Plant

SPRING 2022

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CANADA'S MANUFACTURING MAGAZINE

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EMPLOYMENT
Strategies organizations should look for in modern-day hiring. *p.16*

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Manufacturers are being forced to examine their entire supply chain network.

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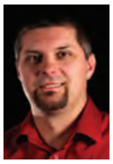
Cover Photo: Sami Sert / E+ / Getty Images



EDITORIAL
BY MARIO CYWINSKI

Supply chain headaches continue

Many believe problems to persist for over a year.

COVID-19 may have exasperated any issues that the supply chain network in Canada had, but other recent events didn't help. Trucker protests in Ottawa, blockades in Windsor, Ont. at the Ambassador bridge (which is one of Canada's most important trade routes), as well as other blockades across Canada, and most recently the war in Ukraine, have had an enormous impact on a supply chain network that was already struggling.

What else can be said about supply chain that hasn't already been covered extensively over the last little while? *Plant magazine* recently held a roundtable with experts in the supply chain sphere to find out. Representatives from Canadian Manufacturers and Exporters, Price Waterhouse and Coopers, Private Motor Truck Council of Canada, and Supply Chain Canada, spoke about how the pandemic has exposed supply chain issues in the Canadian manufacturing sector. They also spoke to how business uncertainty is resulting from volatile trade issues, and how global disruptions are forcing manufacturers to examine their entire supply chain network. A summary of the roundtable is available on page 10. The whole roundtable is available on Plant's web site.

Additionally, *Plant* ran a series of polls to gauge how the supply chain issues are affecting manufacturers. The first poll asked: *What is the most important aspect of the supply chain for you and/or your company?* Nearly half said it was manufacturing/assembly (49 per cent), followed by planning (27 per cent), packaging/transportation (12 per cent), and other (12 per cent).

Next, we asked *Has the COVID-19 pandemic created supply chain problems for your company?* Unsurprisingly, a majority had issues, with 57 per cent having major issues, 33 per cent having minor issues, and only five per cent saying they had no issues; the rest said other.

While COVID-19 had an impact on almost everyone, our next question, *Have recent border blockades/closures created supply chain problems for your company?*, found not everyone was affected. The largest group said they had no issues (40 per cent), with 31 per cent facing major issues, and 23 per cent facing minor issues, five per cent had other issues.

What these polls show is that the majority of companies have had issues (major or minor) because of COVID-19, blockages, closures, and more. What many companies need is a return to normal, or as close to it as possible. At the very least, a period of no new disruptions, to be able to plan things out.

However, according to our last poll, that may be a little ways away. We asked *How much longer do you see supply chain issues continuing?* Nearly half said over a year (49 per cent), while 24 per cent are seeing it being a year. Not many were very optimistic, as nine per cent said nine months, eight per cent said three months, and five per cent said six months. With five per cent saying another time period.

While many people want to be optimistic about the current supply chain issues, it seems many believe it will be a while before we can get back to something resembling normal.

Hopefully, we do not see any new problems crop up to add to the headaches that supply chain has been seeing over the last while.

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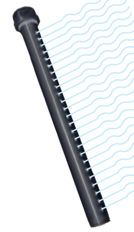
The TRUTH About COMPRESSED AIR!

If you think compressed air is too expensive and noisy - read this. The facts will surprise you!

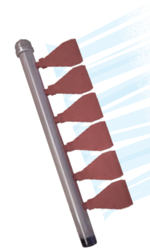
Compare These Blowoffs

There are a variety of ways to dry, clean or cool products and surfaces, but which method is best? To decide, we ran a comparison test on the same application using four different blowoff methods: drilled pipe, flat air nozzles, Super Air Knife (each using compressed air as a power source), and a blower supplied air knife (using an electric motor as a power source). Each system consisted of two twelve inch long blowoff options. **The following comparison proves that the EXAIR Super Air Knife is the best choice for your blowoff, cooling or drying application.**

The goal for each of the blowoff choices was to use the least amount of air possible to get the job done (lowest energy and noise level). The compressed air pressure required was 60 PSIG. The blower used had a ten horsepower motor and was a centrifugal type blower at 18,000 RPM. The table below summarizes the overall performance.



Drilled Pipe This common blowoff is very inexpensive and easy to make. For this test, we used (2) drilled pipes, each with (25) 1/16" diameter holes on 1/2" centers. The drilled pipe performed poorly. The initial cost of the drilled pipe is overshadowed by its high energy use. The holes are easily blocked and the noise level is excessive. Velocity across the entire length was very inconsistent with spikes of air and numerous dead spots.



Flat Air Nozzles This inexpensive air nozzle was the worst performer. It is available in plastic, aluminum and stainless steel from several manufacturers. The flat air nozzle provides some entrainment, but suffers from many of the same problems as the drilled pipe. Operating cost and noise level are high. For some flat air nozzles the holes can be blocked - an OSHA violation. Velocity was inconsistent with spikes of air.

Blower Air Knife The blower proved to be an expensive, noisy option. As noted below, the purchase price is high. Operating cost was considerably lower than the drilled pipe and flat air nozzle, but was comparable to EXAIR's Super Air Knife. The large blower with its two 3" (8cm) diameter hoses requires significant mounting space. Noise level was high at 90 dBA. There was no option for cycling it on and off to conserve energy. Costly bearing and filter maintenance along with downtime were also negative factors.

EXAIR Super Air Knife The Super Air Knife did an exceptional job of removing moisture on one pass due to the uniformity of the laminar airflow. The sound level was very low. For this application, energy use was slightly higher than the blower but can be less than the blower if cycling on and off is possible. Safe operation is not an issue since the Super Air Knife can not be dead-ended. Maintenance costs are low with no moving parts to wear out.

The Super Air Knife is the low cost way to blowoff, dry, clean and cool.

Blowoff Comparison

Type of blowoff	PSIG	BAR	Comp. Air SCFM	Comp. Air SLPM	Horsepower Required	Sound Level dBA	Pur-chase Price	Annual Electrical Cost*	Approx. Annual Maintenance Cost	First Year Cost
Drilled Pipes	60	4.1	174	4,924	35	91	$50	$4,508	$920	$5,478
Flat Air Nozzles	60	4.1	257	7,273	51	102	$300	$6,569	$1,450	$8,227
Blower Air Knife	3	0.2	N/A	N/A	10	90	$7,000	$1,288	$1,500	$8,288
Super Air Knife	60	4.1	55	1,557	11	69	$720	$1,417	$300	$2,437

*Based on national average electricity cost of 8.3 cents per kWh. Annual cost reflects 40 hours per week, 52 weeks per year.

Facts about Blowers

Energy conscious plants might think a blower to be a better choice due to its slightly lower electrical consumption compared to a compressor. In reality, a blower is an expensive capital expenditure that requires frequent downtime and costly maintenance of filters, belts and bearings.

Here are some important facts:

- Filters must be replaced every one to three months.
- Belts must be replaced every three to six months.
- Typical bearing replacement is at least once a year at a cost near $1000.

