State of Canada's Manufacturing Sector: A Map of the Manufacturing Workforce

MANUFACTURING**GPS**

July 2022

EXCELLENCE
IN MANUFACTURING
CONSORTIUM

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1. MANUFACTURINGGPS

Manufacturing was among the sectors most impacted by the pandemic, but also one of the sectors that has rebounded the most; employment is close to pre COVID-19 levels[1]. Over the past two years, some manufacturers saw the demand for their products evaporate overnight. Others saw their demand balloon. Many faced troubles in securing resources of machinery, materials and most importantly, labour.

Many manufacturers have already begun to plan for an economic recovery—or at least a return to normal. Many manufacturers that experienced significant declines are now ramping up to fill previously delayed demand. As such, accurate and timely data needs to be captured to understand this quickly evolving situation through its impact on the Canadian manufacturing sector's workforce.

As the road to recovery from the COVID-19 pandemic continues, Canadian manufacturers will have to fill vacancies left from both voluntary and involuntary turnover. However, Canadian manufacturers are struggling to fill these vacancies, which cause them to lose billions of dollars. Manufacturing data is revealing that 8 in 10 Canadian manufacturers faced an immediate labour and skills shortage before the COVID-19 pandemic. Now as production ramps up again, skilled labour may be that much harder to find.

According to a recent survey, manufacturers in Quebec alone have lost over $18 billion over the last 2 years because of labour shortages[2]. Employers, educators and government need timely and accurate information to address this situation.

1.1 The Ongoing Need for LMI

Labour market information (LMI) is key to the success of any industry. Workers need to know what work is available and what benefits are being offered by employers. Employers need to understand the supply of labour and current compensation rates by occupation. The Canadian manufacturing sector is no different; both workers and employers in the manufacturing sector need a cohesive source for all LMI, yet one that responds to the differing needs across sub-sectors and geographic manufacturing hubs.

In the past, the LMI available to the Canadian manufacturing sector was limited. Due to the mobility of labour from within and from outside Canada, and from one industry to another, manufacturers needed an LMI system that forecasted the supply and demand of the workforce from a pan-manufacturing perspective and accounts for competition for workers from other sectors. The sector needed a trusted source of more than traditional LMI, that also included HR benchmarks and other market information. To remain competitive in

[1] Statistics Canada (2020), "COVID-19 in Canada: A Six-month Update on Social and Economic Impacts"(Available HERE).

[2] The Manufacturiers & Exportateurs du Québec press release is available HERE.

a globalized market, manufacturers, workers, economic development agencies, governments, and other industry stakeholders needed better LMI.

The first stage of meeting this need was the creation of the ManufacturingGPS by the Excellence in Manufacturing Consortium (EMC). This unique platform was designed to collect and maintain LMI across the manufacturing sector, including 15 sub-sectors and over 50 manufacturing hubs. Between 2014 and 2017, ManufacturingGPS collected and reported on data for nine occupational groups provided by over 2,500 employers and by over 100 educational institutions. Through this platform, manufacturers, workers, economic development agencies, governments, and other industry stakeholders have accessed the critical LMI they needed.

Despite this success, the challenge to any LMI initiative is to maintain momentum. Over the succeeding few years, the numbers of employers providing data ebbed. And yet manufacturers, workers, economic development agencies, governments, and other industry stakeholders still demanded this information. It was time for the next stage of ManufacturingGPS: ensuring that ManufacturingGPS remains evergreen and responds to the ongoing need to support the manufacturing workforce.

Furthermore, employers needed to make informed decisions around skills development: How much should they be investing? Should they be investing in occupation-specific technical skills or foundational skills, such as literacy and numeracy? What kinds of training mechanisms should they be employing?

1.2 Renewing ManufacturingGPS

To renew efforts to meet the ongoing need for LMI data during this unprecedented time, EMC launched the 2020 ManufacturingGPS study, which surveyed companies across all manufacturing industries to collect data on:

- Labour market information (LMI) and HR benchmarks, such salaries/wages by occupation, number of staff by occupation, turnover rates; and
- Skills development, including experiences in training, preferences for financial and non-financial incentives, and various funding models that can encourage investment in training.

R.A. Malatest & Associated Ltd. (Malatest) assisted EMC in administering the survey to more than 700 manufacturing companies and reporting on the findings.

This report summarizes findings from the LMI and HR benchmarks arising from the 2021-22 ManufacturingGPS study. The report aims to communicate the current state of the Canadian manufacturing sector, including insights on current and future workforce and skills development [4].

[4] The report presents some findings on skills development, but the bulk of the findings on skills development are summarized under a separate cover.

2. SNAPSHOT OF CANADIAN MANUFACTURERS AND THEIR WORKFORCE

The 2021-22 ManufacturingGPS study collected data from a breadth of manufacturers and portrays a sound picture of what employers are experiencing with their workforce, albeit with some skews by region. It also provides a clearer picture of the manufacturing worker in terms of occupations and demographics, including how these factors may be changing due to the pandemic.

2.1 Geographic Distribution of Surveyed Companies

The 2021-22 ManufacturingGPS survey collected data from 942 manufacturers across Canada. Ontario was home to more than half of surveyed manufacturers (55%), followed by Alberta (10%), British Columbia (8%) and Quebec (8%) (Table 2). Compared to the population of manufacturers by province, some provinces were over-represented in this sample (for example, Ontario, New Brunswick, Nova Scotia, Saskatchewan, and Prince Edward Island), while others were under-represented (for instance, Quebec and British Columbia).

