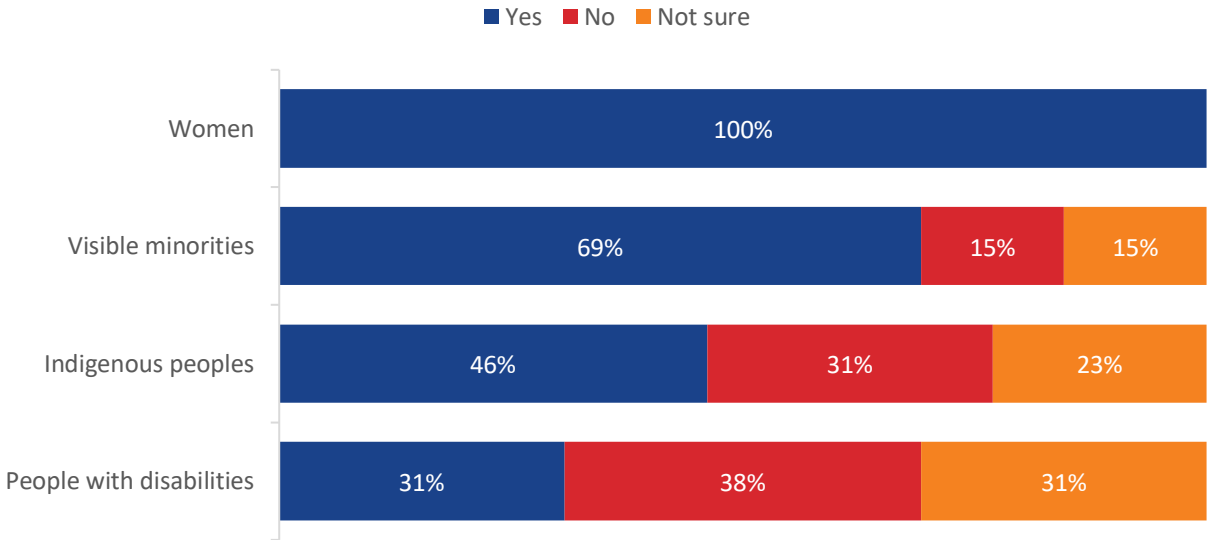
MAXIMIZING WORKFORCE TALENT AND DIVERSITY

An aging population is one of the key factors affecting the ability of businesses to attract and retain workers. Besides encouraging older workers to delay retirement, three other policies are available to help replenish the workforce: reskilling and upskilling the existing workforce, raising immigration levels, and increasing the labour market participation of underrepresented groups (women, Indigenous peoples, people with disabilities, and visible minorities).

To offset the effects of an aging population, Canada has been increasing its immigration targets in recent years. Given the twin trends of an aging population and rising immigration levels, immigration is expected to account for all of Canada’s net labour force growth between 2018 and 2040. This means that the country’s labour force will continue to become more culturally and ethnically diverse every year. Accordingly, attracting and hiring a diverse workforce will become an increasingly important strategy for recruiters and hiring managers. The last three questions of the survey explored this topic, with the goal of helping us determine whether Alberta’s heavy industry manufacturers are also taking steps to recruit or retain individuals from underrepresented groups.

Are any of the following individuals from these underrepresented groups currently employed at your company?

First, survey participants were asked if their current workforce included individuals from underrepresented groups. All respondents said that they had women on staff, close to 70% said that their workforce included visible minorities, while 46% of their workforce included Indigenous peoples.

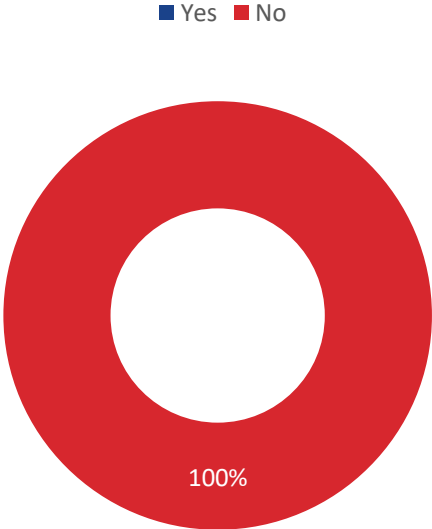


Source: CME.

On the other hand, less than one-third said that they had people with disabilities on staff. Unfortunately, people with disabilities often have difficulties accessing jobs in the manufacturing sector, especially for work that involves physical tasks.

Have you developed recruiting methods and advertised job positions that specifically target underrepresented groups?

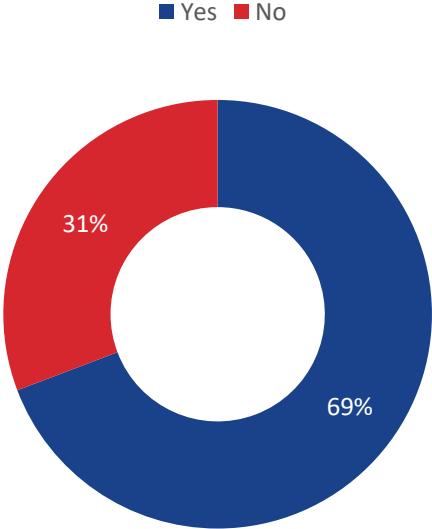
On the negative side, all respondents said that they have yet to develop recruiting methods and to advertise job positions that specifically target underrepresented groups.



Source: CME.

Does your leadership team include any individuals from underrepresented groups?

Finally, and more positively, close to 70% of Alberta’s heavy industry manufacturers said that their leadership team includes at least one individual from an underrepresented group.



Source: CME.