- Blower bearings wear out quickly due to the high speeds (17-20,000 RPM) required to generate effective airflows.
- Poorly designed seals that allow dirt and moisture infiltration and environments above 125°F decrease the one year bearing life.
- Many bearings can not be replaced in the field, resulting in downtime to send the assembly back to the manufacturer.

Blowers take up a lot of space and often produce sound levels that exceed OSHA noise level exposure requirements. Air volume and velocity are often difficult to control since mechanical adjustments are required.

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NEWS

Photo: General Motors.

AUTOMOTIVE

GM AND POSCO CHEMICAL TO BUILD NEW PLANT IN QUEBEC

General Motors and POSCO Chemical plan to build a new plant in Bécancour, Quebec. The companies are working with the governments of Canada and Quebec on the $500 million CDN facility.

"It is so exciting to see GM Canada and Quebec playing a key role in building the emerging 'mines to mobility' EV battery ecosystem in North America," said Scott Bell, President and Managing Director, GM Canada. "With this new processing facility in Bécancour, GM will help lead the EV battery supply chain while also launching Canada's first full EV manufacturing plant in Ingersoll, Ontario, later this year."

The Quebec-based plant will produce cathode active material (CAM) for GM's Ultium batteries. Construction begins right away and will create around 200 jobs.

GM plans to have capacity to build 1 million EVs in North America by the end of 2025. GM is targeting most components by value to be sustainably sourced, processed or manufactured in North America.

MAGNA ENTERS JOINT VENTURE TO ASSEMBLE SEATS IN MICHIGAN

Magna has entered into a joint venture with LAN Manufacturing, a minority-owned automotive supplier based in Michigan.

The joint venture, to be called LM Manufacturing, will assemble complete seats for various trucks and SUVs for Ford Motor Company, operating from a 296,000-square-feet leased facility in Detroit, Michigan. Magna will own a 49 per cent stake.

Production is scheduled to begin in the second quarter of 2023 and is expected to bring in more than 390 jobs to the city of Detroit. The Michigan Strategic Fund has awarded a $2 million grant to the joint venture.

GREEN TECHNOLOGY

BASF ACQUIRES QUEBEC SITE FOR BATTERY MATERIALS AND RECYCLING

BASF signed an agreement to secure land for its future cathode active materials and recycling site in Bécancour, Quebec.

The new site allows for space to expand up to 100 kt CAM per year, with potential for fully integrated precursor cathode active materials (PCAM) supply.

The site will be connected to BASF's global metal sourcing network with provision for a nickel and cobalt intermediates base metal refinery and recycling of all battery metals (including lithium).

Project planning is progressing and subject to necessary approvals. BASF targets project commissioning in 2025.

SIEMENS AND NEXII PARTNER ON EV CHARGING PROTOTYPE

Siemens Corporation and Nexii Building Solutions Inc. unveiled an EV charging prototype, developed, and patented for charging large numbers of electric vehicles in outdoor environments.

Created using Nexii's building material, Nexiite, which has comparable properties to concrete with less embodied carbon, the weather-resistant design can be used in environments from small office building parking lots to a football stadium.

Nexiite was used to create the vertical structure to support Siemens Sentron Busway systems that connect to power the EV chargers. The charging infrastructure is cast directly into Nexiite.

Photo: Société du parc industriel et portuaire de Bécancour

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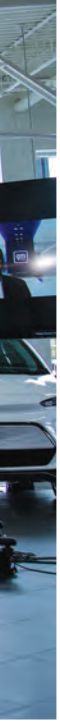

The busway power distribution equipment is manufactured at Siemens' manufacturing hub in Spartanburg, South Carolina.

ROCK TECH LITHIUM APPOINTS DIRECTOR

Rock Tech Lithium Inc. announced the appointment of Esther Bahne to its Board of Directors.

Bahne was appointed as the company's chief marketing and strategy officer in October 2021. She took on the role to reposition Rock Tech as a cleantech company and define the brand around sustainability goals.

Bahne has over 16 years of experience in the car industry. Reporting directly to the Board of BMW Group, she served as the global head of strategy and CMO at MINI after taking on the relaunch of the MINI brand in 2015. She started her career at Audi AG as spokeswoman of the Board. Bahne also founded the start-up accelerator URBAN-X and built a design centre in New York City.

OPERATIONS

LASERFICHE PARTNERS WITH GIRLS WHO CODE TO ADDRESS GENDER GAP IN TECH

Laserfiche, provider of intelligent content management and business process automation, announced its partnership with Girls Who Code, a non-profit organization whose mission is to close the gender gap in technology and computing.

Since its inception, Girls Who Code has reached 500 million people globally and 450,000 girls through its programming. The organization serves girls from elementary school to college, half of whom come from historically underrepresented groups in the technology industry.

CME LAUNCHES ACCELERATOR PROGRAM FOR MANITOBA MANUFACTURERS

Canadian Manufacturers & Exporters (CME) has launched the Manufacturing Accelerator Program (MAP), designed to help Manitoba's manufacturers "become more globally competitive in the wake of the COVID-19 pandemic."

Working with PrairiesCan and other key partners, the initiative will support individual companies and enhance the manufacturing network through advisory services, benchmarking assessments, and competency development to accelerate the competitiveness of Manitoba's manufacturing sector. Manitoba manufacturers have investment intentions of $1 billion.

AVIATION

AIR CANADA INAUGURATES COLD CHAIN HANDLING FACILITY

Air Canada announced the inauguration of Air Canada Cargo's new cold chain handling facility at its Toronto Pearson International Airport cargo facility.

Photo: Air Canada

The upgraded facility will feature 30,000 square feet of temperature-controlled areas and an expanded cooler to fully meet the requirements of cold chain shipments, such as pharmaceuticals, fresh food, and other perishables.

The renovations included the installation of energy efficient equipment, such as temperature controllers that will constantly monitor the conditions inside the facility and regulate the temperature as needed. **Plt**

*Visit **plant.ca/news** for more industry news and events.*

Establishing a safe and thorough plant procurement process

Procurement health and safety enhances organizational performance and ensures long-term financial gain.

BY CANADIAN CENTRE FOR OCCUPATIONAL HEALTH AND SAFETY

Amir is the production manager in a meat processing plant. Last year, while working with the supply chain team at the plant, he requested a new piece of equipment that would help with material handling. The team ordered the equipment directly from the manufacturer, and it met the required safety standards for that location.

However, upon inspection at the plant, the safety manual was not available in English and French, and the electrical components did not meet the North American standard. They were unable to use the equipment and had to purchase a pre-owned one elsewhere to replace it. This cost the company money and affected production.

What could have done to prevent these issues and keep their staff safe?

Pre-procurement considerations

Production continuity can be heavily impacted by supply chain disruptions and plant safety hazards. Safety should be top of mind in each stage of procuring any new piece of equipment for the plant – especially if purchases could affect or impact any of the following elements: confined spaces, ergonomics, infection control, maintenance, material handling, noise, radiation, training requirements or waste management.