The data show that the Canadian manufacturing sector

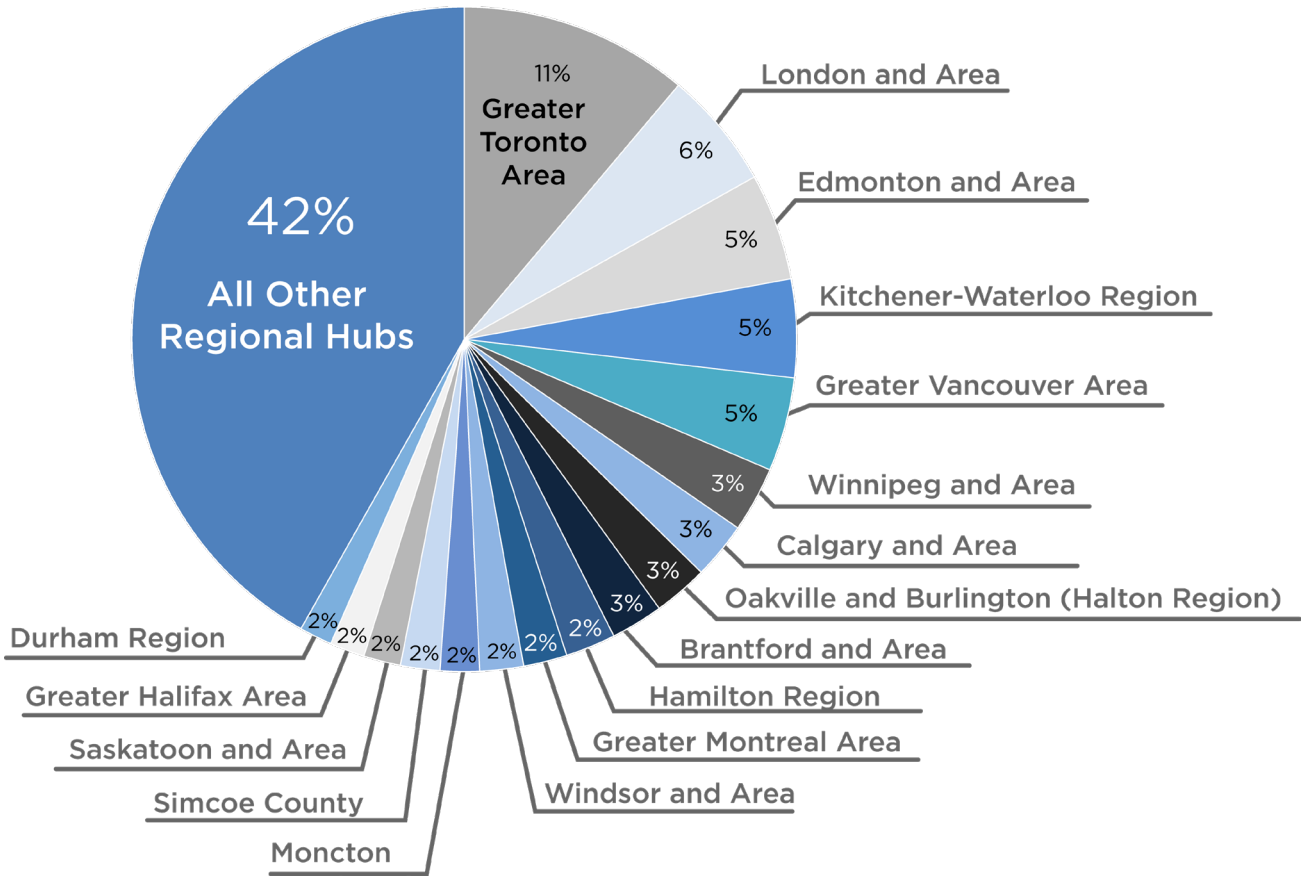
Table 2: Comparing ManufacturingGPS 2021-22 Sample to the Population by Province

	2021-22 ManufacturingGPS		Statistics Canada	
Province	**Count**	**Percent**	**Count**	**Percent**
Ontario	517	55%	19,744	39%
Alberta	94	10%	4,788	9%
British Columbia	80	8%	7,429	15%
Quebec	74	8%	13,616	27%
New Brunswick	43	5%	885	2%
Nova Scotia	41	4%	1,060	2%
Manitoba	36	4%	1,363	3%
Saskatchewan	31	3%	1,029	2%
Prince Edward Island	14	1%	241	0%
Newfoundland and Labrador	10	1%	383	1%
Yukon	2	0%	32	0%
Total	942	100%	50,596	100%

Source: 2021-22 ManufacturingGPS Study.
Source: Statistics Canada. Table 33-10-0493-01 Canadian Business Counts, with employees, December 2021 (Available **HERE**).

has a series of hubs that act as focal points for production. Surveyed manufacturers represented a total of 60 manufacturing hubs across Canada, including large ones such as Greater Toronto Area (which accounts for more than 10% of the sample), London and Area (6%), or Edmonton and Area (5%).

Figure 1: Manufacturing hubs across Canada



Source: 2021-22 ManufacturingGPS Study. n=942

2.2 Subsector Representation

Manufacturers that participated in the 2021-22 ManufacturingGPS were asked to select the subsector that most accurately reflected their manufacturing activities (from a list of 15 subsectors). The top three represented subsectors included: i) fabricated metal (20%); ii) food, beverage and tobacco (11%); and iii) machinery (8%) (Table 3). Surveyed manufacturers fairly represented all the subsectors in the manufacturing sector relative to the population distribution of manufacturing businesses (as of December 2021).

Table 3: Comparing ManufacturingGPS 2021-22 sample to the population by subsector

	2020 ManufacturingGPS		Statistics Canada	
Subsector	**Count**	**Percent**	**Count**	**Percent**
Fabricated metal	188	20%	7,627	15%
Food, beverage & tobacco	101	11%	8,263	16%
Machinery	74	8%	4,576	9%
Plastics & rubber	60	6%	2,036	4%
Wood & paper	49	5%	3,750	7%
Motor vehicle & parts	43	5%	Unknown[5]	Unknown[5]
Printing	41	4%	3,169	6%
Textiles, clothing & leather	30	3%	2,215	4%
Chemical, petroleum & coal	30	3%	2,504	5%
Furniture	26	3%	3,863	8%
Aerospace	20	2%	Unknown[6]	Unknown[6]
Primary metal	18	2%	548	1%
Computer & appliances	9	1%	1,541	3%
Non-metallic mineral	7	1%	2,155	4%
Miscellaneous	246	26%	5,278	10%
Total	942	100%	50,596	100%

Source: 2021-22 ManufacturingGPS Study.
Source: Statistics Canada. Table 33-10-0493-01 Canadian Business Counts, with employees, December 2021 (Available **HERE**)

2.3 Workforce Demographics

Almost half of workers (48%) in the manufacturing sector have completed post-secondary education (Figure 2). Females represented just over a quarter of the manufacturing workforce (27%). Almost one tenth of the manufacturing workforce (9%) were foreign trained professionals, and 6% were immigrants that landed in Canada within the last five years. Persons with disabilities and Indigenous peoples represented smaller proportions (2%) of the workforce in the manufacturing sector.

Based on previous data collected for ManufacturingGPS, more workers in the manufacturing workforce were members of visible minorities in 2021, as compared to 2020 (Figure 2).

[5] Population counts of Canadian manufacturing businesses in this subsector were not available in Statistics Canada data (Table 33-10-0493-01).
[6] Population counts of Canadian manufacturing businesses in this subsector were not available in Statistics Canada data (Table 33-10-0493-01).

