



CANADIAN
MANUFACTURERS
& EXPORTERS

MANUFACTURING ONTARIO'S FUTURE:

LEVERAGING ONTARIO'S
MANUFACTURING SECTOR
TO DRIVE ONTARIO'S
ECONOMIC SUCCESS

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WHO WE ARE

ABOUT CANADIAN MANUFACTURERS & EXPORTERS

Since 1871, Canadian Manufacturers & Exporters (CME) has been fighting for the future of Canada's manufacturing and exporting communities and helping them 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.

CME-MEC.CA

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OUR PARTNERS

STRATEGIC PARTNERS:

CME's strategic partners have helped us throughout this process by defining the agenda and supporting the research and consultation exercise. Like CME, they believe that a strong Ontario can and must have a strong manufacturing sector at its heart. From business associations to manufacturers to key service providers, these groups have been instrumental in creating this action plan and in supporting the growth of manufacturing in Ontario. A special thanks to:

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BACKGROUND: ABOUT INDUSTRIE 2030 ONTARIO

Industrie 2030 Ontario is a provincial strategy developed by Canadian Manufacturers & Exporters (CME) to leverage the opportunities presented by Ontario's manufacturing sector and usher in a new era of growth and prosperity in the province.

Our activities and direction were built on the successful 2016 Industrie 2030 exercise conducted by CME across the country to define a long-term advanced manufacturing growth strategy for Canada. The national Industrie 2030 initiative directly led to several actions by the federal government, including the creation of an Advanced Manufacturing Economic Table that defined a government strategy to increase manufacturing output in Canada to \$1 trillion dollars by 2030. Our efforts also contributed to the federal government's Innovation Strategy and many of its key initiatives, including the Strategic Innovation Fund and the Supercluster initiatives. More recently the federal government has leveraged our efforts to define a National Export Strategy that aims to boost the country's exports by 50 per cent by 2025.

Understanding the importance of Ontario meeting these national objectives, CME began an effort to consult with industry and design a strategic manufacturing growth plan for the province. As with our national strategy, we began by asking a simple question: What would it take to double Ontario manufacturing output to \$600 billion a year by the year 2030?

This question was the beginning of the research and consultation process that formed the heart of the exercise. We heard about the issues, challenges and opportunities manufacturers see every day while running their businesses, and asked what would help them grow their operations, output and sales. CME and our partners held 12 community consultations across the province that were attended by more than 250 business leaders.

In addition to the in-person consultations, we received 237 responses to our bi-annual Management Issues Survey in Ontario to add quantitative depth to our analysis. From these consultations emerged three major areas where specific and direct action are needed if we are to achieve our goals and reverse recent concerning trends in Ontario manufacturing and in the provincial economy generally. These three action areas are:

- Create a competitive business environment in Ontario that, through tax and regulatory reform and lower electricity prices, reduces business costs and encourages growth and production;
- Address current skill shortages, improve technical skills training of youth, women and other underrepresented groups, and increase support for industry-led training and skills-development initiatives; and,
- Introduce policies and support programs that drives both foreign and domestic investment and assists companies with scale-up, technology adoption, and product commercialization.

This report provides the background and overview of the issues, challenges and opportunities in each of these priority areas and offers specific recommendations for action.

But this is not the end of our process.

CME will now work with association members, the broader manufacturing community, key supporters of the sector, and the government: to effect change; to maximize the potential of the sector, and to drive growth and prosperity for the entire province.

EXECUTIVE SUMMARY

Manufacturing is vital to Ontario's economy and to the prosperity of all Ontarians. The numbers speak for themselves: The sector directly accounts for more than 12 per cent of provincial GDP; generates more than \$300 billion in annual output; and accounts for more than 80 per cent of Ontario's exports. Manufacturers employ more than 770,000 Ontarians in high value, high paying jobs and indirectly support another 1.5 million Ontario workers. In total, the manufacturing sector is responsible for a full 30 per cent of provincial GDP, more than 25 per cent of employment, \$55.3 billion in annual wages, and more than \$18 billion in revenues to the government (excluding income taxes).

These are more than just numbers — they tell the story of a sector comprised of companies and their employees that is at the forefront of global competition, innovation and technological change. But there are challenges as well; Ontario manufacturing is a sector facing intense global competition, decreasing investment, and stagnant output and exports.

These companies are competing with the world's best. To prosper, they require a business climate that is equally world class and sets them up for success. Other jurisdictions, such as the United States, China, and Germany have been moving aggressively to attract investment, grow their value-added manufacturing base, and create high-paying jobs. Canada — Ontario more specifically — has been losing ground to these countries and missing out on the opportunities created by modern advanced manufacturing.

Industrie 2030 Ontario aims to reverse these trends. This strategy, focused on the critical needs of Ontario's most important economic sector, aims to bring sustained growth and prosperity to manufacturing and to the communities in which our businesses operate in across the province. Our goal is to create the conditions to support the doubling of manufacturing output in Ontario to \$600 billion by 2030.

The foundation of this plan is focused on the core issues and challenges faced by Ontario's industry today, and reflects on where we need to go in order to be globally competitive and successful. This core focus must be on:

- 1. Creating a competitive business environment in Ontario that, through tax and regulatory reform and lower electricity prices, reduces business costs and encourages growth and production;**
- 2. Addressing current skill shortages, improve technical skills training of youth and increase support for industry-led training and skills-development initiatives; and,**
- 3. Introduce policies and support programs that drives both foreign and domestic investment and assists companies with scale-up, technology adoption, and product commercialization.**

By no means is this a comprehensive list of issues that are impeding growth in Ontario manufacturing. However, most of the other factors critical to success lie outside the direct control of the provincial government and Ontario stakeholders. These factors include Canada's trade relationship with the US and the world; federal tax and regulatory policy; and the ongoing improvements to environmental performance in a global context.

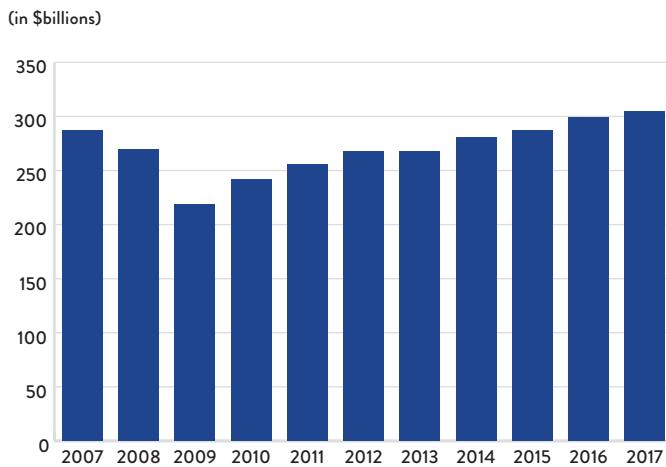
We believe focusing on the above list of core issues offers Ontario, and its critically important manufacturing sector, the best opportunity to reverse recent stagnation and once again become a leader in economic growth and prosperity for the province.

STATE OF MANUFACTURING IN ONTARIO

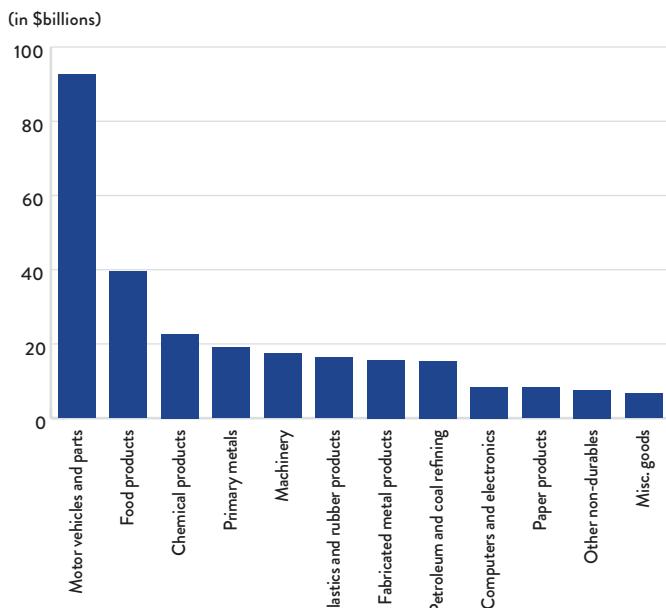
Manufacturing is a major driver of innovation, wealth creation, and employment. It is a catalyst for economic activity across the country. Across Canada, the sector accounts for 1.7 million employees, 11 per cent of GDP, and two-thirds of total exports. In Ontario, manufacturers directly employ more than 770,000 workers, while accounting for roughly 12 per cent of GDP and 80 per cent of all exports. Including indirect impacts, the sector supports nearly 30 per cent of all provincial economic activity and more than 25 per cent of all employment.

In 2017 Ontario's manufacturers' sales hit a record high of a little more than \$300 billion. Three industries drive this output: motor vehicles and parts; food products; and chemicals. These three sectors accounted for more than 51 per cent of all manufacturing output in Ontario in 2017.

ONTARIO MANUFACTURING SALES



SALES BY MAJOR INDUSTRY – 2017

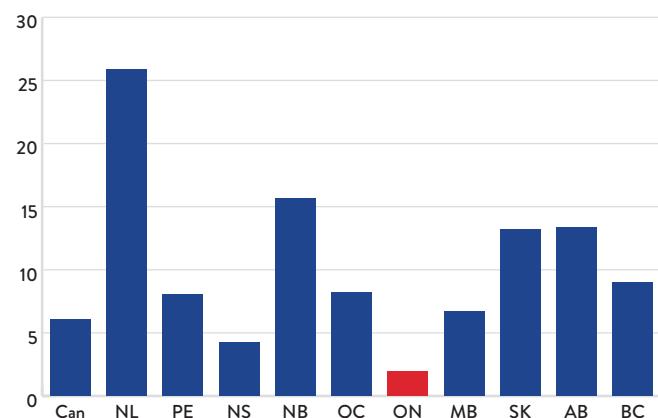


While impressive on the surface, there are serious problems behind the headline numbers. To start with, Ontario has, for years, been lagging the rest of the country in several critical areas – most notably in output and export growth. In 2017, the province was the worst performer in the country on both counts. Manufacturing sales growth was three times slower than the national average, and Ontario had the dubious distinction of being the only province to see manufactured goods exports fall that year.

It is worth noting that the gap between Ontario and the rest of the country is even wider than these numbers suggest. Ontario is far and away Canada's largest manufacturing province, accounting for 47 per cent of national manufacturing output and 54 per cent of value-added exports. In effect, Ontario's performance is an anchor on the manufacturing sector nation-wide.