While a shift to automation and machine learning can improve workplace processes, it is not without risk. Upgrades, retrofits, modifications and interactions between machines and workers may introduce new potential hazards. To effectively manage risk, you must know where potential hazards exist and eliminate or control these hazards.

Before purchasing new equipment or machinery, conduct a risk assessment. Take a thorough look at your workplace to identify situations and processes that may cause harm, particularly to people. Once you've identified potential hazards, analyze the severity of the risk. You can then decide, with the involvement of your health and safety representative or committee, what kind of measures should be in place to effectively eliminate or control these hazards.

Verify safety standards

Given that a lot of equipment is sourced from different provinces or countries, it's important to consider how safety standards and legislative requirements might be different than your own. As an employer, you have an obligation to provide your workers with safe equipment and machinery. This means that where hazards from use exist, you must do everything possible to minimize the risks and provide the necessary information and instructions for its safe use.

Ideally, every manufacturer would meet specific design criteria and provide consistent, accurate safety information in accordance with legislation. However, due to the nature of the global supply chain, what is

> ***Before purchasing new equipment or machinery, conduct a risk assessment. Take a thorough look at your workplace to identify situations and processes that may cause harm, particularly to people.***

Photo: elnariz / Adobe Stock

Photo: paulacobleigh / Adobe Stock

acceptable in one location may not meet the requirements in another. Purchasers need to ensure the items they buy are compliant with relevant safety standards and legislative requirements for their jurisdiction.

Consider including clauses in your purchase agreement requiring manufacturers to provide safety standard information; for example, if they meet the requirements of the Canadian Standards Association or an equivalent standard for specific safety requirements like guarding.

Before placing the final order, undertake pre-purchase checks. If you have a project team devoted to this specific procurement, ask members to view the machine to verify it meets requirements such as health and safety legislation and standards.

Although a risk assessment should confirm design compliance of a piece of plant equipment, some aspects of plant safety are subtler or user specific. A common way to assess this is to have a trained operator test the equipment. The operator should verify ergonomic adjustability, visibility or line of sight, any auxiliary component changes, and other controls that may be applicable.

Suppliers may also conduct a demonstration to illustrate the important features of the equipment. It's also a good practice to create a machine and equipment checklist to make sure that the equipment meets the safety standards of the workplace.

Once purchasers understand the different features available, they can decide if the equipment is suitable. A pre-site inspection for where the machine or equipment is going is also an important consideration.

Post-purchase considerations

After the order has been made, there are additional safety considerations to keep in mind.

Hold a meeting to confirm all aspects of the order, including the installation plan, applicable standards, safe work procedures, and additional training requirements. Consider including relevant workers who may not have been involved in the initial stages of the purchase. This meeting can help get everyone up to speed on the plan and training requirements, which can prevent delays when the equipment arrives.

Prioritizing health and safety during procurement is not only prudent, but it also makes good business sense. It delivers harm reduction, cost savings, enhanced organizational performance and long-term financial gain.

Once Amir has been trained on how to conduct the appropriate checks and balances before procuring equipment, he will be able to create a more efficient production line, while keeping his employees safe on the job. **Plt**

The Canadian Centre for Occupational Health and Safety (CCOHS) *promotes the total well-being — physical, psychosocial, and mental health — of workers in Canada by providing information, advice, education, and management systems and solutions that support the prevention of injury and illness. Visit www.ccohs.ca for more safety tips.*

SUPPLY CHAIN | FEATURE

Supply Chain Q&A

We look at how the pandemic has exposed supply chain issues in the Canadian manufacturing sector.

BY MARIO CYWINSKI

Business uncertainty resulting from volatile trade issues and global disruptions are forcing manufacturers to examine their entire supply chain network.

Q PLANT: The COVID-19 pandemic, recent protests/blockades, and major world events have caused upheaval in Canada's supply chain. How do we address the ongoing problems?

Dennis Darby, President and CEO, Canadian Manufacturers and Exporters: I wouldn't have predicted two years ago, that at or near the end of the pandemic we would be talking about supply chain disruptions. It's affected every part of our economy. Over 90 per cent of manufacturers had been affected in a significant way in increased costs or delays, because of the stretching of our supply chain and the disruptions that have happened (natural disasters, blockades, pandemic shortage in the cost of containers).

When we asked our members what would help, many said they don't have enough workers, not enough skilled labour. We've been calling on the government to rebuild that pipeline of people, also, we need incentives for growth.

We must do a better job with our infrastructure, it is not strong and resilient enough, and governments have not invested enough in our capacity. Our members are saying they don't even see an end to this until at least late 2023 and that's probably appropriate, given how long it will take to rebuild.

Stephen Cherlet, National Board Chair, Supply Chain Canada: Labour shortages are a critical issue. In Quebec it's been a long-time issue to try to find people but, labour issues are happening across the country and even with our customers in the United States. There's more of a tendency now to work remotely and that's more acceptable, so people are realizing they can work anywhere. Some organizations are seeing a lot of job turnover, as it was pent up.

Mike Millian, President, Private Motor Truck Council of Canada: From the trucking perspective, what we've seen happen since the pandemic is we now have a chronic driver shortage. The pandemic has caused a lot of drivers to leave the industry, for one reason or another, and it was already an industry that had an aging workforce.

Another issue is you can't flood the market with drops, even if you could find drivers, because of the part shortages and other supply chain issues, there's an 18 month wait to get trucks. Therefore, if you could get drivers to fill those trucks, you can't get the trucks. The shortage is now on both sides, we don't have enough trucks and we don't have enough drivers in those trucks.

Rajiv Sujan, Senior Director, Consulting - Digital Operations, PwC: What we've observed with our clients is throughout the pandemic, the first couple of waves and with Omicron, we noticed that our clients went all hands-on deck and were dealing with the operational challenges.

As we've gone through it and when there was an ebb and flow throughout the pandemic, our clients were able to come up for air a little bit. There was increased attention on accelerating their investments, so they had projects that they didn't attend to (digitize or improve the way their supply chain works) before the pandemic. They were taking the opportunity to accelerate these investments, so they're better prepared as the disruption continues.

Q PLANT: Faced with a tight labour market and supply-chain challenges, in the future, what can businesses do to protect themselves when faced with these conditions? What happens if there is a disruption and who are the alternate suppliers?

Rajiv Sujan: On one thing that we wondered in the early days of the pandemic and repeatedly at various junctures throughout it, is whether the needs of our clients were going to change, whether they would be looking to do different things to withstand disruption in the future and to be better prepared. Interestingly, we found if you look at the companies that were able to be resilient or thrived through the pandemic and stages of disruption; the underlying capabilities that they must plan and execute their supply chains, are the same that are best practices.

A company should be thinking about a few different things, one would be their supply chain planning capabilities and how mature are their practices around forecasting demand, by using the best of cloud technologies AI machine learning to anticipate and predict demand in the near-term, medium-term and long-term, how they use that in order to plan their supply decisions around capacity production and planning inventory strategies.