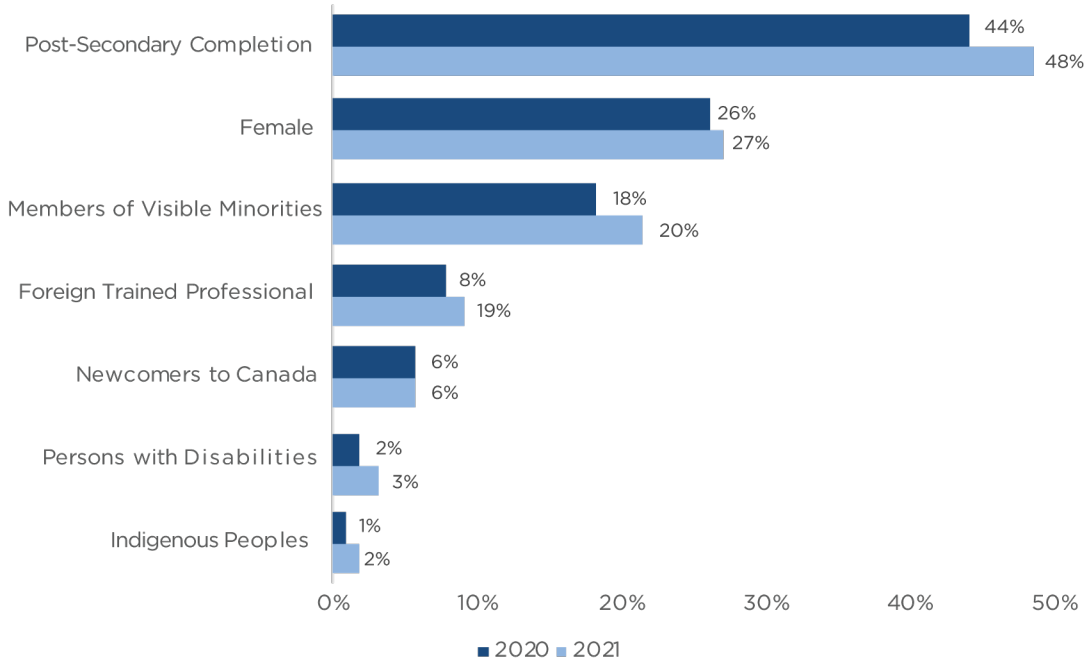
2.4 Occupational Groups

Manufacturers were asked which occupational groups they employed. Figure 3 demonstrates that 83% of manufacturers employ people in a shipping and receiving capacity. Other commonly employed groups include:

- Production machine operators and assemblers (84%);
- Production managers (82%); and
- Production labourers (85%).

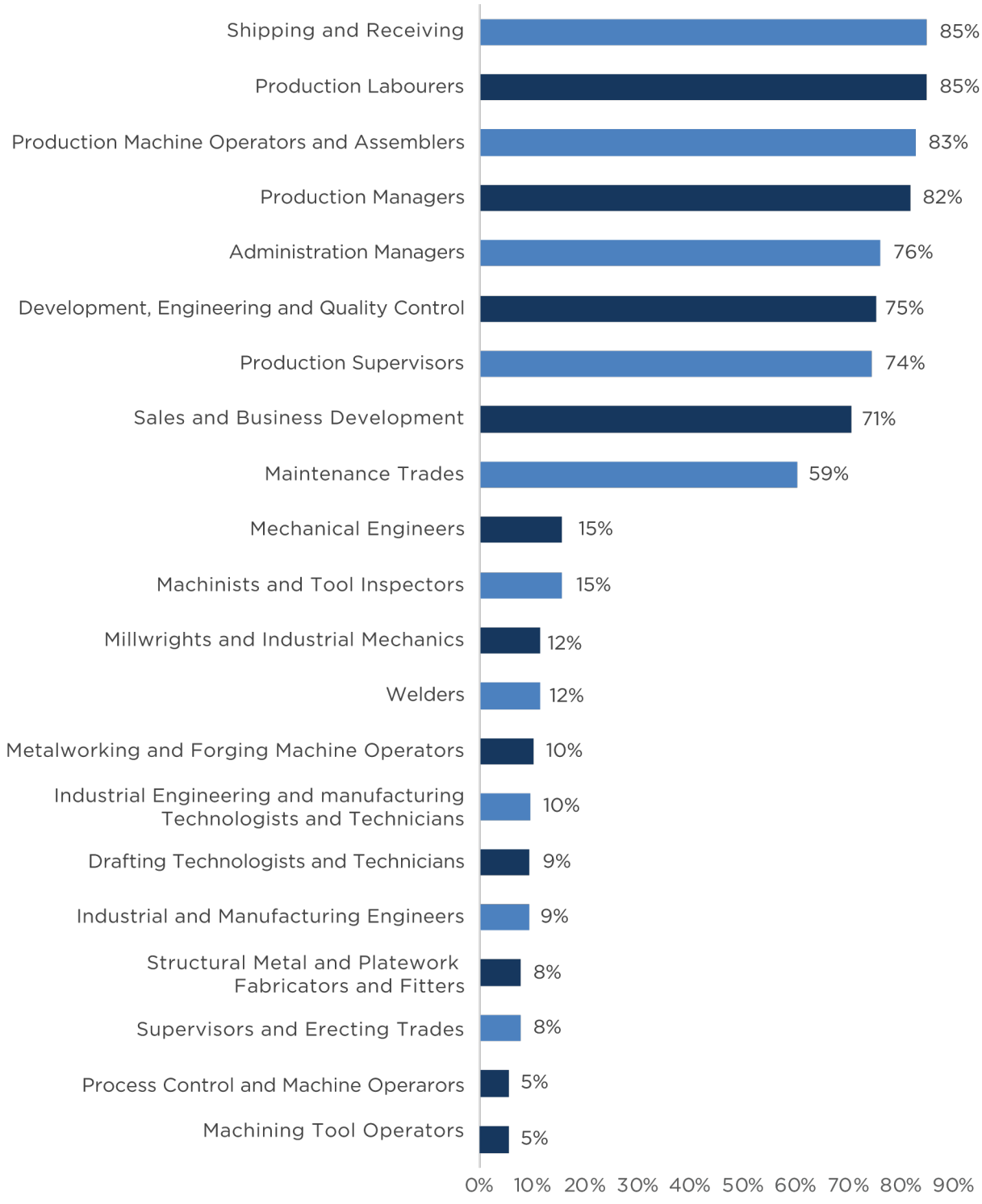
Canada' manufacturing sector also commonly employed administration managers (found in 76% of Canadian manufacturers) and Development, Engineering and Quality control professionals (75%).

Figure 2: Manufacturing workforce demographic characteristics (Percent of FTEs)



Source: ManufacturingGPS Surveys 2020 and 2021.

Figure 3: Occupational groups (percent of employers employing people in these capacities)



Source: 2021-22 ManufacturingGPS Study. n=942

3. WAGES AND SALARIES

As the consequences of the pandemic were becoming evident by the end of the first quarter of 2021, it is interesting to examine the impact on workers' wages and salaries. The data suggest that salaries will grow, but at a slower rate than before the pandemic, and unequally across Canada.