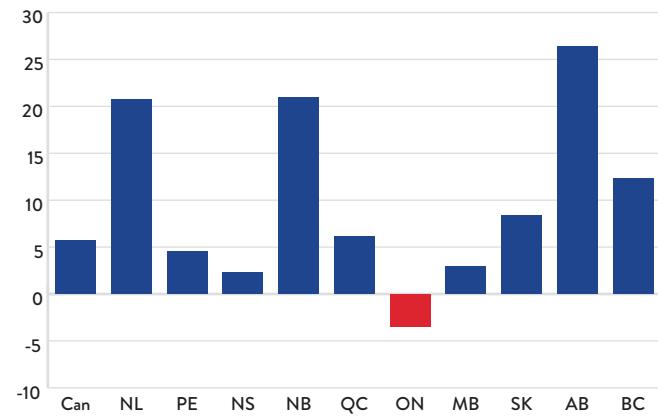
CANADIAN PROVINCIAL MANUFACTURING OUTPUT PERFORMANCE

(2017 % change)



CANADIAN PROVINCIAL EXPORTS GROWTH

(2017 % change)

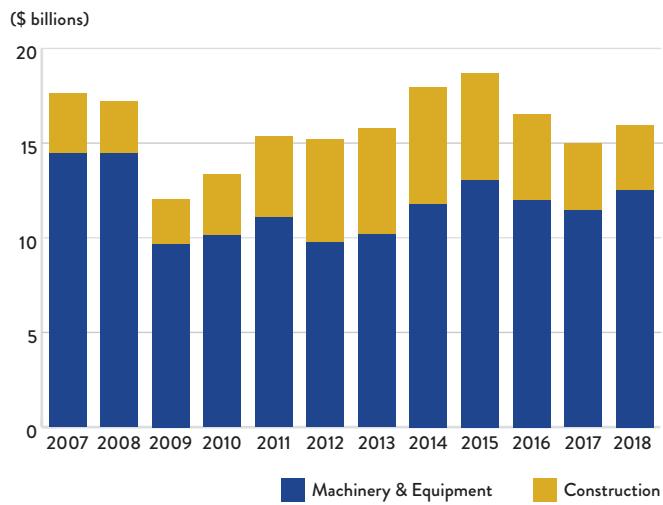


Ontario's struggles can be largely traced to one key statistic: declining investment. Simply put, without investment, businesses and the economy cannot grow. Investment levels are a bellwether for the trust investors have in the local market. Investment drives innovation, exports, and job creation.

To be sure, the issue of declining investment is not isolated to Ontario. Across all business sectors in Canada investment has been, at best, flat over the past decade and has been generally declining since reaching a post-recession peak in 2015.

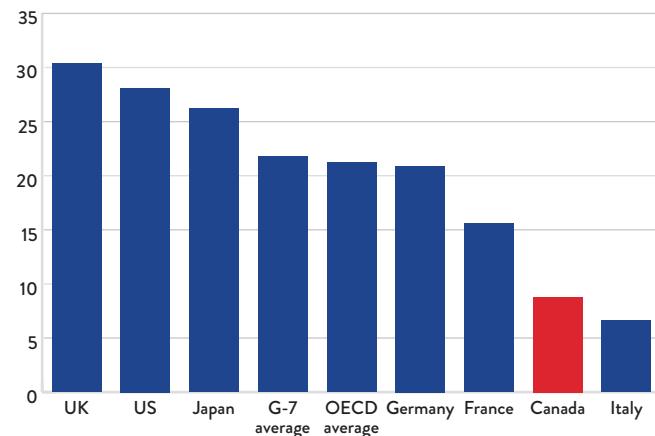
This performance stands in stark contrast to most of our international competitors. Over the past five years, Canada has seen the slowest growth in business capital spending in the entire G-7, except for Italy. Investment growth is two-and-a-half times slower than the Organization for Economic Cooperation and Development (OECD) average and three times slower than in the United States.

FLAT INVESTMENT



GROWTH IN BUSINESS CAPITAL INVESTMENT – MOST RECENT FIVE YEARS

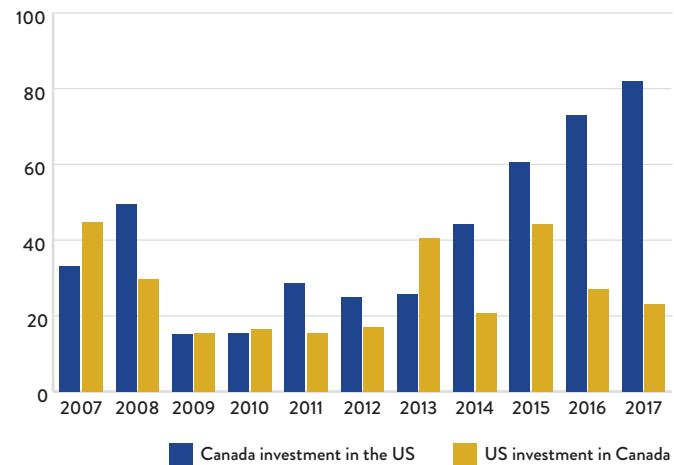
(in %)



Canadian companies are increasingly taking their capital out of Canada and investing in other jurisdictions, while foreign investment in Canada is drying up. For example, since 2013, US investment in Canada has halved while Canadian investment in the US has tripled. In just four years, Canada has swung from a \$15 billion net inflow of investment from the US to a net outflow of nearly \$60 billion.

DIRECT INVESTMENT FLOWS BETWEEN CANADA AND THE US

(\$ billions)

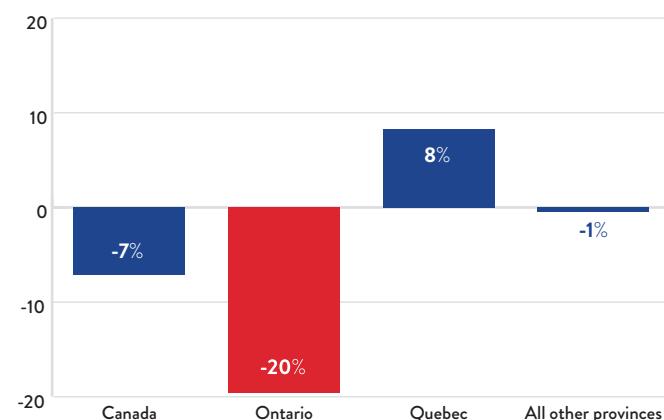


Canada-US investment flows are just an example of the broader challenges: Canada's share of global foreign direct investment (FDI) is falling precipitously. According to data from the United Nations Conference on Trade and Development (UNCTAD), FDI flows into Canada in 2017 were 64 per cent below their pre-recession average in 2005-2007. Meanwhile investment flows into the US over that period increased by 48 per cent. Before the 2008 – 2009 recession Canada attracted roughly 4.8 per cent of global FDI. In 2017, only 1.7 per cent of global investment came to Canada.

While Canada as a whole has significant work to do to become a leading destination for investment, Ontario itself is dragging down Canada's performance. Capital expenditures in Ontario's manufacturing sector have fallen by nearly 20 per cent over the past decade. Meanwhile, investment levels were up by 8.3 per cent in Quebec and, on average, flat across the rest of the country.

CAPITAL EXPENDITURE GROWTH IN MANUFACTURING

(2008-2018 in %)



Why does this matter? As noted earlier, investment levels are a leading indicator of the health of the economy, especially capital intensive sectors like manufacturing. A healthy manufacturing sector, in turn, leads to a healthy economy and prosperous province. CME's goal is to reverse these capital investment and FDI trends, expand manufacturing output in the province, and accelerate economic growth in Ontario. However, to do so, we must first understand why companies are not investing. Only then can we focus on providing recommendations for growth.

BARRIERS TO GROWTH

While companies clearly must lead the development and growth of their operations and sales, governments can play a critical role in setting the regulatory, policy and economic framework within which those businesses operate. As part of identifying barriers to growth it is critical to understand how all levels of government are supporting business expansion (or not), and then identify areas for targeted action. And while this is largely based on perception, one of the first questions companies ask prior to investment is: “Is this a good place to do business?”

In order to answer this question, and as part of the Industrie 2030 Ontario exercise, CME conducted two critical pieces of analysis. First, we completed 12 community roundtables across the province that included more than 250 senior executives to secure qualitative input to our study. Second, CME leveraged the results from our bi-annual Management Issues Survey (MIS), which seeks to understand the challenges and opportunities that manufacturers face across the country. There were 540 responses to our MIS survey, with more than 43 per cent of those originating in Ontario. These quantitative inputs provide a detailed understanding of the barriers to growth facing Ontario manufacturers. The full MIS results are available on CME’s website (CME-MEC.CA). The data below reflect a summary of the Ontario results of that survey.

BUSINESS CONDITIONS, CONFIDENCE, AND KEY CHALLENGES

To start our survey and analysis, we wanted to get a sense of prevailing business sentiment: are companies confident? And, have their business conditions improved or deteriorated?

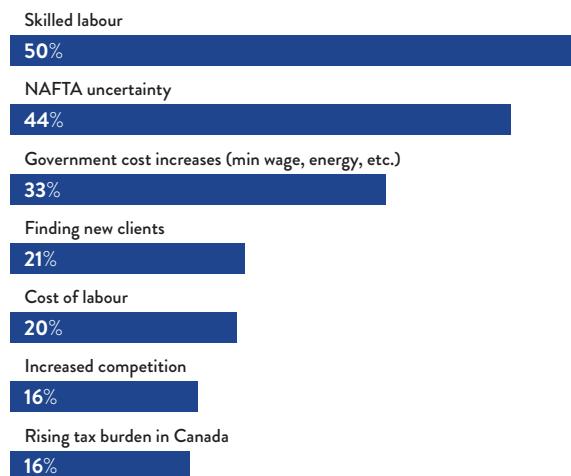
Responses were generally neutral or positive. Seventy-one per cent of respondents said that business conditions had stayed the same or improved over the last three years. Only 29 per cent stated that things had gotten worse.

More interestingly however, is why people thought conditions had improved or deteriorated. If people were positive, it was because of economic expansion and growth in customer demand for their products. If people were negative, it was largely due to government policies, such as rising energy costs, labour costs, or trade uncertainty because of the North American Free Trade Agreement (NAFTA) renegotiation.

Moving forward, companies are generally more optimistic and confident of growth. A full 50 per cent of Ontario companies are either optimistic or very optimistic about their business, while only 14 per cent are pessimistic.

However, by far the biggest challenge impacting company operations and optimism in the province is the problem of labour supply. Fifty per cent of respondents identified skilled labour shortages as their biggest problem, followed by NAFTA uncertainty at 44 per cent, and government-imposed cost increases (including energy prices and the minimum wage) at 33 per cent.