Something organizations should think about is their supply chain networks and the physical

Photo: grandriver / E+ / Getty Images

footprint that they have at supplier plants. They need to ask if it's the right footprint, should they be continuing to keep them in the future or are there optimization opportunities. Optimization was about customer service, but now it is resilience (it's not simply "how do we service at the optimal cost and service level; but are we capable of responding to disruption and are we resilient for the future?"

Finally, on the execution side of supply chain (plant operations, distribution centre operations), we're seeing organizations needing to automate more and looking to reduce their dependency on labour. Therefore, being able to drive more automated facilities, where can you scale up or down, and staying nimble and resilient to fluctuations in future evolution of the business and the environment.

Stephen Cherlet: A part of the question was around alternate suppliers and peaks in transportation costs if they stay high because if we look at the total cost of acquisition and total cost of supply chain; then it could change people's calculation and where they're going to look for their suppliers, as a result some organizations have been looking closer to home. Although it might be more expensive, transport is helping to offset that. We will also see new entrances into the market, such as what has happened with PPE.

Mike Millian: Automation isn't going to help the productivity of a classical long haul or regional truck driver. Is the role going to change, yes, trucks are becoming more technological (advanced collision mitigation system, lane departure system, all the tools that are there that can help make this truck operate by itself), but they all rely on sensors and on connectivity with the infrastructure. However, the issue is with our infrastructure today and trying to maintain the pavement and opening more lanes to build redundancy, is a challenge.

Q PLANT: Plant magazine recently ran a poll on its web site asking visitors when they believe the current supply chain issues will end. The majority said over a year. When do you believe that the current supply chain problems will subside? And why?

Stephen Cherlet: It is going to be a year, or even longer; there's just so much going on (long and short term), so the pandemic may be winding down, but we've got trends that have been started. Labour and where people want to work, and how they want to work, is going to be a hangover for quite a while. Gas and oil supplies on a global basis is going to have a huge impact for a while.

We've had other issues too, floods and fires on the west coast, that are going to continue and be relatively unforeseen. We're going to have these shocks to the system on a regular basis. We may recover in a growth mode in a year or so but have recurring shocks that are going to cause ongoing turbulence.

Rajiv Sujan: The speculation around when this phase of disruption will end is anybody's guess, but we all know that it's not going away tomorrow or anytime soon. At the start of the pandemic, it was all about that, now it's the pandemic, floods, blockades and protests, invasion in Ukraine, inflation skyrocketing, and more. It is important to be ready for continued uncertainty and continued phases of disruption that can be here for some time to come.

Q PLANT: Who supplies the suppliers, and where are they sourcing materials from? Are the suppliers geographically close to the plant?

Stephen Cherlet: Certainly, it's a global supply chain, but people are going to be more cautious about it and they're going to make sure that they have some redundancy in their supply chain. What companies need to do is have sit down and look at what they think their supply chain is. The number of suppliers, even just the top few materials that go into something they supply, and

where they're located, the distances involved, since that equates to time and cost. Next, you can prioritize what should I look to bring home, where should I look for redundancy, where should I look to make sure I've got alternate transportation channels.

Dennis Darby: Not surprisingly, about three quarters of manufacturers source most of their materials from within North America, but a quarter of it comes from outside. It's often the stuff that comes from a longer distance, which is where issues arise.

When we surveyed those who serve just in North America, they've experienced the fewest delays. One group said "it's only 25 per cent outside of North America, no big deal"; however, this 25 per cent is what you need right now for that product.

Stephen Cherlet: It might be a smaller portion that's at risk because of the distance and maybe the geographical risk. However, even if when you're sourcing from within North America, where are they sourcing it from? So, therefore, we get it from you, but where do you order from, where does that supplier order from. If you go back a couple levels, you might be shocked a lot of material are moving back from a further distance or higher risk area.

Mike Millian: When we look at vehicles right now, semi-trucks have 18-month backlogs, car dealerships have no vehicles. Assembly plant lots have trucks that are 95 per cent built but are waiting on a shipment of a part that is needed for the truck. Most of the truck might be assembled, but it can't be shipped out until it's finished and it's missing one or two parts that are coming from somewhere else. The truck or car could be sitting mostly completed for six months before it ever leaves.

Therefore, maybe we need to look at making sure all components that we need, we bring back home or build redundancy. We all know that if you bring everything back to Canada, the price will skyrocket, and you'll have a surplus; so, it's a fine line.

Q PLANT: Should Canadian manufacturers be looking at reshoring as a solution?

Dennis Darby: We asked members, how do you approach the shortages, most didn't choose to reshore. We don't have the labour, we need to be able to put more capacity here and Canada regrettably is a very expensive and complicated place to put capacity, we've been under invested for years. We need to make sure the US or international businesses see Canada as a cost competitive, reliable supplier. Many companies are not going to reshore their Canadian production since it is difficult and slow.

Mike Millian: Bringing it here, just to serve a Canadian market would be a humongous challenge. We're small; however, we have a very huge trading partner in the US. Therefore, we have to bring production back to North America and hope to convince the US that some production needs to be brought to Canada.

Stephen Cherlet: If you're reshoring, it's not just for your specific local geography but the bigger region. A large American company is not going close an operation in China and try to build everything for the world back in North America. They're going to keep operations in the region to support sales in that region. They may repatriate back to their home geography what they're going to sell in that geography. Canadian manufacturers, we have to look to expand capacity and to bring work back home but have to look at the broader market (i.e. North America). **Plt**

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Honda invests in Ontario manufacturing plants

BY MARIO CYWINSKI

Honda of Canada Mfg. (HCM) will invest $1.38 billion over six years to upgrade its Alliston, Ontario, manufacturing plants. HCM is partnering with the governments of Canada and Ontario, with each contributing $131.6 million.

"Today's announcement is more proof that there is no better place for auto manufacturing than right here in Ontario," said Doug Ford, Premier of Ontario. We are home to the most skilled workers anywhere in the world, we have all the necessary natural resources, and we have created the best environment for jobs to grow and businesses to flourish. We are so pleased that Honda has made this investment in Ontario and that the cars of the future will be built here in Alliston and across Ontario for decades to come."

HCM plants will implement new technologies, processes, supply chain, and vehicle R&D programs, in line with Honda's goal to reach zero emissions by 2040.

HCM will also become the North America Lead Plant for the 2023 CR-V Hybrid crossover. Currently, HCM has the capacity to produce over 400,000 vehicles and 190,000 engines annually. It has produced the Honda Civic since 1988 (a three-door model), added the coupe model is 1993, and became the global lead for the Civic in 2015. In 2012, HCM began to produce CR-V.

"This represents an important milestone for Honda as we move forward in our ambitious vision to make battery electric vehicles represent 100 per cent of our North America vehicle sales by 2040," said Jean Marc Leclerc, President and CEO, Honda Canada. "HCM is home to a team of remarkably talented associates who build some of Honda's most popular and fuel-efficient products. This investment not only ensures our product and manufacturing competitiveness within Ontario, Canada and abroad, but also significantly bolsters our ongoing efforts to reduce greenhouse gas emissions to help Canada attain its overall climate targets."