3.1 Average Salaries

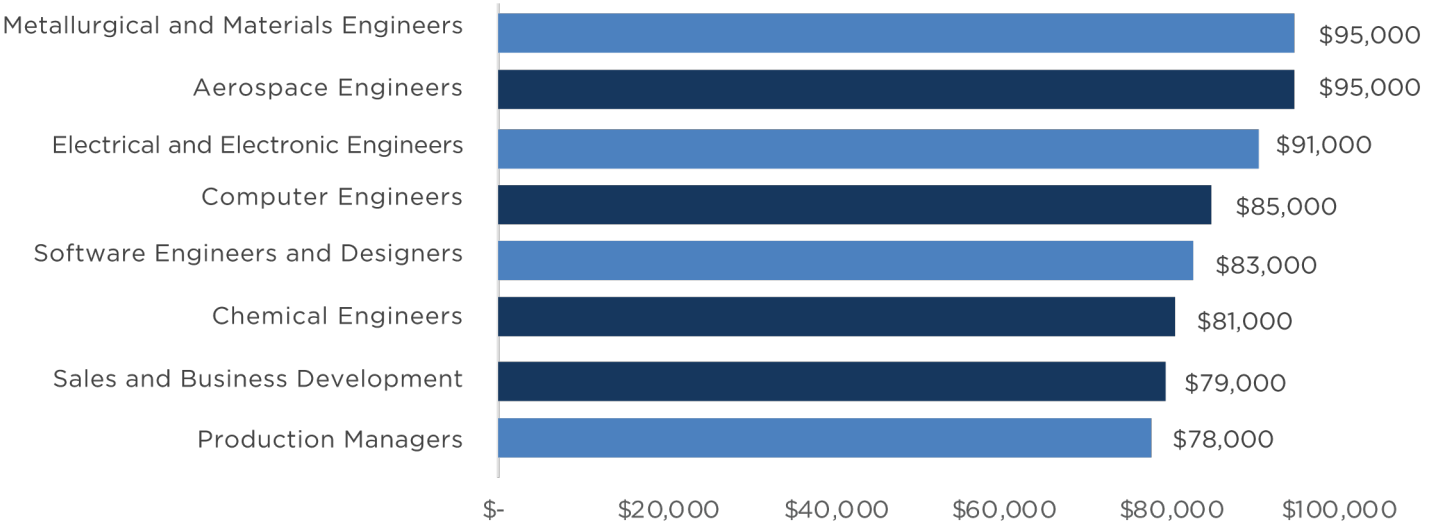
Average annual salaries vary widely across the most common occupations in the Canada manufacturing sector, ranging from $42,000 for labourers to almost $95,000 for highly skilled professionals (for a full listing of all occupations' average annual salary, see Appendix A). [7]

The most common occupations in Canada's manufacturing sector are not necessary the highest paying; the highest paying positions are niche occupations, particularly various branches of engineering (Figure 4).

3.2 Expected Increases in Wages

Wages normally grow over time to reflect productivity growth or to adjust to inflation. However, during times of economic turmoil, such as experienced during the global pandemic, wage cuts and wage freezes are often implemented. As the economy recovers progressively, manufacturers expect wages to increase again. One in ten of surveyed manufacturers (11%), a quarter of

Figure 4: Top paying occupations in manufacturing [8]



Source: 2021-22 ManufacturingGPS Study. n=942

[7] Respondents could provide hourly wage or annual salary. Where hourly wage was provided, the amount was converted into annual salary, at 40 hours a week for 52 weeks a year.

[8] Although, the number of observations for each of the reported occupation is low, these average salaries together speak to a common trend in the manufacturing sector.

surveyed manufacturers (25%) expected that wages would not change in 2022, and none expected that wages would decrease. By way of comparison, a quarter of manufacturers surveyed in 2020 expected wage freezes in 2021 and less than 1% expected a decrease (Table 4).

The majority of surveyed manufacturers (80%) expected that wages would increase, including 34% of surveyed manufacturers expecting wages to increase between 2 and 2.9%.

The expectations around wage stagnation and increases vary somewhat across the country. In Western Canada, significantly more employers were expecting wages to not change (17%) as compared to employers in Ontario (10%). Quebec appears to be the region where wages may be expected to rise the most, with over 70% of respondents expecting wages to rise more than 2%.

Table 4: Expected Wage Increases in 2022

Increase	Percent of Surveyed Businesses 2021						Percent of Surveyed Businesses 2020
	Canada	East	Ontario	Quebec	West	North	
Decrease	0.0%[9]	0.0%[9]	0.0% [9]	0.0% [9]	0.0% [9]	0.0% [9]	<1%
0% (No change)	11%	10%a,b	10%a	8%a,b	17%b	0.0% [9]	25%
1% - 1.9%	14%	20%a	12%a	16%a	14%a	0.0% [9]	25%
2% - 2.9%	29%	34%a,b	29%a,b	43%a	24%b	50%a,b	28%
3% - 3.9%	16%	12%a	17%a	15%a	15%a	0.0% [9]	9%
4% - 4.9%	6%	3%a	8%a	4%a	5%a	0.0% [9]	3%
5% - 5.9%	8%	7%a	7%a	5%a	10%a	0.0% [9]	2%
6% or higher	7%	7%a	7%a	4%a	9%a	0.0% [9]	1%
Don't know/No Response	9%	7%a,b	11%a,b	4%a	7%a,b	50%b	7%
Total	100%	100%	100%	100%	100%	100%	100%

Note: Values in the same row and sub-table not sharing the same subscript are significantly different at p< 0.05 in the two-sided test of equality for column proportions. Cells with no subscript are not included in the test. Tests assume equal variances.

[9] This category is not used in comparisons because its column proportion is equal to zero or one.

Source: ManufacturingGPS Surveys 2021-22 (n=942) and 2020 (n=748).

4. HIRING AND RECRUITMENT

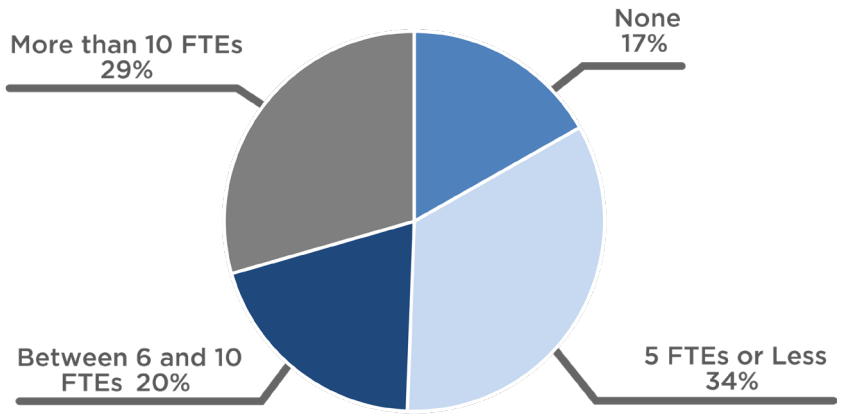
As the road to recovery from the COVID-19 pandemic continues, Canadian manufacturers will have to fill positions that became vacant owing to both voluntary and involuntary turnover. Although some occupations will be hired in greater numbers than others, the data suggest that the manufacturing sector is poised to rebound with significant hiring across many occupational groups in 2022. However, manufacturers will face challenges to fill these vacancies owing to various reasons, including labour shortage or lack of skills required for the job.

4.1 Hiring Expectations

Based on the data, Canadian manufacturers are expecting to hire a wide range of occupational groups, from production labourers to managers. Surveyed businesses were asked how many employees they were expecting to hire in the next 12 months for each of the occupation groups. Overall, results suggest that Canada's manufacturing sector expects considerable hiring as the sector and the entire economy rebound. For instance, less than one fifth of manufacturers (17%) did not expect to hire in 2022, whereas a quarter expected to hire more than 10 FTEs (Figure 5).