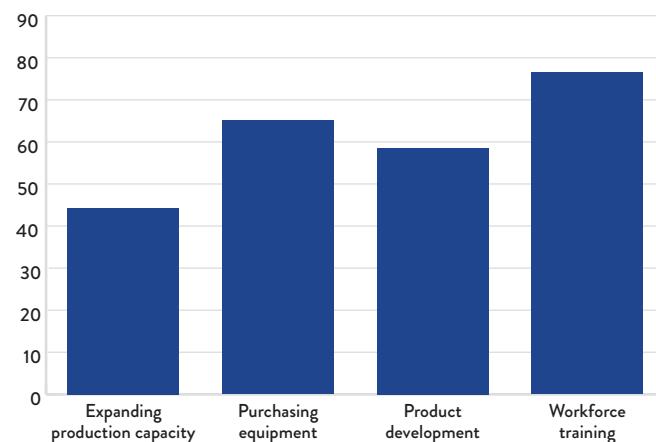
TOP CHALLENGES AFFECTING YOUR COMPANY



INVESTMENT INTENTIONS AND BARRIERS

Given the overall optimism of respondents, companies are looking at expansion, investment in, and growth of, their operations over the next three years. In fact, 44 per cent of respondents said they are looking to expand production capacity, 65 per cent intend to purchase new machinery and equipment, 58 per cent will invest in new product development, and 76 per cent will invest in workforce training.

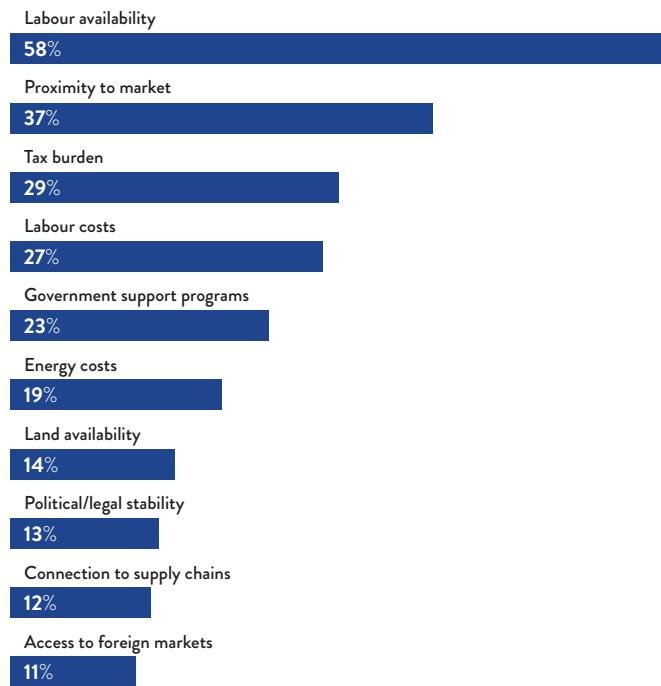
INVESTMENT INTENTIONS OVER THE NEXT THREE YEARS (%)



Equally as important is where companies are thinking to invest. Again, Ontario manufacturers are positive in their responses: 53 per cent stated they would like to invest at home in Ontario; while the US ranked second with 32 per cent of responses. This is an excellent base from which to grow in developing a long-term manufacturing strategy for the province.

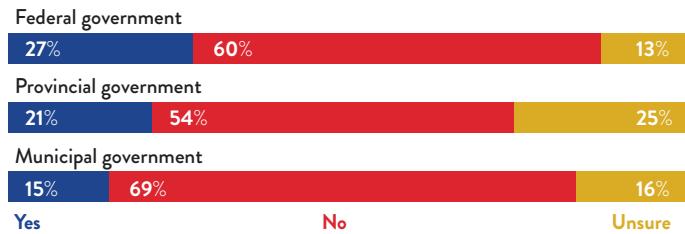
The challenge for Ontario begins with what drives companies' investment decisions and how they view the level of support from governments in helping them grow and expand. The top factor determining investment location is also the top problem companies face in Ontario: the availability of skilled labour. Following this, companies prioritize a range of market and regulatory/policy issues, including proximity to markets, tax burden, energy costs and land availability.

TOP INVESTMENT DECISION PRIORITIES

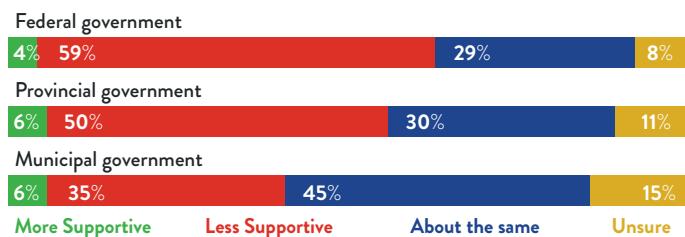


Many of these investment decision priorities for companies come down to the role of government. For this reason, it is important to understand whether or not businesses believe the government is supporting the growth of their companies. In short, the answer is no. A majority of Ontario's manufacturers do not believe that any level of government is supporting the expansion of their businesses. To make matters worse, a majority of manufacturers also believe that government policies, including regulations and the overall tax burden, have become less supportive over the past three years. Less than 10 per cent of respondents believe that governments at any level have become more supportive over the past three years.

DO YOU BELIEVE THAT GOVERNMENTS ARE SUPPORTING INVESTMENTS IN, AND GROWTH OF, YOUR COMPANY?



HAVE GOVERNMENT POLICIES BECOME MORE OR LESS SUPPORTIVE FOR YOUR BUSINESS OVER THE PAST THREE YEARS



Our question above was: Is Ontario a good place to do business? The answer based on survey responses and input from CME members is that it has the potential, but much more needs to be done with governments to create the environment necessary for growth.

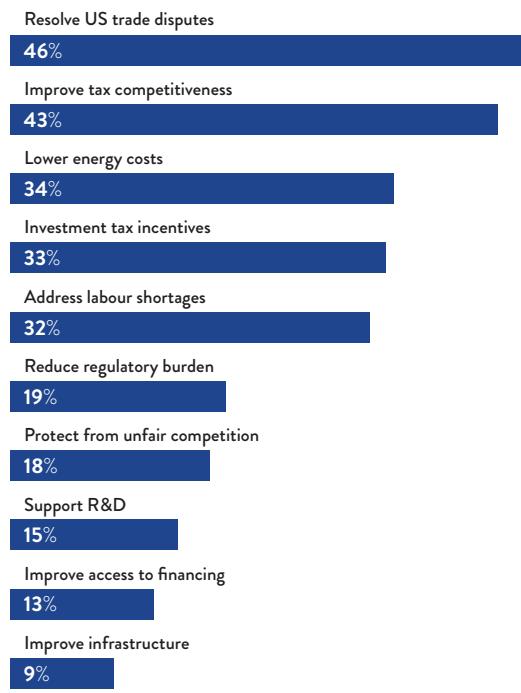
If we are going to meet our goal of \$600 billion in manufacturing output by 2030, we must address the biggest issues facing the sector and collectively tackle the gaps in industry action and government policy, regulations and program support.

PRIORITIES FOR ACTION

Identifying problems is easy. Finding the solutions to these problems and prioritizing action is much more difficult. CME does not believe we have all the answers; however, we do believe our consultations with manufacturers across the province provides us with a good understanding of the priorities and types of solutions that would be most beneficial to overcoming the structural challenges Ontario's manufacturers are facing.

While CME's Management Issues Survey is national in scope and has input from companies on a range of local, national, and international priorities for government action, the priorities for action for Ontario-based manufacturers are very well defined. Not surprisingly given that the MIS was conducted in the summer of 2018, issues around trade disputes with the US were paramount. Not far behind were issues related to tax competitiveness and a range of other business costs, including energy, the regulatory burden, and infrastructure. Following these issues, companies believed the government should focus on helping companies address labour shortages.

TOP 10 AREAS FOR GOVERNMENT ACTION



These dual priorities – reducing the cost of doing business and improving access to labour – were reinforced in CME's community roundtables across the province. In addition to these two core priorities, our in-person consultations and the economic research detailed earlier identified the third: the need to support investment, technology adoption, commercialization and scale-up.

This trifecta of issues – reduce the cost of doing business, improve the quality and quantity of the labour force, and supporting investment and scale-up – form the core of CME's Industrie 2030 Ontario strategy to double manufacturing output by 2030.

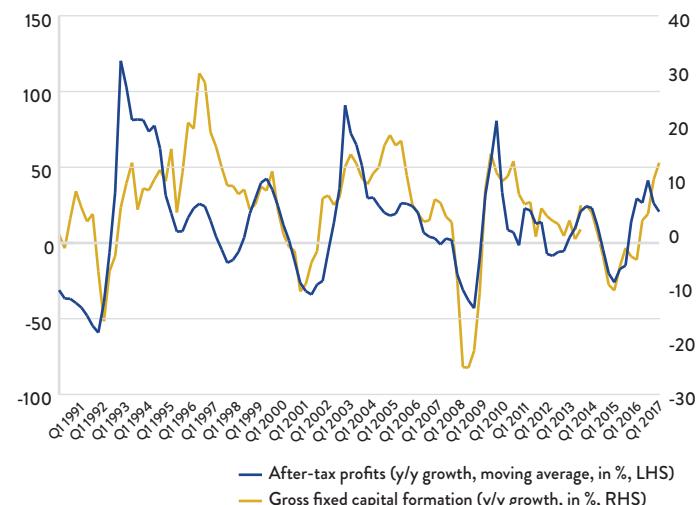
REDUCE THE COST OF DOING BUSINESS

Industrie 2030 Ontario participants identified a wide range of tax increases and government policy changes that are making it more difficult and costlier to do business in the province. Payroll taxes are rising, the regulatory burden and user fees are increasing, and energy costs have skyrocketed. Companies understand and accept that Ontario is not and never will be a low-cost manufacturing jurisdiction. At the same time, they expect government to actively work to reduce the cost of doing business and support investment in their companies.

Right now, the cost of doing business in Ontario is eroding competitiveness and making it harder for companies to reinvest in their people, products and processes. And while no single tax or regulation is significant enough to drive investment away, in aggregate they are a death by a thousand cuts. Worse, these cost increases have put Ontario out of step with its international competitors and are a primary reason why business investment is going to other jurisdictions. For example, Ontario competes for investment with every state in the US and Mexico, all of whom offer tax holidays, land, serviced facilities, investment incentives and a range of other supports to locate in their jurisdiction. These are not random, sporadic or sector-specific offers; these states are aggressively recruiting Ontario companies to invest and expand in their jurisdictions.

What should Ontario's overall goal be? The answer is fairly simple: reducing the overall cost of doing business to increase companies' after-tax profitability so they have more cash available to invest in their operations. This is critical, because as shown in the following chart, there is a direct, historical link between after-tax corporate profits and business investment.

CORPORATE PROFITS LINKED TO BUSINESS INVESTMENT

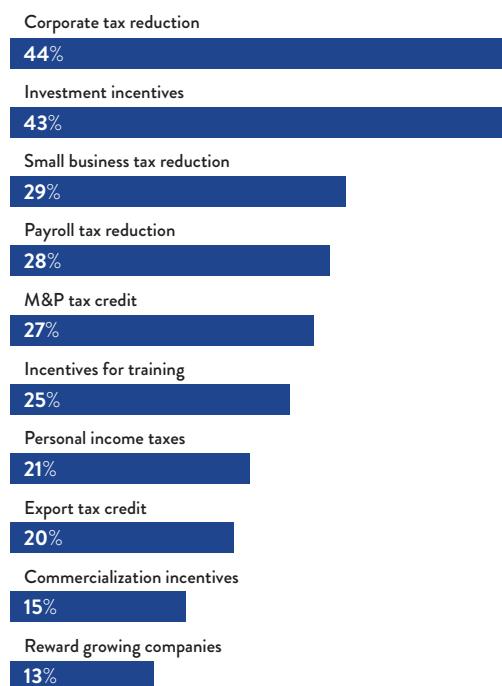


There are many areas where the Ontario government must focus to reduce the cost burden for the province's manufacturers. Some of these are direct, including tax reform that focuses on investment and lowering energy costs, and some are indirect, such as reducing the regulatory burden to make it less costly to comply with regulations.