Photos: Honda

Both production lines at HCM will be retooled, in turn securing jobs in Alliston and throughout Honda's Canadian supplier network. A range of enhanced job training initiatives and expanded inclusive hiring practices, and research and development programs are also part of the financial commitments. Currently the plant employs 4,200 people.

"Today, we're investing in workers, in communities, and in our future. Building hybrid-electrics will support thousands of good jobs here in Alliston and grow the economy, all while cutting pollution and keeping our air clean. By helping Canadians build – and then drive – cleaner vehicles, we're delivering on our plan to build a better future for all," said The Rt. Hon. Justin Trudeau, Prime Minister of Canada.

Honda's total investments in its Canadian facilities since it became the first Japanese auto maker to build a Canadian manufacturing facility in 1986, are now at over $6.5 billion. In that time, it has also produced the Honda Accord, the first vehicle driven off the line at the plant; opened Plant 2 by producing the Honda Odyssey in 1998; and in 2002 became the sole supplier of the Honda Pilot globally. In 2008, it opened its engine plant where it produces four-cylinder engines.

The HCM complex in Alliston is four million square feet and sits on 890 acres of land. The operations performed at the plant currently include steel blanking, stamping, welding, painting, plastic injection moulding, aluminum casting, aluminum machining, ferrous machining, vehicle sub-assembly and assembly, engine assembly, vehicle testing, and quality assurance. Plt

***Mario Cywinski** is the Editor of Plant magazine, Machinery and Equipment MRO magazine and Food and Beverage magazine, a member of the Automobile Journalists Association of Canada, and a judge for Canadian Truck King Challenge.*

Convoys, curveballs and choke points

The more the health crisis commands attention, the more supply-chain shocks soar; testing manufacturers' limits.

BY REHANA BEGG

The phrase "supply chain" made it to the 2022 Banished Words List.

The tongue-in-cheek list is selected based on how much people are "irked" or "amused" by the ad nauseum use of terms, noted buzzword watchers at Lake Superior State University, which has compiled the widely circulated list since 1976.

"Supply chain issues have become the scapegoat for all that doesn't happen or arrive on time and of every shortage," commented one analyst.

Much more than a catchall phrase, the term's ubiquity is a function of global disruptions over the past two years. As the pandemic's impact continues to exert pressure across manufacturing sectors, from industrial and energy products to medical devices, aerospace, automotive and cosmetics, its relevance has been brought into sharp focus. Omicron, natural disasters in B.C., and the trucker convoy protests are recent reminders of the reverberating impacts on industry.

Consider the trucker convoy protests earlier this year. What started as rallies against pandemic-related restrictions and vaccine mandates for truckers, cascaded into blockades at roads, bridges and border crossings, spanning over a period of three weeks.

The Ambassador Bridge, a critical trade corridor connecting Windsor, Ont., to Detroit, Mich., was blocked for several days. According to Reuters, the bridge carries a quarter of the value of Canada-U.S. goods trade, or $360 million in two-way cargoes.

The disruption forced automakers and mobility solutions suppliers (including Magna International, Ford, GM, Stellantis, Honda and Toyota) to trim shifts and idle North American assembly operations.

"The situation at the Ambassador Bridge, combined with an already fragile supply chain, will bring further hardship to people and industries still struggling to recover from the COVID-19 pandemic," said LouAnn Gosselin, Stellantis Canada spokesperson.

The issues that threaten competitiveness across the supply chain had been brewing long before news about the trucker protests hit the headlines. The Canadian Manufacturers & Exporters (CME) called on the government for immediate action on supply chain problems, for assistance addressing transportation bottlenecks, and for a remedy that speeds up immigration into Canada to fill vacant jobs in manufacturing and other key sectors. These concerns were tabled at the National Supply Chain Summit (January 31), when the Federal Government convened industry, shippers and associations that run critical infrastructure.

CME's call for action dovetails with its most recent Business Outlook Survey (December 2021). The survey found that 88 per cent of manufacturers said suppliers' delivery times were slower than the year before, 77 per cent claimed that attracting and retaining a quality workforce was their greatest challenge, and 47 per cent said supply chain disruptions were their biggest barrier.

Their bottom line? Canadian manufacturers want to mitigate barriers to the country's economic recovery, and they need help.

Their bottom line? Canadian manufacturers want to mitigate barriers to the country's economic recovery, and they need help.

Lead times hamper resilience

The effects of COVID-19 have been especially difficult for companies with complex supply chains, as their production is susceptible to supplier input shortages. At a granular level, those challenges may run the gamut from longer lead times and higher inventory carrying costs to higher materials prices, according to Michael Della Fortuna, CEO of Nexeya Canada, Inc., in Markham, Ont. The pandemic's knock-on effects are compounding existing pressures and causing companies like Nexeya to rethink the way parts move, said Della Fortuna.

The industrial group he works for specializes in integration and control command solutions for defence, aeronautics, space, energy, railway, and automotive sectors. Nexeya has been reckoning with tight supplies and has trouble adjusting to constraints that have increased costs, delayed production and shipping and impaired efforts to meet demand.

To build the product lines that make up Nexeya's electrical interconnect test solutions, for example, the facility sources capacitors, resistors, chips,

Photo kamonrat / Adobe Stock

relays and connectors.

"What used to be lead time of eight to 12 weeks, has, in some cases, gone to Q4 of 2023," said Della Fortuna.

He pointed to a part for a board that increased in price from $10 to $100.

"Absorbing the cost for one or two parts in a very large system is not a problem," he said. "The problem is that with spare service parts there might be four components on a board. If I sell that spare board for $1,000, and my cost has gone up by 40 per cent, there's no way that I can afford it. I have to go to our customers and say that a part that previously cost $1,000 now costs $1,400. I'm not making any extra margin on it. It's a pass through. It's really a very difficult thing to sell."

Critical component shortages

If supply chain management is characterized as a decision-making game, sourcing components during the pandemic for Della Fortuna has turned the art of controlling costs into an obstacle course.

"We'll get a rail order from Bombardier, and we would have to order 20,000 relays," he said. "Because the supply chain is impacted, we're not getting 20,000 in a big batch; they're offering 5,000 relays from one batch. That's not acceptable because if I ever have an issue, I will have no idea which batch it came from. A piece of equipment may have 3,000 parts on it, and there are 20,000 of them. If your relays come from three different batches, you really lose any sense of quality control."

Electrical components or parts coming from different batches have different sensitivity. When a relay is from a different batch, it may never meet test interval requirements, and Della Fortuna said it complicates troubleshooting or the ability to perform root cause analysis.

"Aside from the cost perspective and the lead time, it makes it so much more difficult to build a quality product when the number of batches that you're dealing with are multiplied," he said.