In total, the 942 responding manufacturers expect to hire 12,500 FTEs in the next 12 months, which represents an average of 12 FTEs per manufacturer. When extrapolated out to the 51,000 Canadian manufacturers , the ManufacturingGPS 2021-22 study estimates that the sector will be adding hundreds of thousands of jobs in 2022. The data suggest that more than half of these hires (55%) will occur in Ontario (Figure 6).

Figure 5: Manufacturers' hiring expectations - All occupations combined

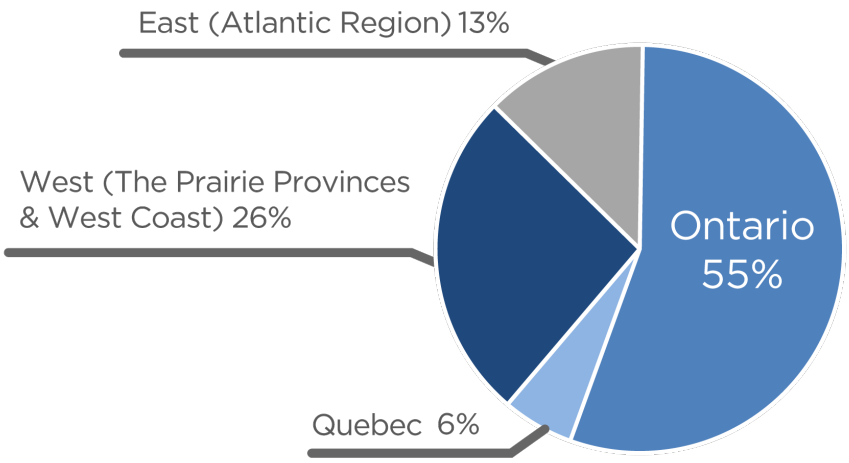


Source: 2021-22 ManufacturingGPS Study. n=942

Given that around 1.6 million Canadians are estimated to work in the sector, suggesting that manufacturers will add that many jobs in one year alone may be an over-estimation. Still, based on the data, Canadian manufacturers may be expecting a rebound and are expecting to hire or at least hire back a significant number of workers to support it.

Results also suggest that expected hires will vary by task, occupational skill level, and sub-sector. Specifically, occupations requiring low level of education (such as production labourers, machine operators and assemblers, and those in shipping and receiving) will make up a more significant portion of the hiring than occupations requiring medium to high level of education (such as production managers and production supervisors). For instance, the data suggest that as many as 211,000 production labourers and almost 167,000 production machine operators and assemblers may be hired (Figure 7). The data also suggest that most of the jobs will be created in two sub-sectors, namely food, beverage, and tobacco (169,000 FTEs) and fabricated metal (91,000 FTEs) (Figure 8). Although again, these estimates may overstate the true numbers, they hint at the potential scale and nature of hiring in 2022 (see Appendix B for the number of expected hires

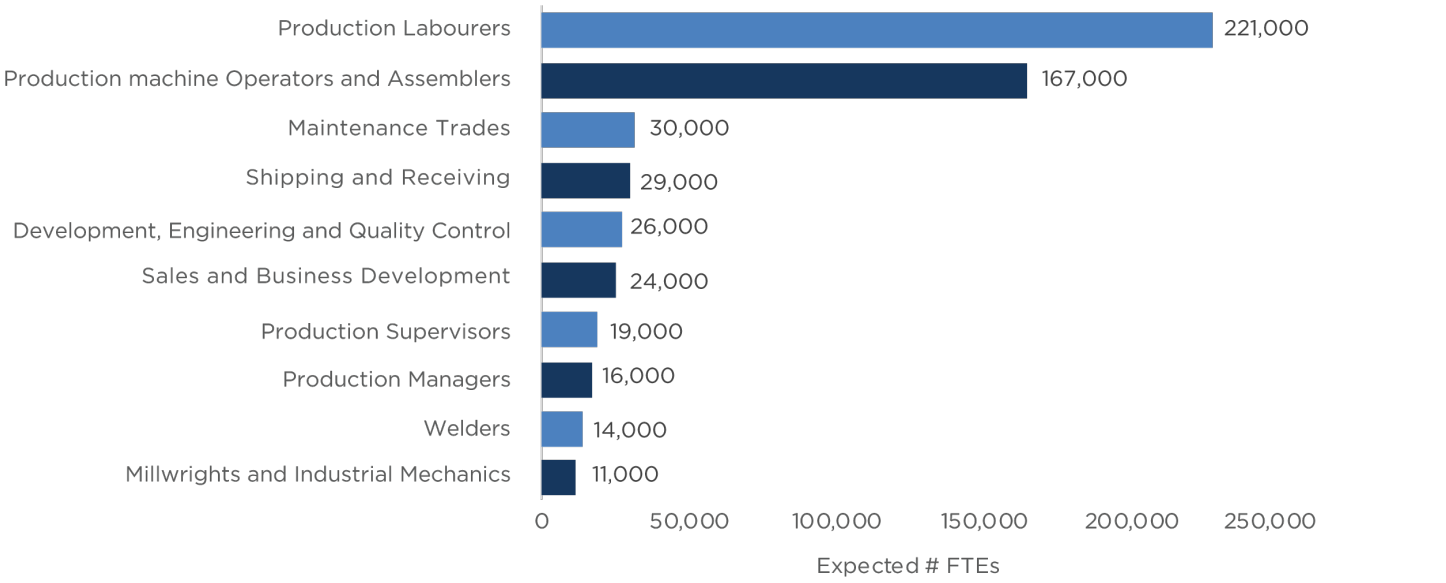
Figure 6: Expected hires in 2022 by region (shares of the estimated total) - extrapolated to the population of manufacturers, percent of the total FTEs