Tax Reform

As shown earlier, Ontario manufacturers believe the most important action the provincial government can take is to reduce their tax burden. In the summer of 2018, CME released a special report on taxation entitled *Restoring Canada's Tax Advantage: The need for tax reform*. That report highlighted Canada's eroding tax advantage relative to our global competitors, and pointed to the importance of restoring that advantage to help offset the high cost of doing business in this country. In particular, Canada's former tax advantage over the US had disappeared because of general corporate tax cuts in that country, as well as the introduction of immediate accelerated capital cost allowances – for tax purposes, companies could write off 100 per cent of the value of qualifying capital purchases in the year in which those purchases were made.

TOP 10 PRIORITIES FOR TAX REFORM



Based on the results of the MIS, lowering corporate taxes are the highest priority for Ontario manufacturers to spur growth and should be the first action for governments. However, while broader tax reform is necessary to boost investment and improve productivity in the province, tax reforms must go beyond these general measures and target specific outcomes. For example, targeted tax incentives could be developed that seek to incentivize specific actions: boosting output, innovation, workforce training and commercialization. These kinds of targeted tax measures must be simple to administer and should be handled through the tax code – such as the existing Accelerated Capital Cost Allowance program – rather than in separate or unique programs.

Outside of targeted investment incentives and broad-based corporate tax reductions, manufacturers have prioritized a range of areas for action, including payroll tax reductions, specialized manufacturers and processors tax credits, export tax credits and reductions in personal income taxes. In addition, companies noted the need to modernize and simplify the tax code for both personal and corporate taxation; something that has not been done in decades.

RECOMMENDATIONS:

1. Lower the headline corporate income tax rate from 28 per cent to 20 per cent. The reduction should be evenly split between the two levels of government.
2. Introduce targeted tax investment incentives aimed at boosting output, innovation, workforce training and commercialization.
3. Conduct a full review of the tax system, ideally in coordination with the federal government, to modernize and simplify it, to ensure it is supporting both economic and social objectives.

Regulatory Burden

Throughout our consultations, Ontario manufacturers identified regulatory burden as being a significant impediment to investment in the province. The regulatory burden is troublesome in several ways, but two stand out. First, the timeframe and complexity of getting approvals for investments from multiple layers of government is directly delaying and, in some cases, stopping investment decisions. Second, the ongoing ability of companies to comply with complex regulations is increasing operating costs.

Highlighting both these concerns, the clear top priority from MIS respondents regarding regulatory reform is to see better alignment between government regulatory wishes and economic growth. We heard from companies across the province who believe the Ontario government, along with municipalities and regions, are creating regulations simply to restrict growth and that regulators are only in the business of punishment, rather than constructive compliance. This view probably reflects business frustration more than fact, but it does show how manufacturers believe they are being treated. And, in this case, perception is reality.

TOP 10 PRIORITIES FOR REGULATORY REFORM

Alignment between regulations and growth

44%

Harmonization with the US

27%

Simplification

21%

Provincial harmonization

20%

Modernization

20%

Lowering user fees

16%

International harmonization

15%

Reflect business' concerns

15%

Reducing reporting requirements

14%

Outcomes-based regulations

14%

Regulatory reform does not mean de-regulation or lessening of environmental, labour, safety or any other important societal standard. Rather, it means crafting regulations smarter, more efficiently, and in a manner that focuses on growth and investment. As an example of the type of reform Ontario needs, several companies told CME that it takes them two or more years to get building permits to expand operations – in similar US states these processes can take two weeks. Same requirements, different processes. Another example was regularly relayed during consultation of one provincial regulator requiring one standard, while another government department offered different and contradictory direction. To reinforce this point, using Toronto as the case city, the World Bank ranks Canada as the 63rd best country globally to get construction permits and 121st in getting an electrical connection.

An additional consideration is the increasing encroachment of residential lands into industrial spaces, which is impacting regulatory compliance costs. Companies are noting changing regulations at the regional and municipal level that are restricting their operations or significantly increasing compliance costs. These are often in facilities that have operated for decades without issue. As an example, due to residential encroachment on traditional industrial lands, companies are reporting being required to comply with noise and odour abatement regulations, often at extraordinary costs, and with minimal success to appeasing residents. In some cases, rezoning and residential encroachment has led to the shuttering of industrial facilities and all the jobs along with it. Industrial lands must be better protected for current and future growth.

The province needs a world-class, agile regulatory system that supports innovation and investment, while protecting the environment, and the health and safety of Ontarians. We understand that the province has already committed to reducing the regulatory burden on business by 25 per cent by 2022. In addition, the federal government recently announced the start of a regulatory modernization initiative to boost business confidence and investment. These are excellent first steps. But often these broad statements do not lead to meaningful regulatory changes. We need to ensure political statements result in meaningful action. As such, the province should:

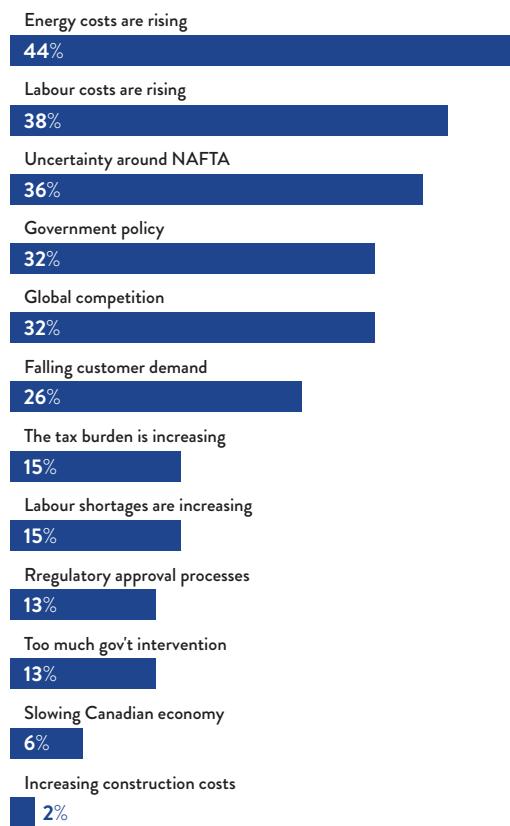
RECOMMENDATIONS:

1. Continue a complete, province-wide regulatory review process with an aim to eliminate duplication between levels of government, to support better regulatory processes at local levels.
2. Introduce a regulatory bill of rights that ensures all regulations moving forward would balance the needs of regulators with business and introduce globally-competitive risk- and science-based regulatory management processes.

Reduce Electricity Costs

A recurrent issue in the Industrie 2030 Ontario hearings was that the province's energy policies were effectively pushing local manufacturers to relocate to the United States. An earlier chart showed that MIS survey respondents identified lowering energy costs as one of their highest priorities for government action to improve business conditions in the province. In another survey question, 45 per cent of respondents who thought that the business environment in the province was deteriorating pointed to higher energy costs as one the main reasons why.

WHY IS THE BUSINESS CLIMATE DETERIORATING?



To reinforce these concerns, according to the Ontario Energy Board (OEB), between 2011 and 2016, on-peak electricity prices rose from 10.5 cents per kilowatt hour (¢/kWh) to 18¢/kWh, an increase of 71.4 per cent. The increase in off-peak prices was even more significant, rising from 3.5 ¢/kWh to 8.7¢/kWh, or 149 per cent. Ontario's prices are now amongst the highest in Canada and higher than most competing jurisdictions across North America. As an example, small industrial consumers (with a power demand of one megawatt and monthly consumption of up to 400 megawatt hours) in the Toronto area paid, on average, 16.27 cents per kWh, nearly double what comparable-sized firms paid in Montreal (9.11 cents) and Vancouver (9.49 cents), and nearly three times what they paid in Calgary (6.53 cents). The same pattern exists with large industrial consumers. A recent study conducted by Navigant indicated that

when incentive rates are factored in, Ontario manufacturers are at a 15 – 30 per cent disadvantage to competing Great Lakes jurisdictions on electricity rates. In 2016, large industrial users (with a power demand of five megawatts and monthly consumption of 3,060 megawatt hours) in Toronto and Ottawa paid almost three times more than consumers in Montreal and Calgary and almost twice what large consumers in Vancouver paid.

Competitive electricity rates are fundamental to the success of Ontario's manufacturing sector and our economy. Ontario once used energy policy to drive economic growth because of the broad and positive social benefits businesses and jobs provide. Development of electrical generation at Niagara Falls in the early 1900s was critical to the initial growth of Ontario as Canada's industrial heartland and the millions of jobs that followed.

That model is still followed in other jurisdictions around the world. In Germany for example, manufacturers pay significantly lower rates than residential customers at a much lower threshold. They do this in recognition of the criticality of manufacturing in supporting economic and social wellbeing across the country. Further, there are no requirement for peak shifting as it exists in Ontario, thus allowing manufacturers to run at full capacity as needed without being penalized.

Unfortunately, in Ontario in recent years, electricity generation has become a policy instrument to pursue certain ostensibly desirable environmental and social outcomes. The result, however, has been ballooning costs that have driven investment and jobs out of the province. Ontario needs to once again leverage its energy policy to attract investment in manufacturing, while at the same time broadening and strengthening the rate base.

RECOMMENDATION:

1. Conduct a review of the electricity system and oversight procedures, and introduce an industrial electricity rate for manufacturers that is competitive with neighbouring US jurisdictions.

Property Taxes and Industrial Lands

Industrial property taxes and the protection of industrial lands from residential encroachment are growing issues in the province. Once again, Ontario manufacturers are finding themselves at a growing disadvantage relative to their competitors in other jurisdictions, and they are paying a significantly greater share of the tax burden compared to residential properties across the province.

As noted earlier, manufacturers feel increasingly punished by regulators, especially at the municipal level, for “encroaching” on residential areas. In almost all cases the “encroachment” has occurred because municipalities have rezoned industrial land to residential lands. It has become more and more difficult for manufacturers to operate in their traditional areas as municipalities rezone to increase residential density and tax rates. This is especially true in the greater Golden Horseshoe Area. And as land values increase due to residential demands, companies are being pushed out of the area, or are looking to sell out as the land they are on is worth more than the operational investment. In addition, even when manufacturers are not looking to sell out, tax assessors are assessing the value of the land under “highest and best use” provisions, which changes the valuation to high density occupation that carries a much higher tax burden. These cases always appear to be reversed in appeal, but the cost on the system and industry is significant. To stem these encroachments, the province should increase protection for current industrial lands and eliminate the use of “highest and best use” provisions.