From bottlenecks to workarounds

Before the pandemic took hold, logistics and shipping followed a script well-known to Audrey Ross. As a go-to person for international trade logistics and customs in the consumer goods space, she spends a significant amount of time determining how much to make, move, buy, and sell.

"Before 2021, the supply chain was fairly consistent, the timing was consistent and the pricing was consistent," she said. "Since 2021, there has been a buildup of global challenges for a variety of reasons—and it's just a lot of extra work."

Specifically, the consistency of a step-by-step routine for international shipping has been upended, said Ross, whose employer, Orchard Custom Beauty, is a business-to-business, private labeling company that develops turnkey beauty products for colour cosmetics, skin care, personal care, and home care.

Orchard trades with 14 countries, and has been exposed directly and indirectly to the trickle-down effects of shipping container shortages, port closures and schedule changes. Scheduling issues and labour shortages of dockworkers and truckers are on a list of choke points.

"It used to be the case where you get the booking, you approve it and it's good to go," said Ross. "The shipment is handed over and it departs from the port. Then there's customs and delivery. For most projects, you've got to commit to a certain pricing or contract with your forwarder or with your carrier. But last year, every single thing had to be negotiated and checked on."

Add to diminishing competitiveness the fact that the industry continues to be dominated by highly fragmented and old-school processes (telephone calls, emails, and spreadsheets) and it's plain to see what inhibits the ability to deal with the increase in volumes. Ross' plans to upgrade the department's technology platform in a manner that will optimize and automate communications with freight forwarders and brokers have been in the works since last July.

"I read a quote somewhere that said supply chain managers went from having six to 10 emails per project to 60 to 80 emails per project," said Ross. "I deal with 100 projects at a time. Logistics tools can be helpful. It is my biggest challenge."

The good old days of 2019

After two years of grappling with the pandemic's strain, Della Fortuna and Ross are keenly aware that the issues largely reflect pre-existing shifts. Both are learning that resiliency requires agility and flexibility. A remedial starting point could be to tackle price elasticity, stated Della Fortuna. Addressing constraints on capacity and contingency planning can help, too.

Ross said transactions in 2022 are expected to be similar to 2021. "The container space issue will persist, and the cost issues are still going to be there," she said. Being more collaborative and building stronger relationships between carriers and brokers will help. "My preference has always been to have a broker in every region because it helps to navigate policy and regulatory requirements in those jurisdictions," she said.

Moreover, forging ahead with technology upgrades will pay off in the form of transparency and visibility, particularly when delays could have been accounted for, acknowledged Ross. "The goal is never to be the only person who has the knowledge," she said.

The term "new normal" also made the LSSU 2022 list of words to ban. Both Della Fortuna and Ross invoked the phrase when summarizing how their companies were adjusting.

Whatever their supply chains will come to look like, they are coming to terms that being nimble is in the equation. **Plt**

Rehana Begg *is a Toronto-based freelance writer and editor. Reach her at rehanabegg@rogers.com.*

Strategies organizations should look for in modern-day hiring

A recent trend, "The Great Resignation", has left employers desperate to hire.

BY JANELLE ABELA

New and existing talent, aged 20-45, are leaving or abstaining from jobs, despite the historical and aspirational narrative of finding a secure career and holding strong until retirement.

The workplace is transitioning significantly because of the influx of technology and innovation. Organizational growth is surging in certain sectors, while others are nose-diving because they have not adapted quickly enough to these changes. However, it's not just technology that influences whether an organization will exponentially grow; it's culture.

Most organizations are strongly comprised of Generation Y (age 30 to 40), who grew up confident and entered the workforce with ambition and desire. As we see Generation Z (age 15 to 30) start to emerge into the workforce, we experience their competitiveness and demand for more from work and their experiences from it. We also must prepare for Generation Alpha (age less than 15) because they are coming in as decision-makers and will determine the course of success for many organizations and how they interact with society.

As organizations continue to experience the new generations in the workforce, problems will start to become more apparent, and recruitment and retention will become more difficult.

Getting ahead of the problems is the most effective way to keep your organization as a front runner. Innovation and preventative change allow for maintenance of a strong reputation and heightened attraction for incoming candidates. In the past few years, we have seen how organizations can easily make headlines for quite the opposite: performative action, toxic environments, and inequitable treatment, are reputation markers that can't easily be scrubbed.

> ***Voice is value, voice is worth, and voice is respect. When working for an organization, if someone is not valued, if they do not feel worthy, and are not respected, then no amount of money, perks, benefits, or potential for promotion will keep them around, not in today's employee-first society.***

Identifying the problem

The past few years have brought significant uncertainty to entry and mid-level workers: layoffs, businesses closing, lock downs, mental and physical health risks associated with the pandemic, rising cost of living, and the skyrocketing housing market. Therefore, why are people risking it all to find a new position?

Lack of care: The transition to virtual, coverage of sick leaves, and inconsistency within organizations and society has left people in a situation where there is an increase in demand, but a lack of attention to well-being or potential for burnout.

The attention has been off of the individual, and on large-scale organizational success or business sustainability during these turbulent times. However, people are struggling, hurting, and desperate for support and assistance. Not with an extra vacation day or paid sick leave, but with genuine interest in them. When people aren't given this, they leave and find one of the many innovative start-ups or transformational organizations that are taking remote and people-first approaches.

The numbers don't add up: Metrics play an important role in a lot of organizations

Photo: Prostock-Studio / iStock / Getty Images because they support attention to top-line growth and sustainability of the organization. However, metrics can also allow for a clearer picture of what employees are experiencing. Analysis of compensation, pay increases, performance indicators, training, location, and identity demographics play a role in the work experience of the individual.

Assessment allows patterns to present themselves, and quantitative association between experiences and employee demographics, which may prove to be different for different populations, highlighting areas of distress.

Structure & Hierarchy: The relationships that develop (or don't) within an organization play a role in how an employee or a future candidate see themselves. Workplaces are not families, but employees still deserve to be treated with love, respect, and care. There is a generational and social demand for better treatment of employees, and it is important for organizations to understand this, alongside growth aspirations, to better prepare for long-term retention.

However, current environments present the opposite through authoritarian leadership styles, micromanagement, lack of cultural competence or awareness, and unrealistic expectations. The workplace has changed significantly in the past few years and so has the worker population. What hasn't changed (for many organizations) is the organization itself, as they remain unresponsive, which deters qualified talent.

Researching your ecosystem

If your organization has faced decreased retention in the last few years, or perhaps is struggling with recruitment, ask: Why? The only people who can tell you what you are doing wrong are those who leave and those who say no to job postings, interviews or job offers. By asking those people, you are actively researching the market to determine what the best changes are for current employees and future candidates. Organizations can no longer assume they are in a position of power when hiring or with existing employees.

Reflecting on why the individual has chosen to leave ensures that any fault of the organization can be given the appropriate attention. The same can be said for investigation into who is not applying. If there are a handful of resumes submitted for one position, taking the time to see who is not applying is just as important as seeing who is leaving. It shows which populations are actively avoiding employment with your organization and can draw attention to problematic areas.