Source: 2021-22 ManufacturingGPS Study. n=942

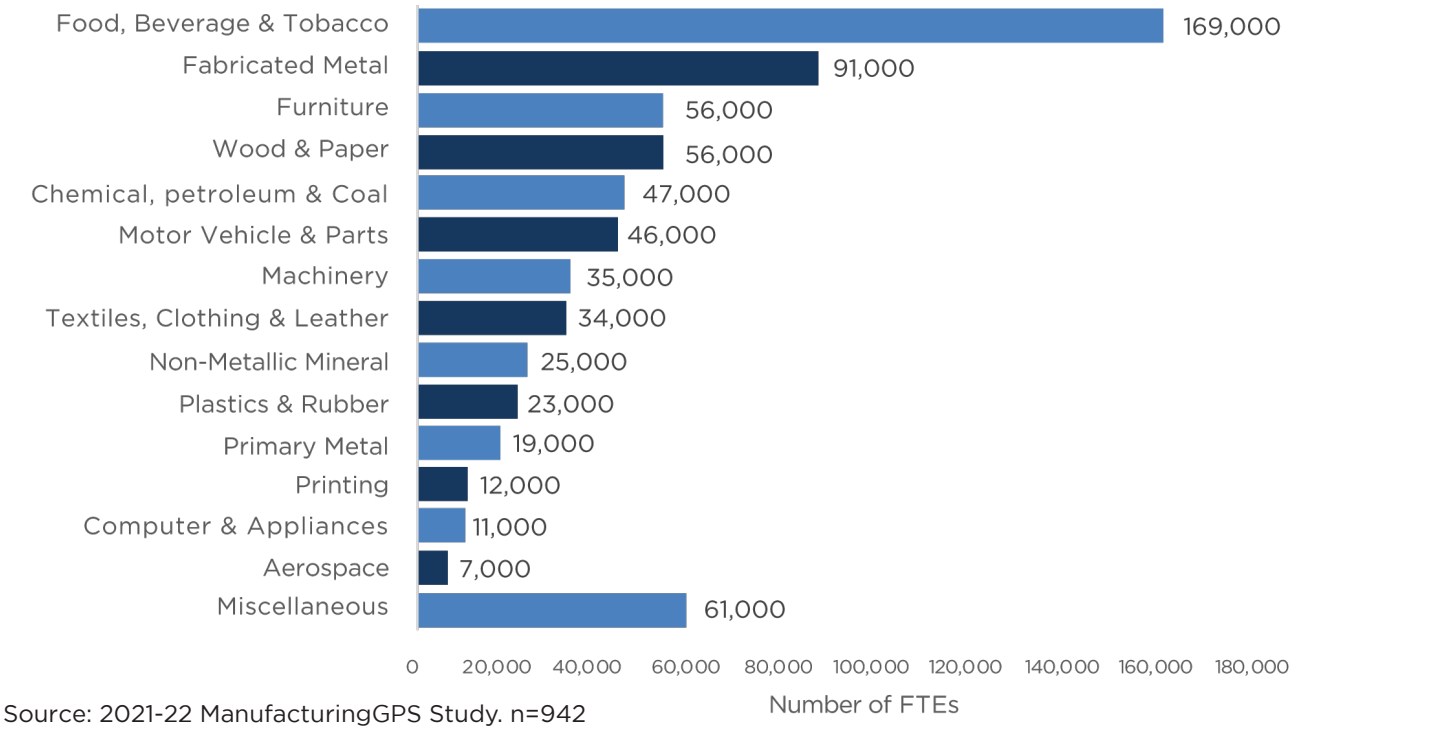
for all occupations). Finally, more than half of manufacturers expected to hire high school, college, university, co-op, or internship students in the next 12 months, perhaps as way to expand their workforce in times of economic recovery.

Figure 7: Top 10 occupations expecting to hire in 2022 – Extrapolated to the population of manufacturers



Source: 2021-22 ManufacturingGPS Study. n=942

Figure 8: Expected hires in 2022 by subsector – Extrapolated to the population of manufacturers



Source: 2021-22 ManufacturingGPS Study. n=942

4.2 Hard-To-Fill Vacancies

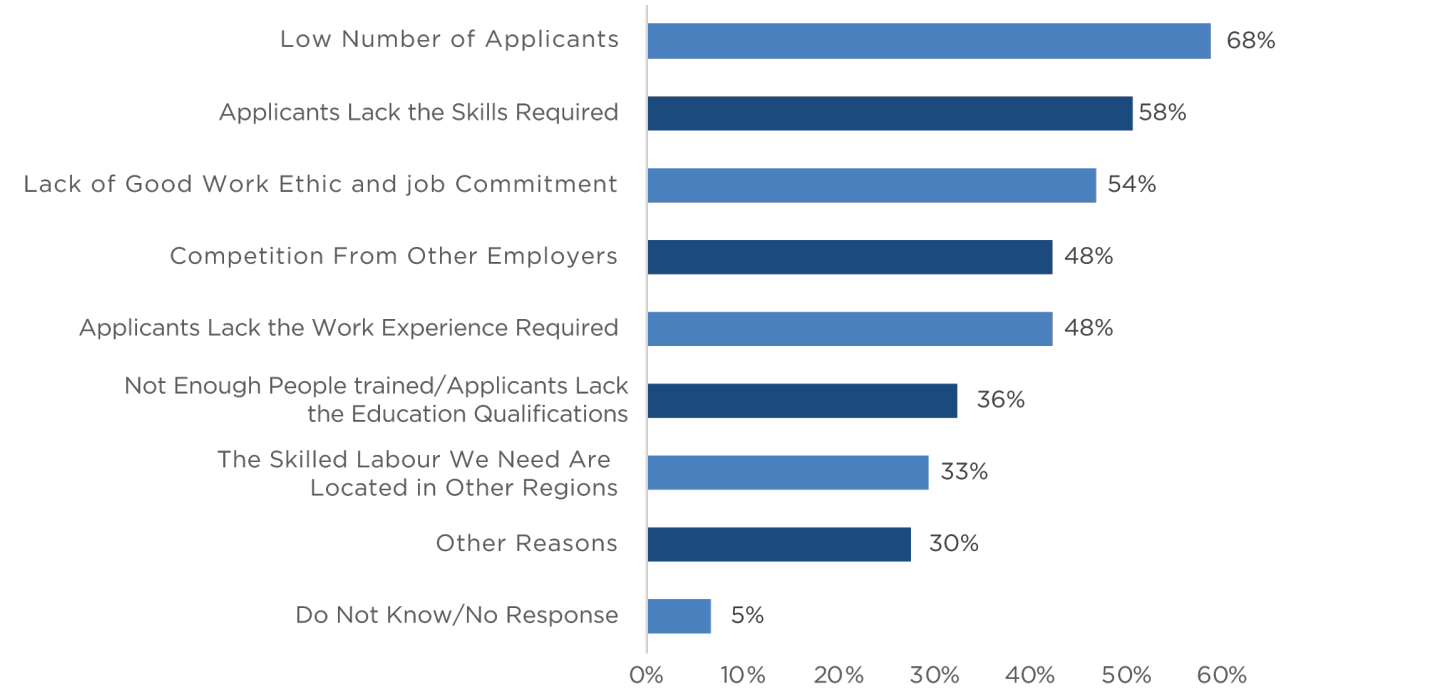
But the path to filing these positions will not be easy. Filling vacancies can be a challenge for many reasons, some related to the labour demand side (for example, types of roles to be hired, size of the hiring company, competition from other employers), and other related to the labour supply side (for example, shortage of qualified applicants). Surveyed manufacturers provided insights into the demand and supply causes of hard-to-fill vacancies.

Most causes pertained to the labour supply side, such as applicants' skills, such as low number of applicants, applicants' skills (Figure 9). For instance, 58% of respondents indicated that applicants lack the skills required and 68% indicated that they are seeing a low number of applicants.

And it is not just technical skills that can cause hard-to-fill vacancies. The third most commonly cited response was applicants lacking a good work ethic and job commitment.