A related issue is the tax rates themselves. Ontario manufacturers are paying among the highest industrial property tax rates across North America. In addition, industrial rates are subsidizing the residential tax base. A recent study by the C.D. Howe Institute showed that while the value of residential land were considerably higher, industrial rate payers paid a higher proportion of the tax base. As the following table shows, business lands made up 16 per cent of the assessment but 34 per cent of the total property tax levy.

PROPERTY TAX LEVY SUMMARY FOR ONTARIO FOR 2015

Property type	Assessment (Tax Base)		Provincial Levy		Municipal Levy		Total Levy	
	Value (\$ billion)	Share (per cent)						
Residential	1,732.8	83.5	3.2	45.3	13.9	73.5	17.1	65.9
Business	341.6	16.5	3.8	54.7	5.0	26.5	8.9	34.1
Total	2,074.4	100.0	7.0	100.0	19.0	100.0	26.0	100.0

Schedule 26 of the Municipal Financial Information Return (FIR) for 2015

Source: CD Howe Institute

Adjustments have been made to a wide range of taxes over the years, but little attention has been paid to property taxes. The one recent notable exception was in 2007 when the Government of Ontario acknowledged business’ property tax concerns and began phasing out the provincial Business Education Tax (BET). Unfortunately, scheduled reductions were frozen in 2012. In 2017, this tax alone cost Ontario industry \$6 billion.

RECOMMENDATIONS:

- 1. Increase tax and regulatory protection for current industrial lands and eliminate the use of “highest and best use” provisions.**
- 2. Undertake a full review of the property tax system to ensure fairness for industrial users and competitiveness, including committing to abolishing the Business Education Tax.**

Physical and Digital Infrastructure

Federal and provincial governments have made considerable progress over the years in addressing the infrastructure deficit in Canada. Billions of dollars have been poured into construction projects, often as part of government strategies to kick-start the Canadian economy in times of downturn. Billions more have been invested into digital infrastructure by both governments and the private sector, especially in an effort to connect remote or isolated regions of the country.

There are clear benefits to strategic infrastructure investment for Canada. Building the right infrastructure increases business productivity and competitiveness by reducing the time and cost of transporting goods. It allows products to move efficiently through the supply chain and to end-use customers around the world. It allows workers to more efficiently get to and from their work on public transit and roadways.

The problem is that most of the recently-announced infrastructure investments do not appear to be prioritizing economic growth. One exception is the recent federal government intention to invest nearly \$750 million in trade infrastructure for the country, as announced in the 2018 Fall Economic Statement. However, more generally, rather than building roads and bridges, upgrading intermodal linkages, or investing in energy or telecommunications infrastructure, most of the recent investments are focused on environmental and social infrastructure, and public transit. At the same time, equitable regional distribution appears to trump need in the distribution of these funds.

While there is value in these investments, governments must boost investment in economic infrastructure, that includes the movement of goods and people as well digital connectivity. Manufacturers and other businesses create jobs, economic growth and tax revenue. Without a healthy business sector, there will be no money with which to finance these other public investments.

While most are familiar with the significant traffic congestion throughout most of southern Ontario, two anecdotes from our Industrie 2030 Ontario consultations illustrate the broader problem facing manufacturers. Companies in northern Ontario complained that the cost of shipping their goods to and from transportation hubs in southern Ontario cost as much as importing goods all the way from China to Ontario. Second, companies in the GTA told us they could not get stable high-speed internet to connect modern advanced manufacturing technologies. In an economy that is built on globally integrated supply chains, this is unacceptable and must be addressed.

RECOMMENDATIONS:

1. Prioritize investment in trade corridors that link Ontario manufacturers to customers in North America and around the world.
2. Digital connectivity infrastructure must be greatly improved to provide access to efficient and effective high-speed internet access that works with modern advanced manufacturing technologies.

Environmental Performance and Sustainability

Ontario's manufacturing sector has a strong history of responsible environmental performance. The sector has historically supported and led government's efforts to balance environmental sustainability with economic growth including, most recently, the desire to reduce greenhouse gas (GHG) emissions.

In 1990, Canadian manufacturers emitted a little more than 112 megatonnes (MT) of CO₂ equivalent, or approximately 18 per cent of Canada's total emissions that year. In 2014, emissions from the manufacturing sector amounted to 96 MT of CO₂, accounting for a little more than 13 per cent of total GHGs. No other sector in Canada has made this kind of progress. At the same time, this 14 per cent reduction in emissions occurred even though Canadian manufacturing sales revenue increased by 150 per cent and production levels rose 33 per cent over the same period. In Ontario, manufacturers reduced emissions per unit of real GDP by 35 per cent between 1990 and 2014.

These achievements were due to technological progress. Improvements in energy efficiency, the use of lower carbon fuels, and the adoption of new and less emissions-intensive production processes are some of the techniques that manufacturers have employed to improve their environmental performance. Now Ontario manufacturers are world leaders in responsible and efficient manufacturing, a fact that too few acknowledge.

The evidence of the past 25 years clearly shows that improvements in environmental performance and economic growth can be linked. As investment in new machinery and equipment increases, companies are more productive, and emissions and energy intensity decrease. At the same time, these investments make manufacturers more competitive, enabling companies to invest further in their workforce, and in new products and technologies, as they expand their business.

The challenge with the current public discussions on environmental performance, GHG emissions, and the economy is that it attempts to pit the economy versus the environment. CME does not support that view of the world. We believe manufacturers have shown tremendous improvement over the past several decades and Ontario manufacturers are amongst the most environmentally-responsible worldwide.

Companies certainly have a role to play in further reducing their environmental footprint and improving efficiencies. Many companies are moving to zero waste production facilities. Others are investing in and leading the expansion of the circular economy. Most are investing heavily in energy-saving technologies.

While Ontario companies are already at the forefront of environmental sustainability, we believe that, in partnership with governments, more can – and should – be done. However, this effort must take place in a supportive, and not antagonistic, manner and must also recognize the importance of maintaining global economic competitiveness.

Simply taxing activities that are environmentally undesirable will, in the end, have a detrimental impact on both the economy and the environment. Higher costs for energy, infrastructure, transportation, and regulatory compliance will erode profitability and therefore the ability of companies to invest in the new technologies that are required to make further progress in reducing emissions. Furthermore, if costs are increasing only for domestic manufacturers, they will be placed at a significant economic disadvantage compared to international competitors. If companies leave Ontario for jurisdictions with lower environmental standards, the end result could be fewer jobs and less economic activity in the province, along with higher global GHG emissions.

Governments' role, therefore, should be to partner and support industry with a specific focus on clean technology creation and adoption. To start, Ontario needs to offer businesses a competitive environment in which to invest, as detailed earlier. New technology will naturally reduce emissions and environmental impacts. Second, Ontario should support the creation of new clean technologies for manufacturing processes. Demand for clean technology will only grow in the coming years and Ontario's manufacturing base already has strong competencies in machinery, equipment and technology production. If local companies can develop the technologies, there should be a strong local demand from manufacturers, which will help commercialization and scale-up. Finally, the government should help companies develop the next generation of clean-tech in consumer goods, where we also have a strong history and natural strengths. This could include development of next-generation vehicle technologies, or food products as two examples. These were all items identified in the recently reduced "Made-in-Ontario Environment Plan" which CME has supported, but warned about potential unintended cost implications on industry.

RECOMMENDATIONS:

- 1. Industry and government should co-develop an environmental benchmarking and sustainability study to show how Ontario manufacturing compares to international standards and target areas for possible improvement.**
- 2. Work with industry to fully and effectively implement the recently announced "Made-in-Ontario Environment Plan."**
- 3. Ensure that all revenues collected by governments from carbon taxes are recycled back into sector for investment.**

STRENGTHEN THE LABOUR POOL

Manufacturing leaders rank skills and labour shortages as the most important issue they face. This message came through loudly and clearly from both the Industrie 2030 Ontario consultations, as well as from the results of the 2018 Management Issues Survey. Specifically, executives noted deep concern both about the availability of workers as well as the skill level of existing and future employees at all levels within their organizations. These gaps are undermining the current performance and future growth of their companies.

Today, Ontario's manufacturers employ more than 770,000 people. The skills of the workforce range from general labourers, to skilled tradespeople, to designers, to sales and service representatives, to executive leadership. However, these skills sets are constantly being redefined as technology and opportunity reshape the business of manufacturing.

Technology is changing both the type of workers being used – a shift from general labour to specialized work – and the type of skills that are needed – from single-skilled and repetitive to multi-skilled and flexible. Technology is also impacting the type of products and services being offered, as well as how manufacturers operate; instead of merely building and selling a product in a local or regional market, businesses are now offering a range of customer services that are anchored around a manufactured product. Jobs are becoming more multi-skilled and specialized, and they are growing more valuable and less interchangeable. As a result, workers are becoming more difficult to find and harder to replace.

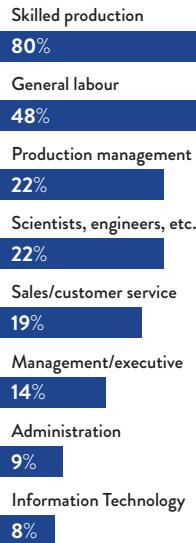
While Canada has one of the best workforces in the world, and a highly-educated and skilled population, significant gaps in talent exist. According to the results of the 2018 Management Issues Survey, 77 per cent of Ontario respondents stated they faced immediate labour and skills shortages. Five years from now, close to 80 per cent anticipate such shortages.

DOES YOUR COMPANY FACE LABOUR SHORTAGES TODAY?



These skills shortages are not isolated to one skill set, either. While skilled workers such as welders, technicians, electricians, etc., are the top concern for industry executives, the skills gap covers almost all areas of manufacturing operations in the province and includes everything from general labour to management.

WHICH OCCUPATIONS DOES YOUR COMPANY FACE THE MOST URGENT SKILLS SHORTAGES?



These shortages are driving up costs, undermining productivity, and eroding our global competitiveness. This is causing businesses to forego production opportunities and delay investment. In some cases, shortages of skilled workers are causing companies to consider relocating their operations outside Canada in order to sustain production. Skills shortages are also causing companies to under-invest in a range of advanced manufacturing technologies because their workers do not have the necessary technical skills, thus limiting the ability of manufacturers to use these technologies to their fullest potential.

Like all major issues, it's easier to identify the problem than the solutions. However, based on the feedback from our consultations and CME's Management Issues Survey, Ontario industry has a clear vision of what issues need to be addressed, and they have ideas on the specific steps that should be taken. To start, 60 per cent of respondent companies in the MIS identified a better alignment between industry and post-secondary institutions as the priority for government action. The second priority is to focus on work integrated learning programs, which finished just ahead of promoting skilled trades to Ontario's youth. While these three issues topped the list, a range of other solutions were also identified, most of these are addressed below.