However, it's not just the individual that you want to examine. Let's not forget those that stay, as those people can also provide incredible insight into the value your organization has that might not be highlighted or create awareness of a homogeneity that is pushing people away.

Also, where are your employees and candidates going if they don't choose your organization? What does company X offer that is better than yours? How are they drawing in candidates and pulling people away from their current roles so quickly? From experience, it is usually because company X has worked to decrease or solve the problems that people are facing in the workplace, sometimes even before they know it's a problem.

Strategies for change

The reality is, not all the problems people are facing can be solved by your organization. Sometimes you just can't offer remote work for that type of position, or you can't reduce the travel to other facilities. Despite not being able to be the perfect workplace, your organization can work to alleviate the constraints and pressures that are visible to employees and candidates.

Every organization needs internal awareness of diversity, equity, and inclusion. Internal awareness can shine light on the external reputation that candidates and employees might already be aware of. Utilizing an equity lens, organizations can create a comprehensive workplace cultural revitalization plan. When paired with professional support, this can allow for sustainability of change and not just short-term effects when money is 'thrown at the problem'.

Candidates and employees of marginalized populations, including BIPOC, female and 2SLGBTQIA+ people defer applications and offers, and resign at a higher rate than their normalized, dominant, status quo counter parts. Change is about reflecting on organization values, messaging, and action to ensure that everyone is a part of the group that is accepted, welcomed, and nurtured, and no, an offer letter or a paycheck does not equate to that.

Benefiting everyone

Making these changes through immediate, intermediate, and long-term actions benefit the organization, employees, and candidates. The extensive and on-going costs of resignations and hiring will be subsided, with only a fraction of those costs needed to implement effective strategies for change. This can be daunting for organizations, but flexibility to try something new goes a long way. The flexibility to try new things and implement new practices can offer the equity that employees and new candidates want to see, flexibility that will draw them in and keep them within the organization.

What it comes down to is voice, and not always in a literal way. If employees are not being heard, why would they stay? If a candidate sees they will not have the opportunity to speak, why would they come?

Voice is value, voice is worth, and voice is respect. When working for an organization, if someone is not valued, if they do not feel worthy, and are not respected, then no amount of money, perks, benefits, or potential for promotion will keep them around, not in today's employee-first society. **Plt**

Janelle Abela *founded Diverse Solutions Strategy Firm with the goal of increasing diversity, equity, and inclusion in corporate settings, while comprehensively benefiting the organization, employees, and clientele. Reach her at janelle@diversesolutions.ca.*

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Accelerating your sales in a supply-restricted market

Manufacturers need to come up with different approaches when faced with unpredicted supply chain shortages. **BY SHAWN CASEMORE**

Photo freshidea / Adobe Stock

Unfortunately, it is safe to say that the current supply chain challenges are not going to be resolved anytime soon.

Predictions made in publications such as Forbes and the Wall Street Journal in late 2021 suggested that the shortages will ease by end of the second quarter in 2022.

All signs encountered are that we are in for at least another 12 months of uncertainty, or possibly more, as world events continue to impact an already-battered global supply chain.

Additionally, initial shortages caused by shutdowns due to the pandemic have now been prolonged on account of staffing shortages.

Therefore, we need to get accustomed to dealing with both predictable and random supply chain shortages.

Moreover, taking a short-sighted approach to dealing with them, including slowing or backing off on sales efforts, creates more risk rather than mitigating the risks we know.

During a discussion with a CEO of a Fortune 1000 company in late 2021, when asked how their sales were, he responded, "We've slowed down our sales with all of these supply chain shortages — production just can't keep up."

Not 16 months earlier we had been in discussions about expanding his business opportunities in Mexico, where he had little presence but tremendous opportunity.

This seems to be a common theme amongst the executives, particularly amongst manufacturers; "Let's slow down sales and ride this out."

Seems logical in the short term: after all, we don't want to miss commitments to our customers.

Here are five suggestions for a different approach, one that will set you apart from your competition (who are also backing off their sales efforts) and keep your customers (and orders) intact.

1. **Change your pricing:** Rather than spread little supply amongst your existing customer base, rid yourself of bad customers. Say goodbye to those who don't pay on time, that make unreasonable demands, or that don't align with your growth objectives.
2. **Ration your supply:** For the customers who remain, ration your available supply amongst them without charging a premium for doing so. Make it clear that your policy is to share equally amongst your top customers, rather than give supply to the highest bidder. Your honesty will be appreciated.
3. **Change your contract language:** Update the terms behind supply; expand your definition of force majeure and create pricing terms that provide you with more cash upfront to fund unpredictable supply costs.
4. **Entice larger order sizes:** Adjust your pricing to entice customers and prospects to make larger buys over longer periods of time. This provides you financial stability while ensuring fewer customers have the desire to engage with your competition.
5. **Push new products:** Take the opportunity to dust off low-selling products that you can obtain supply for, revitalize marketing efforts, and have your sales team begin assertively introducing these new products into the market. Position these as an option for replacement of short-supply products.

Not to mention looking at alternate supply channels (i.e., near-sourcing) and new material or processing alternatives.

The good news is that these supply shortages are continuing to force our hand on being innovative. When you engage your sales, operations, and supply chain teams on a mission to expand sales during supply-restricted times, you force them to think and act differently.

This is the basis for innovation at its finest, so don't pull back on your sales. Push forward to seek new opportunities. Your customers and prospects will appreciate your innovative ideas and willingness to offer them options rather than ultimatums.

Best of all, your competition will continue to lose ground as you acquire new customers and expand into new territories. **Plt**

__Shawn Casemore__ helps companies accelerate their growth. To learn more, visit his web site at www.shawncasemore.com.

Stellantis and LG Energy Solution to establish lithium-ion battery production plant in Canada

BY MARIO CYWINSKI

Photo: Stellantis

Stellantis N.V. and LG Energy Solution (LGES) will jointly invest over $5 billion to establish a lithium-ion EV battery manufacturing facility in Windsor, Canada.

"Our joint venture with LG Energy Solution is yet another stepping stone to achieving our aggressive electrification road map in the region, aimed at hitting 50 per cent of battery-electric vehicle sales in the U.S. and Canada by the end of the decade," said Carlos Tavares, CEO, Stellantis CEO. "We are grateful to the municipal, provincial and federal levels of government for their support and commitment to help position Canada as a North American leader in the production of electric-vehicle batteries."

Construction on the new plant is expected to begin later this year, with production operations starting in the first quarter 2024, and being fully operational in 2025. The plant will produce lithium-ion battery cells and modules for Stellantis' vehicle production requirements in North America.

"Through this joint venture, LG Energy Solution will be able to position itself as a critical player in building green energy value chains in the region," said Youngsoo Kwon, CEO, LG Energy Solution. "Creating a joint venture battery manufacturing company in Canada, recognized as one of the leading nations in renewable energy resources, is key for LG Energy Solution as we aim to power more electric vehicles around the world."