On the labour demand side, Almost half of manufacturers (48%) indicated that some vacancies are hard to fill because of competition from other employers, which can be within Canada' s

Figure 9: Causes of hard-to-fill vacancies[10]



Source: 2021-22 ManufacturingGPS Study. n=942

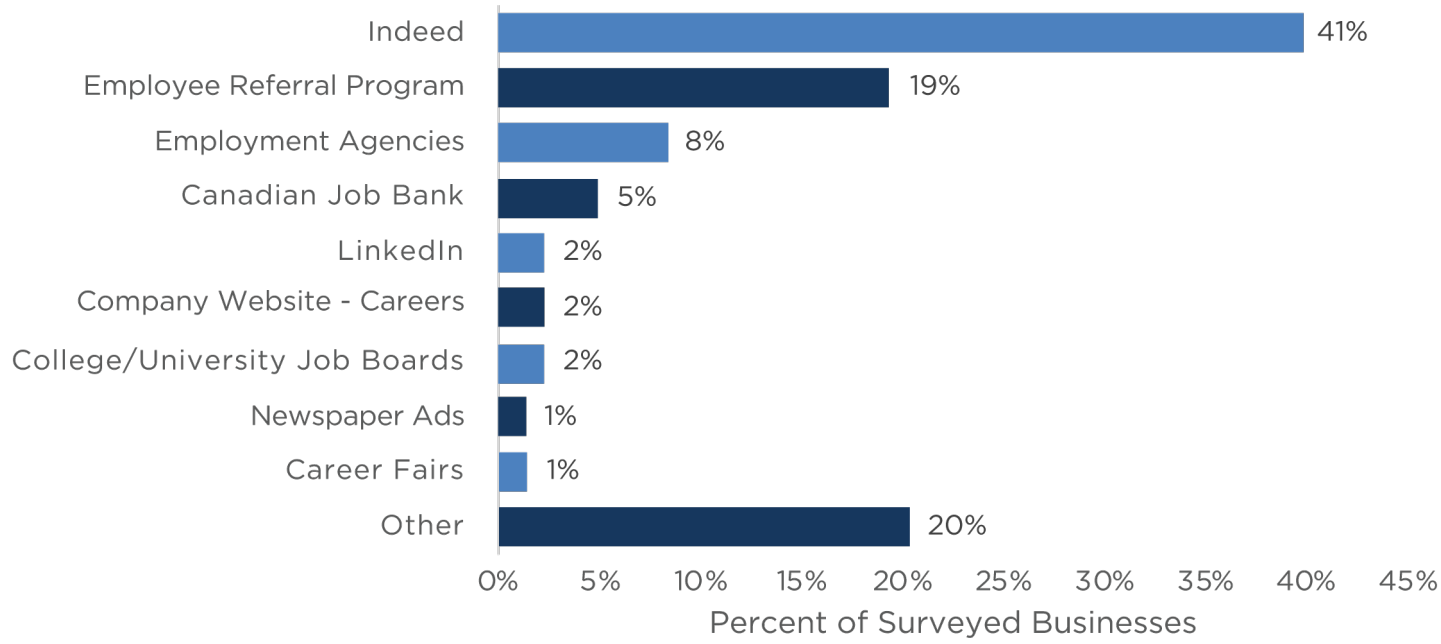
[10] Manufacturers who selected "Other reasons" (18%) we asked to specify the other(s) cause(s) of hard-to-fill vacancies. This gives an opportunity to code the open answers up to pre-listed or into new causes, should the open answers be available in the dataset.

manufacturing sector or from other sectors of the Canadian economy.

4.3 Recruitment Methods

Manufacturers provided insights into successful recruitment methods they employ when advertising job vacancies. Four in 10 manufactures (41%) indicated that they successfully advertised job vacancies on the Indeed online job board, making it the most common successful recruitment method, far ahead of employee referral program (19%), employment agencies (8%), and Job bank (5%), another online job board (Figure 10) [11]. Traditional methods of posting jobs (for example newspaper ads, career fairs, and college/university job boards) were less commonly viewed as being much less successful (15% to 2 %).

Figure 10: Most successful recruitment methods [12]



Source: 2021-22 ManufacturingGPS Study. n=942

[11] These statistics are not the percent of new hires from these sources, nor the percent of employers using these sources. They represent the percent of employers that see these sources as being successful.

[12] Manufacturers who selected "Other" (20%) we asked to specify the other(s) most successful recruitment method(s). This gives an opportunity to code the open answers up to pre-listed or into new recruitment methods, should the open answers be available in the dataset.

5. SKILLS DEVELOPMENT

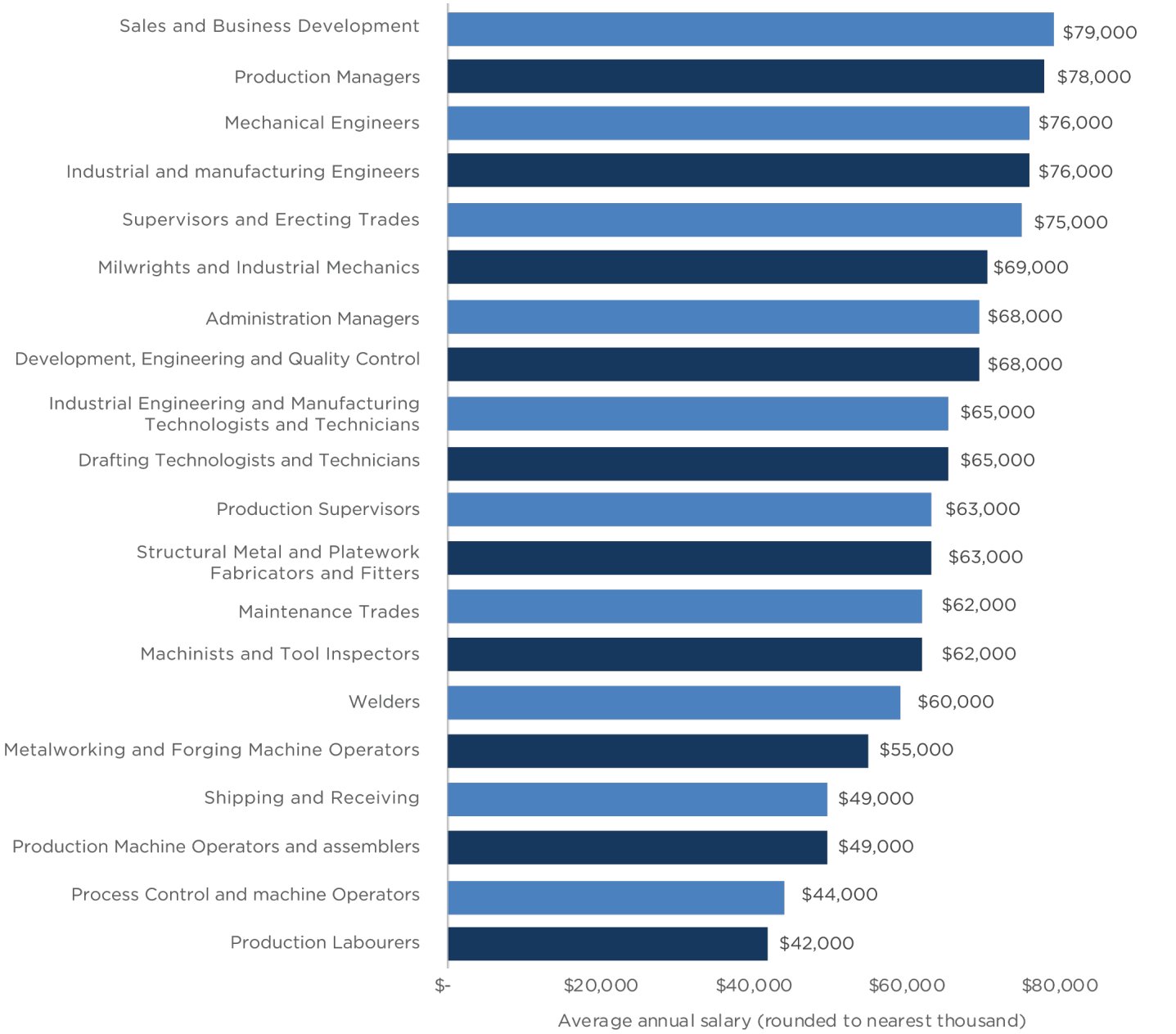
Skills development can be an investment employers can leverage to increase their workers' productivity and safety. Although almost two thirds of manufacturers (65%) invested in developing their employees' skills over the past 12 months, this practice is slightly less common now than it was in 2020 (67%), perhaps as a result of the pandemic (Table 5).