HOW TO ADDRESS LABOUR AND SKILLS SHORTAGES?

Align post-secondary to industry

60%

Support work integrated learning

43%

Promote skilled trades youth

42%

Company training incentives

32%

Increase training tax credits

25%

Lower payroll taxes

20%

Increase skills-based immigration

19%

Focus on under-represented

17%

Incentivize immigrant location

12%

Improve Linkages Between Industry and Post-secondary Institutions

Closer ties between industry and the academic community are critical to ensuring that new graduates have relevant and up-to-date skills – an issue of particular concern given the rapid pace of technological change in manufacturing. Enhancing these linkages also supports the broader innovation agenda by creating ties through the students for enhanced research and development activities.

When businesses examine what is currently being taught in schools, they are sometimes surprised to discover that the training students receive – especially in areas like computer programming, software and digital technologies – is out-of-date compared to established business practices and the current use of technology. In other areas, the machines students learn on are two or three generations old compared to what industry is using today.

Without a doubt, part of the challenge is businesses investing the time and resources into local post-secondary institutions. And there are many success stories of industry and post-secondaries partnering on both training and on research. Notwithstanding those success stories, all too often businesses are not viewed as full partners in the education/training process, but simply as funders of scientific research. Improved linkages between post-secondary institutions and manufacturers need to be developed to support the growth of the manufacturing sector in Ontario. Manufacturers need graduates that have appropriate and up-to-date technical skills and are able to step into a job and contribute as soon as possible after graduation.

RECOMMENDATIONS:

1. Create a senior level government-industry-post-secondary advisory panel on addressing the skill shortages in the manufacturing sector.
2. Manufacturers need to work more closely with educators to develop and continually modernize curricula to suit their needs.

Support Apprenticeships and Work Integrated Learning

The second priority for government action, cited by 43 per cent of respondents, was to invest more support into apprenticeships and work integrated learning programs.

Apprenticeship programs are a staple in education and industry. Recognizing this, governments have recently boosted their support for apprenticeship programs. For example, additional funding to help students cope with the high cost of the training has helped more students get into and stay in apprenticeship programs. Funding has also been provided to industry to cover some of the direct costs associated with hiring and training apprentices.

These steps have rightly been applauded, but there is still room for improvement. In particular, the information and application programs tend to be overly complicated for both employers and apprentices. There should be an effort to update and streamline these processes.

In addition, and in many ways of greater concern, is the administration and rules around apprenticeship program in the province. Until very recently, regulators severely limited the number of apprentices entering the system because of an outdated ratio system. Ontario's recent actions to dramatically reduce ratios is fully supported. However, it is only the first step. Ratios are an antiquated system to restrict the entry of new people into the system and protect current skilled workers. In other major industrialized countries such as Germany, ratios have been eliminated and replaced with master apprentices who support the training of dozens of apprentices simultaneously. Given our severe lack of skilled labour today and the ticking demographic clock, moving towards this approach would help the training of desperately needed skilled workers.

While apprenticeship training is commonplace for technical trades, co-operative work integrated learning (WIL) is more common in other professions, including engineering, accounting, and a wide range of other jobs necessary for manufacturing success. The idea of work integrated learning is to eliminate the gap between formal education and on-the-job training to the point that, upon graduation, the student already has several years of work experience and can fully contribute to their workplace. And while apprenticeship training has received significant support, support for work integrated learning has been slower.

CME helped pioneer formal WIL training in Canada in a pilot with Siemens Canada. That initiative borrowed heavily from Siemens' German roots of work integrated learning and established a mechatronics training academy in Ontario. This academy allows Siemens to train students who are doing co-operative placements on techniques and skills they require, but that are not being taught at post-secondary schools. An extended example of this approach is for a company to leverage their resources to train post-secondary students for their own needs, as well as additional students that could be available to related companies and those in their supply chain.

Unfortunately, unlike apprenticeship training, there is little support from governments for WIL training. In addition to the ongoing reforms to apprenticeship training, WIL training must have direct support from the Government of Ontario to industry.

RECOMMENDATIONS:

- 1. Create an Ontario Apprenticeship Strategy that includes criteria to reduce apprentice to journeyman ratios, modernization of apprenticeship application process, expansion of expand tax credits to offset apprenticeship training costs, and implement an apprenticeship training bond to encourage individuals to remain with their employer.**
- 2. Improve and expand funding for work integrated learning programs that supports increased corporate participation through direct training supports.**

Engage Youth, Women, and Other Underrepresented Groups

One of the most common issues raised in the Industrie 2030 Ontario roundtable discussions was the need to attract more youth, women, indigenous and other under-represented segments of the population into manufacturing professions.

The challenge begins with a cultural bias towards liberal-arts university education and misperceptions about the nature of manufacturing work. The best way to address this bias is to provide students at a young age with accurate information about what a manufacturing job looks like, what the specific opportunities are, and the expected wages that come from a career in manufacturing. The reality is that careers in manufacturing are not what they were 10, 20 or 50 years ago. Jobs are highly skilled, often high-tech, and always high-wage. In fact, the average wage in manufacturing is nearly \$75,000 annually, which is well above national average for all occupations. Skilled trades wages can be much higher still. Furthermore, there is not just one career path in manufacturing – job paths are almost limitless from skilled workers and engineering to sales, design, or accounting. The breadth and depth of these paths needs to be better mapped and promoted.

Exposing youth to technology is one of the best ways to overcome these biases. Computer programming, robotics, artificial intelligence, and 3D printers are all technologies that youth can relate to and get interested in. These technologies should be viewed as gateways into engaging youth in possible careers in manufacturing.

Women, indigenous, and recent immigrants are also affected by cultural biases that prevent more active participation in the manufacturing workforce. In particular, much more attention needs to be paid to addressing the low representation of women in manufacturing jobs. Women represent only 28 per cent of the manufacturing workforce across Canada. To address this shortcoming, CME has launched a National Council on Women in Manufacturing that will aim to reverse these realities and increase the number of women in manufacturing by 100,000 by 2023. Additional steps must be taken, however to ensure proper engagement in these population groups.

RECOMMENDATIONS:

- 1. Mandate through the provincial curriculum “open doors” programs to take youth in grades 8-10 to tour local manufacturing plants to see first-hand career opportunities of the sector.**
- 2. Develop programs that provide youth, parents, and guidance counselors with detailed information about career opportunities in manufacturing, and pathways through post-secondary institutions.**
- 3. Invest in “maker-spaces” and implement high-school-level competitions that include the design and manufacture of a products using 3D printers or other advanced manufacturing tools.**

Strengthen STEM Education

Industrie 2030 Ontario participants were in widespread agreement that the public-school system needs to focus more on basic literacy and numeracy, as well as essential life and workplace skills. Simply put, the education system is doing a disservice to everyone by graduating students that cannot read, write or do math at an appropriate level, or that lack other basic social and workplace skills. Several companies reported that they rejected roughly 80 per cent of Canadian-born and educated applicants for general labour jobs simply because they lacked basic skills to the point that they would be a safety danger to themselves and their co-workers. The quality of basic education urgently needs to be improved.

Companies also widely reported that even those graduating with post-secondary degrees in STEM-related fields lacked sufficient skills and expertise in their respective areas. Many observed that it takes two years of on-the-job training before new graduates become productive assets to the business. While companies expect that a certain amount of on-boarding and other on-the-job-training is a regular part of the hiring process, there is presently such a distance between the skills and attitudes that many new graduates bring to the table and what is required on the job that businesses find it too daunting to try to bridge the gap.

A lack of effective STEM training also undermines students’ willingness to explore skilled work and technical trades opportunities. Without a quality baseline in STEM training, students self-select out of a wide variety of technical skills training and never reach post-secondary education levels. This is especially true of young women.

We understand that it can take years for such a shift to produce results, which is why it is critical to start immediately.

RECOMMENDATION:

- 1. As part of the current curriculum review in Ontario, the Government of Ontario needs to place a high priority on improving education standards, especially in core skills of reading, science, writing and math.**

Support Company Training

While the primary and post-secondary education system plays a crucial role in equipping students with the skills they need in a job setting, manufacturers also need to take responsibility for addressing their own workforce needs. Certain skills cannot be learned in the classroom and, in many cases, there is no substitute for on-the-job training. This is why above we noted the need for increased funding for WIL training.

There are two critically important elements to the workforce training challenge. The first is continuous improvement on the technical side – ensuring that workers not only enhance their general skills, but also expand those skills to adapt to new technologies, equipment and processes. The second element is enhancing leadership training for the next generation of manufacturing management.

There are a number of obstacles that prevent more company led workplace training from taking place. As displayed in the following chart from the 2018 Management Issues Survey, these issues range from fear of losing employees to being too busy, to a lack of incentives.

WHAT IS PREVENTING YOUR COMPANY FROM INVESTING MORE IN WORKFORCE TRAINING?

Concerned about losing the workers after they have been trained

42%

Too busy to afford the down time for workers

39%

No existing training programs fit our specific business needs

27%

The cost of such programs is too high

25%

Lack of sufficient government incentives

22%

Unsatisfied with the results of past training programs

22%

A preference for hiring experienced workers

21%

Lack of information about available training programs

16%

Before jumping to conclusions, it is worth spending a moment on the top issue identified: a concern over losing workers. This is not an actual fear of training and losing workers or refusing to train workers because they will be taken by someone else. Companies understand that investing in workers creates more productive and more valuable employees. However, some companies have an incentive to free ride: rather than invest in training themselves, they will wait for someone else to do the training and then recruit that employee. The end result is that businesses have a strong disincentive to invest in training because they may end up paying the costs but not realize the benefits.

Government incentives can play a critical role in addressing this challenge; supports for workforce training help to offset the risk and uncertainty associated with making those investments. When manufacturers were asked in the MIS about what more governments could do to help them address labour and skills shortages, the top response was to increase direct supports for training new and existing workers.

This speaks to another challenge: government support for workforce training has been sporadic and inconsistent. Over the years, federal and provincial governments have introduced dozens of pilot projects or temporary programs to assist businesses in this area. However, these programs are seldom funded for more than a few years, or they focus on training within a specific industrial sector. A more consistent, long-term and broad-based system of government support is needed.

The solution to these problems is to expand the Canada Job Grant (CJG). Manufacturers generally support this program because it does a good job of addressing many of the issues described above: it offsets two thirds of the cost of training; it reduces the risks associated with training expenditures; and it gives businesses the freedom to pursue the training most suited to their individual needs.

RECOMMENDATION:

1. Work with the Government of Canada to expand and improve the Ontario-Canada Job Grant by making it permanent, increasing available funds, allowing for the funding of multi-year training, expanding the range of eligible on-the-job training; and speeding up application approval times.

Immigration Reform

Immigration is clearly a federal responsibility; however, the province plays an important role in executing several critical elements and can apply pressure on the federal government for reforms.

Foreign-trained talent has always been critical to supplementing the domestic workforce, especially when local workers are unavailable or unwilling to take the job. In light of the chronic shortage of skilled workers described above, the ongoing demographics shift, and in combination with the time it would take to improve the education system and increase enrolment, the need for foreign-trained workers is urgent.