RECOMMENDATIONS

Recommendations to Alberta's Heavy Industry Manufacturers

Based on the survey findings and past CME and external research, we would make the following recommendations to Alberta's heavy industry manufacturers to help them address looming labour and skills shortages as well suggestions to boost company performance:

Expand efforts to attract underrepresented groups to manufacturing

Alberta's manufacturers stand to gain by recruiting more diverse workforces. Investing in integration, setting up inclusive workplaces, and offering specific training are critical steps to attract more workers from these groups. Along these lines, a concerted effort should be made to recruit and upskill Indigenous peoples, second career Canadians, and recent immigrants, as these groups tend to be most affected by cultural biases that prevent more active participation in the manufacturing workforce.

While more outreach to underrepresented groups is clearly needed, government support is an essential element to the success of these efforts. A successful case in point is CME's Women in Manufacturing (WIM) initiative, which launched in 2018 thanks to generous support from Women and Gender Equality Canada, the Government of Alberta, and private sector partners. Through the WIM program, CME launched the *We Can Do It!* campaign, aimed at increasing the number of women in manufacturing by 100,000 in five years. Continued support of this program and others like it would help us achieve this ambitious objective and much more.

Partner with industry groups to increase awareness about available business support programs

When asked to name their top priority, most of Alberta's heavy industry manufacturers cited the need to earn more customers and more revenue, while a smaller but still large percentage mentioned the need to earn higher value projects and higher margin work. This tells us that these companies are looking to grow and scale up their operations.

Fortunately, proven organizations have already developed programs that are focused on helping companies increase their sales in Canada and abroad. For example, NexXT Chapter has developed a Revenue Growth Model to help companies achieve many of these ends. Also, many local business groups in the province offer Trade Accelerator Programs to help small and medium-sized (SME) enterprises enter new global markets.

Along with these private sector solutions, the Government of Alberta also offers numerous business support programs, including the Alberta Export Expansion Program, to assist with company growth. However, previous CME surveys show that uptake of general government business support services is often disappointingly low. When companies are asked why they do not take advantage of such programs, their responses suggest that the main problems stem from low awareness, low relevance, and overly rigid eligibility requirements. This points to a clear need to improve the linkages between

government support programs and business needs. As a potential solution, private industry groups could have a role to play in helping businesses connect with government support programs.

Recommendations to the Government of Alberta

As already hinted above, the Government of Alberta has a big role to play in addressing the province's workforce challenges. Thus, we would also make the following recommendations to the provincial government as it seeks to build the workforce of the future:

Introduce a worker training tax credit

Although labour and skills shortages do not appear to be an immediate challenge, demographic trends suggest they will intensify in the coming years. According to those that responded to our survey, they would like to see more government support to help them address this issue.

The Canada-Alberta Job Grant—a program in which the government contributes two-thirds of the cost to a maximum of \$10,000 per trainee per fiscal year—is clearly part of the solution. However, these types of assistance programs have limits. It takes time and effort to apply for the grants, and after all this work, funding is not guaranteed. This can scare away some potential applicants, thus limiting the program's impact.

Another solution is to incentivize companies to upskill their workforce by introducing a worker training tax credit. This tax credit would be available to any company that invests in training, whether the training is conducted by the company itself or by a third party. A tax credit would have two advantages over a job grants scheme. First, it would be less administratively burdensome. Second, its applicability would be more universal, in the sense that the training covered by the credit would be more closely tied to company needs.

Refocus Alberta's education system to connect youth to manufacturing careers

Past survey results and research suggest that when it comes to Canada's educational system there is a gap between the skills needed and the skills taught, resulting in too many graduates entering the workforce unprepared for the jobs available to them. This includes the fact that not enough young Canadians appear to be choosing to pursue a career in manufacturing, largely because the education system puts a premium on university paths at the expense of skilled trades.

Accordingly, we believe that the education system must do more to expose students to all types of job possibilities available to them. At the primary level, this could be accomplished by actively promoting manufacturing as a viable option for a rewarding career. This could be expanded on at the high school level by bringing back shop classes, which would have the effect of providing vocational training for those who were interested in pursuing a trade upon graduation. Finally, at the post-secondary level, a greater emphasis could be placed on work-integrated learning (WIL), thus helping to ensure that students get valuable work experience and launch successful careers after graduation.

CONCLUSION

Alberta's heavy manufacturing industry has gone through some tough times in recent years, and this comes out clearly in the results of the Alberta Heavy Industry Manufacturing Labour Force Survey. Production capacity and employment are both down compared to 2013, mirroring the trends of official economic statistics. However, after the storm of successive negative events—collapsing oil prices, U.S. steel tariffs, and the COVID-19 pandemic—the survey results also bring rays of sunshine that promise better days ahead for the industry. Most responding companies expect output and employment to improve in the coming months, likely rooted in the expectation of a strong economic rebound as the pandemic fades.

With the industry shedding workers in recent years, it was not a surprise to find that few companies reported having issues with recruitment. While the apparent lack of labour and skills shortages may be perceived as good news, there is a danger of being lulled into a false sense of security. Given that baby boomers will continue to exit the workforce in large numbers, and that rising immigration levels will not be enough to fully offset this trend, labour and skills shortages are likely to rear their head in the coming years.

Thanks to the results of this survey, we now have a more comprehensive understanding of the industry's workforce composition as well as the common challenges and strategies related to recruitment, training and development, and diversity and inclusion. Hopefully, this survey will provide industry leaders and policymakers with a solid foundation to build upon to conduct additional analysis and to implement effective policies that both minimize the impact of population aging on Alberta's heavy industry sector and maximize the skills and employability of the province's workers.

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