Table 5: Spending on skills development activities per employee over the past 12 months

SPENDING RANGE	2021	2020
$0	22%	21%
Net spending	65%	67%
$1 - $250	24%	26%
$251 - $500	17%	15%
$501 - $750	6%	7%
$751 - $1,000	6%	6%
$1,001 - $1,500	3%	4%
$1500+	9%	9%
Don't know/No Response	13%	12%
Total	**100%**	**100%**

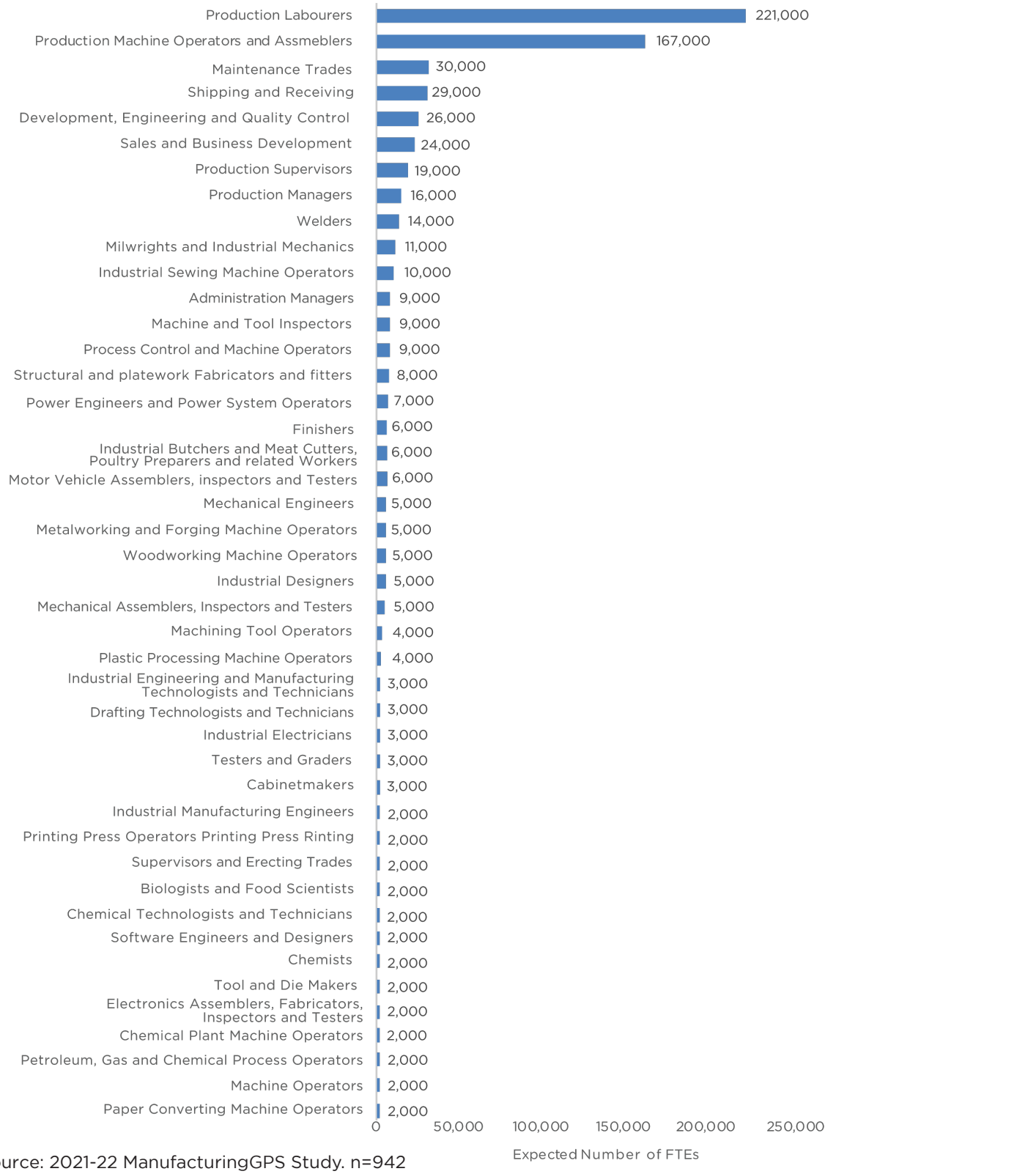
Source: ManufacturingGPS Surveys 2021-22 (n=942) and 2020 (n=748).

Appendix A: Average annual salary for the 20 most common occupations



Source: 2021-22 ManufacturingGPS Study. n=942

Appendix B: Expected hires (FTEs) in 2022 – Extrapolated to the population of manufacturers [19]



Source: 2021-22 ManufacturingGPS Study. n=942

[13] The graph displays occupations expecting to hire 2,000 or more FTEs in 2022, rounded to nearest hundred.

ManufacturingGPS

ManufacturingGPS data and reports include 2016 to 2021 labour market information from companies across all manufacturing industries. They are a valuable benchmarking tool for making human capital decisions. As an employer, do you ever wonder how your company compares to others in the industry when it comes to:

- **Actual and projected wages and benefits.**
- **Hiring, including turnover rates, labour shortages, most successful recruitment methods, an projected labour demand.**
- **Workforce profile by demographics (gender, education, equity group).**
- **Needs of and expenses for skills development.**
- **Vacancies, including causes of labour shortages?**

For more information visit manufacturinggps.ca

Contact EMC

Tel: 519-376-0470

Toll Free: 1-866-323-4362

Email: info@emccanada.org

Mail: Box 396 Owen Sound, ON N4K 5P7

EXCELLENCE
IN MANUFACTURING
CONSORTIUM

Sector Study Research and Report Assistance Contributed: research team at R.A. Malatest & Associates Ltd