CME has fully supported recent increases to immigration levels as well as the reforms made several years ago to the intake system. Our support is based on the stated goal of bringing in more skilled workers to those companies who needed them. Unfortunately, the system has resulted in “skilled” being interpreted in the narrowest of manners; many of the skilled trades most needed by manufacturers are not included in the list. In addition, trying to get a potential worker through the system is an arduous process which causes significant uncertainty.

If immigration is going to support the growth in manufacturing in Ontario, two fundamental reforms are needed: redefine the classification of skilled workers; and improve and speed up the immigration process. In addition, the province should better leverage their Provincial Nominee Program to support the skills most needed by manufacturers.

RECOMMENDATIONS:

- 1. Work with the Government of Canada to redefine what qualifies as a “skilled” worker to be more flexible and speed up processing times.**
- 2. Expand the Provincial Nominee Program and ensure it is aligned with industry needs.**

SUPPORT INVESTMENT, TECHNOLOGY ADOPTION, AND SCALE-UP

The problem of the lack of investment in manufacturing in Ontario has been well documented earlier and does not bare much repeating. In short, investment has been sharply down across manufacturing in Canada, and in particular in Ontario, over the past several years. Throughout this paper we have identified the issues and offered many recommendations and solutions to the problems. Tax and regulatory reform, reducing electricity prices, and taking steps to close the fill the provinces labour gaps are all critical steps.

However, in order to grow manufacturing and meet our goal of \$600 billion in output by 2030, there must be more direct and deliberate actions taken. Ontario must identify and target opportunities for growth that will reshape the manufacturing landscape in the province and invest resources in their development. We must be looking forward to where markets are going and what consumers are demanding and finding our unique opportunities. We must not be content with what we have but find ways to attract new and reshape the entire manufacturing economy of the province.

There are tremendous opportunities that Ontario must look at that can help in this regard. How technology and manufacturing are intersecting is one example? How can Ontario once again be a magnet for large multi-national company investment, something that seems to have been lost over the past decades? How can we create new industries and scale them up to be world leaders?

These are critical components to a revitalized, healthy, and prosperous manufacturing sector that are critical to any growth strategy.

Accelerate Technology Adoption

Technology is rapidly changing the way we all live our lives. As an example, in the not-too-distant past, cell phones were for emergency communications with very low market penetration. Now they are critical communication tool that nearly everyone utilizes for almost all aspects of their lives. On our wrists we use smart watches that count our steps, heart rates, sleep patterns, and even tell time. We now have artificial intelligence in our homes that will do a wide array of things using only voice commands: everything from ordering food; to changing temperature in the home; or playing our favourite music. In the not-too-distant future, electric and autonomous vehicles will be commonplace, able to safely and efficiently move us around with little to no interaction from the passengers.

While we think about these technologies and the impact on our day-to-day lives, the bigger impacts may be in the business world. And many of these same technologies are already being deployed by manufacturers around the world. For example, electric autonomous vehicles are commonplace today in large manufacturing operations, moving production parts and components to different stations for additional assembly. That assembly is increasingly being done by artificial-intelligence-aided robotics that are handling the materials

and completing significant parts of the assembly process. The entire process is monitored through an array of sensors and by robots that can process and identify weaknesses or areas for improvement. In turn, this entire process can be monitored and controlled from a cell phone from anywhere in the world.

Manufacturers are at the cutting edge of this technological change in two important ways.

First, they are developing these technologies for both consumer and industrial uses. Continuous product innovation is critical for manufacturers. Consumers are growing ever more demanding as rapid advances in technology reshape their expectations. To meet these expectations, manufacturers must be continuously innovating – investing in research and development that leads to new product commercialization. The ability to commercialize new products is essential to investment, jobs and economic growth.

Second, they should be adapting these technologies to improve their own processes to be globally competitive. These technologies can dramatically reduce production costs, improve output, and improve efficiencies (which reduces energy costs and emissions). In an area of global free trade agreements where domestic manufacturers have preferential duty-free access to nearly two-thirds of the global marketplace, they must leverage these technologies to effectively compete in these markets. More critically, this also means that Ontario manufacturers are competing against two-thirds of the global marketplace right here at home. Manufacturers must adopt the latest technologies to ensure their production processes are world class and their products competitive.

Unfortunately, Ontario manufacturers are not investing in and adopting these technologies. To better understand the scope of this challenge, CME's recent Management Issues Survey asked companies about the rate of technology adoption. In total, less than 40 per cent of respondents in Ontario said they used advanced manufacturing technologies while 55 per cent did not.

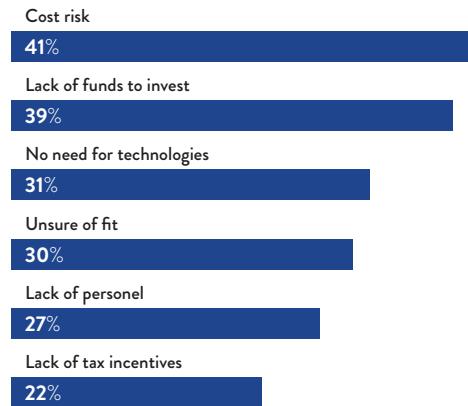
DOES YOUR COMPANY USE ADVANCED MANUFACTURING TECHNOLOGIES?



One of the root causes of this challenge is the structure of Ontario's manufacturing sector, which is very different from that those of the province's international competitors. Most manufacturers here are small; in fact, nearly 84 per cent have fewer than 20 employees while only 0.3 per cent have more than 500. In the US the comparable number of small companies is 65 per cent – a nearly 20 per cent difference. This industrial structure plays an important role in Canada's relatively poor record on product and process innovation. Smaller companies, while often more innovative than larger companies, do not have the necessary capital to invest in new products or technologies at the same rate as larger companies. Smaller companies also have a much narrower risk profile which makes them much more conservative and unwilling or unable to invest at the same rate as their international competitors.

These points were underscored in the 2018 MIS when companies were asked about the specific obstacles they face in adopting new technologies. The most common response, at 41 per cent, was the cost risk to the firm. The second highest response, at 39 per cent, was a lack of available funds for investment. In addition to these top responses, the next highest response showed the lack of understanding about the technologies and their implications on future manufacturing success – 31 per cent of companies claimed they had no need for such technologies. Other notable responses included a lack of the right skill sets and a lack of government support and tax incentives.

OBSTACLES TO INVEST IN ADVANCED MANUFACTURING TECHNOLOGIES



These responses highlight the need for urgent action – especially given the pace of technological change globally and the impact it is having on manufacturing. To start with, the Ontario government must help companies identify and source capital for investment and expansion, leveraging advanced technologies. This should include the creation of a new program to directly support investment in advanced technologies. Investment support programs should be simple to apply for and comply with, should be targeted at sharing risk of technology investment, and apply where private funding is lacking.

The second area that needs urgent attention is improving promotion and understanding of the technological change that is altering manufacturing globally. Companies need better education and exposure to these changes and how they can and will impact their operations in Ontario. Recently the federal government supported the creation of an Advanced Manufacturing Supercluster in Ontario. This is a positive step; however, more can be done. The Ontario government should support the creation of manufacturing technology demonstration centres that specifically aim to link local technology companies to manufacturers. This step would assist commercialization and scale-up of Ontario companies by providing a local customer base as well as boost manufacturers' technology adoption rates. The government should also look to improve the education of manufacturing executives on modern advanced technology platforms through global outreach, education tours, and showcases. This type of outreach, called Technology Visits Program, used to be offered through NRC-IRAP and CME and could be relaunched.

RECOMMENDATIONS:

1. Create an investment support program to risk-share company investments in advanced manufacturing technologies.
2. Create manufacturing hubs and demonstration centres that connect technology companies with manufacturers across Ontario.
3. Fund the relaunch of the Technology Visits Program to increase manufacturing executives' education and exposure to advanced manufacturing technologies.

Attract Foreign Direct Investment

While SMEs are the backbone of the economy and represent the vast majority of manufacturing firms in the province, large multi-national enterprises (LMEs) are essential anchor firms. LMEs can drive transformational change in the economy. They tend to invest more resources into technology adoption and in research and development. They are often globally integrated with deep supply chains and operations around the globe. And they are critical to the success of SMEs – most of whom count LMEs as their primary clients.

Ontario was once a prime location for LMEs to invest in almost every manufacturing sub-sector and the names of the companies are common place around the province – both for what they sell to consumer as well as what they manufacture locally. While there still are examples of Ontario attracting investment from these companies, more recently there seemingly have been more announcement from these companies divesting from Ontario than creating new opportunities for the province. This must change.

In addition to saying Ontario is Open for Business and taking foundational steps to improve the regulatory and business climate of the province (those recommendations are detailed earlier), the province needs an aggressive investment attraction campaign to re-establish itself as a prime location for LME investment.

And while this campaign should include the usual marketing and public relations elements, more tactical and practical measures are urgently needed in the province. Specially an FDI office and investment supports.

Recently the Ontario Government established Invest Ontario as its investment attraction office, in large part at the recommendation of CME. However, this office became a large bureaucracy with a multitude of masters and deliverables. It became a marketing arm of the government, rather than a tool for foreign investors. The idea was right, the implementation missed the mark. A new, simpler office of investment should be created and it should operate in the following manner: target primarily LMEs to start, report directly to the Premier, and focus resources on navigating and breaking down domestic barriers to investment. This is the model that is used successfully in many US states to help attract Ontario company investment into their states.

The second issue of investment support is more politically challenging and sometimes controversial. At the same time, it is something that is offered to LMEs around the globe because of the positive and long-lasting impacts they have on the local economy. As such, investment supports must be seen in light of similar programs offered by competing jurisdictions and ensure they are effective both in attracting new investment, as well as assisting those companies looking to reinvest in their existing processes.

RECOMMENDATIONS:

1. Create an investment attraction office that reports directly to the Premier to facilitate company investment.
2. Fund globally competitive direct investment support programs for anchor to expand existing operations or open new facilities.

Scale-up and Commercialization

Innovation is turning an idea into a product or service. Successful innovation is creating commercial and social benefits out of those products and services. Consumers are growing ever more demanding as rapid advances in technology reshape their expectations. To meet these expectations, manufacturers must be continuously innovating – investing in research and development that leads to new product commercialization.

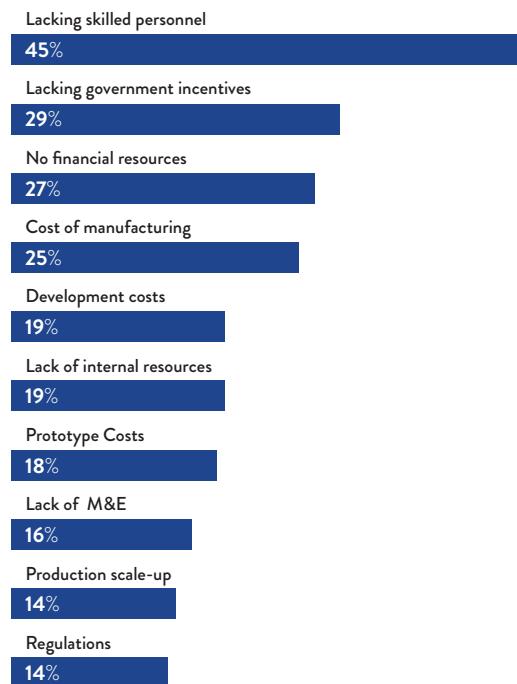
Ontario – our people, society and businesses – is full of ideas. Our post-secondary institutions are amongst the world leaders in peer-reviewed articles per capita. Our government research labs regularly turn out a range of intellectual property (IP) and patents each year.

However, we often struggle to turn those ideas into new products or services. While manufacturers account for nearly 50 per cent of all private sector investment in research and development, they too struggle to commercialize and scale up.

There are too few examples of Ontario companies that are world leaders in innovation and new product development. Over the years, Ontario has developed a handful of such companies, but changing consumer preferences and competing innovations in other countries have supplanted many of those businesses. To be sure, there are examples everywhere of innovative activity in manufacturing right here in Ontario. However, overall, other countries have done a better job of fostering manufacturing innovation and leveraging public- and private-sector research and development to create and, more importantly, successfully commercialize new products and technologies.

To better understand the challenges companies face in commercializing new products, CME's Management Issues Survey was leveraged. Not surprisingly, like many other areas of this report, companies reported that skills shortages were holding them back. In fact, 45 per cent of respondents claimed this to be the top challenge they faced, 16 percentage points higher than the second place response – the lack of government incentives. The next several responses all revolve around the lack of resources and the cost of scale-up and commercialization.

TOP CHALLENGES FOR PRODUCT COMMERCIALIZATION



As noted earlier, Ontario's industrial structure plays an important role in shaping these results. Smaller companies, while potentially more innovative than larger companies, do not have the necessary capital to invest in new products development at the same rate as larger companies. Smaller companies also have a much smaller risk profile which makes them much more conservative and unwilling or unable to invest at the same rate as their international competitors.

This is where initial focus should be placed: helping companies find the resources necessary for commercialization. And the Ontario government can play an important role, in several respects.

First, governments can directly be involved in product commercialization through the procurement process both a first buyer and a direct funder. The United States offers an excellent model that could be emulated in Ontario, and has been to some degree with Canada's federal government. US companies can leverage the Small Business Innovation Research (SBIR) program which requires many US federal agencies to allocate 2.8 per cent of that budget to a competitive awards-based program that funds small-business R&D with the potential for commercialization. The intent is to stimulate high-tech innovation by small businesses, while also addressing specific national R&D needs. Another similar model from the US is the Defense Advanced Research Projects Agency (DARPA). DARPA's mission is to make pivotal investments in breakthrough technologies for national security. While focused on military applications, the end results often have broad-based consumer applications. Notable examples include the internet, automated voice recognition and language translation, and global positioning system (GPS).

Outside of the new product development, the Ontario government can also play a critical role by leveraging its purchasing power to support local manufacturing innovation and production. Current examples of this include the use of local knowledge provisions and local content requirements for infrastructure procurement. These measures are common globally and are known to drive local innovation and investment. Ontario should maintain globally-competitive and consistent procurement purchasing requirements. In addition, procurement processes should be fully transparent and simple to follow for companies of all sizes.

In addition to procurement, there is much the Ontario government can do to boost the province's innovation agenda and economic activities. As noted earlier, one of the biggest hurdles facing Ontario manufacturers is the lack of available capital and resources, coupled with the lack of supports from government to fill these gaps. There are several measures Ontario should consider taking to address this challenge. First, it should establish an innovation repayable risk-sharing fund that would be focused on the commercialization of new products and the attraction of new product mandates. Second, Ontario's 2018 budget committed to review the implementation of a Patent Box system to encourage commercialization of products locally. This has successfully been adopted in other jurisdictions globally and in other Canadian provinces. Such a tool would support initial production scale-up by reducing corporate taxes paid on earnings from new products.

RECOMMENDATIONS:

- 1. Leverage government procurement to drive commercialization and scale-up through the mirroring of the US SBIR and DARPA programs.**
- 2. Maintain global consistency on local knowledge and investment requirements for high-value procurement opportunities.**
- 3. Increase direct investments in high-potential firms by creating a provincial risk-sharing funding program aimed at improving productivity and accelerating the commercialization of innovative products.**
- 4. Implement a Patent Box system to reward commercialization and production of goods and advanced technologies in Ontario.**

SUMMARY RECOMMENDATIONS

1. REDUCE THE COST OF DOING BUSINESS

a. Tax Reform:

- Lower the headline corporate income tax rate from 28 per cent to 20 per cent. The reduction should be evenly split between the two levels of government.
- Introduce targeted tax investment incentives aimed at boosting output, innovation, workforce training and commercialization.
- Conduct a full review of the tax system, ideally in coordination with the federal government, to modernize and simplify it, to ensure it is supporting both economic and social objectives.

b. Regulatory Reform:

- Continue a complete, province-wide regulatory review process with an aim to eliminate duplication between levels of government, to support better regulatory processes at local levels.
- Introduce a regulatory bill of rights that ensures all regulations moving forward would balance the needs of regulators with business and introduce globally-competitive risk- and science-based regulatory management processes.

c. Electricity Pricing:

- Conduct a review of the electricity system and oversight procedures, and introduce an industrial electricity rate for manufacturers that is competitive with neighbouring US jurisdictions.

d. Property Taxes:

- Increase tax and regulatory protection for current industrial lands and eliminate the use of “highest and best use” provisions.
- Undertake a full review of the property tax system to ensure fairness for industrial users and competitiveness, including committing to abolishing the Business Education Tax.

e. Infrastructure Investment:

- Prioritize investment in trade corridors that link Ontario manufacturers to customers in North America and around the world.
- Digital connectivity infrastructure must be greatly improved to provide access to efficient and effective high-speed internet access that works with modern advanced manufacturing technologies.

f. Environmental Performance:

- Industry and government should co-develop an environmental benchmarking and sustainability study to show how Ontario manufacturing compares to international standards and target areas for possible improvement.
- Work with industry to fully and effectively implement the recently announced “Made-in-Ontario Environment Plan.”
- Ensure that all revenues collected by governments from carbon taxes are recycled back into sector for investment.

2. STRENGTHEN THE LABOUR POOL

a. Improve Alignment Post-secondary and Industry:

- Create a senior level government-industry-post-secondary advisory panel on addressing the skill shortages in the manufacturing sector.
- Manufacturers need to work more closely with educators to develop and continually modernize curricula to suit their needs.

b. Support Work Integrated Learning:

- Create an Ontario Apprenticeship Strategy that includes criteria to reduce apprentice to journeyman ratios, modernization of apprenticeship application process, expansion of expand tax credits to offset apprenticeship training costs, and implement an apprenticeship training bond to encourage individuals to remain with their employer.
- Improve and expand funding for work integrated learning programs that supports increased corporate participation through direct training supports.

c. Engage Youth, Women and Under-represented:

- Mandate through the provincial curriculum “open doors” programs to take youth in grades 8-10 to tour local manufacturing plants to see first-hand career opportunities of the sector.
- Develop programs that provide youth, parents, and guidance counselors with detailed information about career opportunities in manufacturing, and pathways through post-secondary institutions.
- Invest in “maker-spaces” and implement high-school-level competitions that include the design and manufacture of a products using 3D printers or other advanced manufacturing tools.

d. Strengthen STEM Education:

- As part of the current curriculum review in Ontario, the Government of Ontario needs to place a high priority on improving education standards, especially in core skills of reading, science, writing and math.

e. Support Company Training:

- Work with the Government of Canada to expand and improve the Ontario-Canada Job Grant by making it permanent, increasing available funds, allowing for the funding of multi-year training, expanding the range of eligible on-the-job training; and speeding up application approval times.

f. Immigration Reform:

- Work with the Government of Canada to redefine what qualifies as a “skilled” worker to be more flexible and speed up processing times.
- Expand the Provincial Nominee Program and ensure it is aligned with industry needs.

3. SUPPORT INVESTMENT, TECHNOLOGY ADOPTION, AND SCALE-UP

a. Technology Adoption:

- Create an investment support program to risk-share company investments in advanced manufacturing technologies.
- Create manufacturing hubs and demonstration centres that connect technology companies with manufacturers across Ontario.
- Fund the relaunch of the Technology Visits Program to increase manufacturing executive’s education and exposure to advanced manufacturing technologies.

b. Investment Attraction:

- Create an investment attraction office that reports directly to the Premier to facilitate company investment.
- Fund globally competitive direct investment support programs for anchor to expand existing operations or open new facilities.

c. Scale Up and Commercialization:

- Leverage government procurement to drive commercialization and scale-up through the mirroring of the US SBIR and DARPA programs.
- Maintain global consistency on local knowledge and investment requirements for high-value procurement opportunities.
- Increase direct investments in high-potential firms by creating a provincial risk-sharing funding program aimed at improving productivity and accelerating the commercialization of innovative products.
- Implement a Patent Box system to reward commercialization and production of goods and advanced technologies in Ontario.

CONCLUSION AND NEXT STEPS

Industrie 2030 Ontario started out with the bold objective to double Ontario manufacturing output by 2030. This goal was chosen for one simple reason; it was essential to reset the dialogue on the future of manufacturing in Ontario given the rapidly-transforming global manufacturing environment – a transformation driven by the economic landscape in North America and changes in consumer and societal demands.

We believe that Ontario has a choice: we can do nothing and watch manufacturing continue to stagnate, while investment and production continues to go to other jurisdictions; or we can act decisively to once again make Ontario a preferred location for manufacturing and open for business. When one-third of the economy is linked to Ontario's manufacturing sector, this should not be a difficult choice to make.

We also believe that Ontario has a great opportunity. Within our province we have the people, the natural resources, the supporting infrastructure and the technology to accelerate growth in Ontario's manufacturing sector. The issue in Ontario is that we need to focus on a coordinated strategy that will manufacture growth, innovation and prosperity for Ontario.

The easy part is done. This report and the related economic and research analysis stemming from the Industrie 2030 Ontario consultations sets the framework for growth. CME will be working with its partners to implement the recommendations contained in this report. We will work through our policy committees and working groups to refine those recommendations into specific priority areas for action. We will partner with the Government of Ontario and industry to develop implementation strategies and put those plans into action. We will measure success based on our progress in meeting the performance metrics outlined above.

Ensuring success in this process requires a sustained focus for our organization, partners and members. Reaching our goals will require additional research and consultations, developing new programs, focusing our advocacy efforts, creating new partnerships and improving existing ones.

We look forward to working together on the key changes needed to dramatically reinvigorate manufacturing in Ontario and materially improve the economic well being of all Ontarians. To find out more about how you can support our efforts, visit our website at **CME-MEC.CA**.