The new plant will create an estimated 2,500 jobs in Windsor and area. Annual production capacity of over 45 gigawatt hours is expected at the plant.

"Today's announcement of a world leading facility to build electric-vehicle batteries in Windsor is an investment in our workers, our communities, and our future. Partnerships like these are critical to creating new jobs and putting Canada on the cutting edge of the clean economy. By working together, we are creating thousands of new jobs, making a difference in the lives of people now and making sure that future generations have a clean environment to live in," said Prime Minister of Canada Justin Trudeau.

Stellantis and LGES expect the plant to help establish a battery supply chain in the Windsor area.

"Attracting this multi-billion-dollar investment will secure Ontario's place as a North American hub for building the cars and batteries of the future. As we secure game-changing investments, we're also connecting resources, industries, and workers in northern Ontario with the manufacturing might of southern Ontario to build up home-grown supply chains. Every region of Ontario will benefit with thousands of jobs being created and a stronger economy that works for everyone," said Ontario Premier Doug Ford.

The investment is the largest automotive manufacturing investment in Ontario's history. It is also the first large-scale, domestic, EV battery manufacturing facility in Canada.

"Stellantis is Windsor's largest employer and has a rich history in this community. Chrysler began operations in this community in 1925 and has employed generations of Windsor–Essex workers at its facility. With this announcement, we are securing the future for thousands more local workers and securing Windsor's strategic location as the home of Canada's electric vehicle future. As the world pivots to EVs, Windsor will soon be home to the battery manufacturing facility that powers it all," said Mayor of Windsor Drew Dilkens.

Closing of the joint venture is subject to customary closing conditions, including regulatory approvals. Plt

YASKAWA MOTOMAN GA50 ROBOT

The six-axis GA50 robot offers path accuracy and is used for laser cutting small holes and sharp corners, and laser welding, plasma cutting and dispensing applications.

Formcut software automatically generates the path to cut shapes based on user-specified geometry. Circle, rectangle, ellipse, pentagon and 2D hexagon shapes are supported with easy definition of shape size and rotation from a single programmed point. The cut motion start and overlap, robot speed, timing options and corner radii are all defined in the cut file. Depending on the application, path accuracy can be within 0.1 millimetre with a 30-kilogram payload.

The GA50 features a 3,161 mm vertical reach, 2,038 mm horizontal reach and ±0.015 mm repeatability. Proportional analog generates a control signal corresponding to the speed of the robot. When used with dispensing equipment flow controls, a uniform bead is produced on contoured parts. The signal is available as an analog voltage or on a fieldbus network.

The GA50 robot is compatible with the YRC1000 controller that is built to a global standard and does not require a transformer for input voltages ranging from 380VAC to 480VAC.

www.motoman.com

WIEGMANN ENCLOSURE COMPONENTS

AutomationDirect has added more Wiegmann enclosure options to their lineup of over 7,000 modular and prefab enclosures.

Wiegmann is an enclosure manufacturer, manufacturing a wide variety of carbon steel, galvanized steel, stainless steel, and aluminum enclosures.

New additions include NEMA 4/4X/12/13 rated stainless steel 22 millimetres pushbutton enclosures, NEMA 4 rated carbon steel wiring troughs with hinged cover, and NEMA 1 rated carbon steel corner-mount wiring troughs, including models with knockouts.

www.automationdirect.com

FIRMWARE VERSION FOR MECA500 ROBOT

Mecademic released firmware version 8.4 for its Meca500 industrial robotic arm.

Although rotating Joint 6 beyond the ±180° has always been possible with the Meca500 R3, it was limited to Joint-move-commands. With this new firmware, both point-to-point and linear commands can now be used outside of this limit.

Meca500 is used for dispensing, capping, testing, and any other application that requires moving Joint 6 beyond the previous default limits. A new configuration parameter is introduced, to specify the desired turn for joint 6.

It is possible to lower the torque limits of individual joints. This is set as a percentage of the maximum possible torque available to each joint. This feature comes with configurable events as per the application's requirements.

Real-time monitoring data is now released as an official feature. Real-time data allows users to stream data in real-time (up to 1ms) over port 10 001 in TCP/IP. The data is also user-configurable (positions, torques, velocities, etc.).

www.electromate.com

IO-LINK CONTROL BOX

RAFI's outdoor-capable E-BOX control unit for the IO-Link interface features standardized M12 plugs, where users can integrate the E-BOX control unit into new or existing IO-Link systems.

The IO-Link device identification prevents errors, because incorrectly installed devices are reported to the control unit. The IO-Link Master automatically transfers saved parameters to replacement devices. Due to integrated tactile switches from the MICON 5 series, the illuminated pushbuttons of the E-BOX provide tactile feedback.

Included among the options are night mode with various brightness levels; white, red, green, blue, and yellow illumination, or three RGB colours that can be selected by the customer. The buttons can be configured with four different flashing modes for different application cases.

RAFI supplies the E-BOX IO-LINK equipped ready for commissioning with one or two switching or indicator elements from the RAFIX 22 FS+ series. For individual marking of the control components, printed or unprinted FLEXLAB labelling sheets are available.

With their dimensions of 123.2 millimetres x 40 mm x 35.6 mm, the control units are used for assembly on 40 mm profile rails on production lines or safety fences. The accessories include a fixing clip that can be attached to profile rail grooves and

other mounting surfaces.
www.rafi-group.com

LUTZE SILFLEX 24VDC CONTROL CABLE

AutomationDirect's LUTZE SILFLEX 24VDC control cable is an industrial-rated low voltage cable for stationary and flexible applications.

Constructed with a rugged outer jacket, these cables provide resistance to sunlight, oil, and moisture penetration, making them suitable for wet and dry locations.

With its UL Type MTW Machine Tool Wire rating, this cable meets the NFPA 79, Electrical Standard for Industrial Machinery with additional ratings and approvals, including Class 1 Division 2 Hazardous Locations and Direct Burial.

The UL Type TC-ER Tray Cable Exposed Run rating allows this cable to be installed between a cable tray and the utilization equipment or device without the need for metal conduit and/or armor. LUTZE 24VDC control cable can be ordered cut to specified lengths in one-foot increments with a 20-ft minimum.
www.automationdirect.com

SINAMICS G120XE ENCLOSED DRIVE SERIES

Siemens launched a new enclosed drive system, the SINAMICS G120XE, designed for the demands of industrial pump, fan, and compressor applications.

Built around the SINAMICS G120X infrastructure drive, this new enclosed system is used for fast design and commissioning in industries such as oil-and-gas/petrochemical, water/wastewater, power plants, industrial climate control, refrigeration, and chillers in harsh environments.

A NEMA 1 enclosure is standard, with a NEMA 12 version optional, featuring appropriate ventilation and air filters. The base enclosure is suitable for wall-mounting to 75 hp applications, while the free-standing floor module accommodates uses to 200 hp.

Standard electrical characteristics of this enclosed drive system include a UL508A listing, SCCR rating to 65kA, circuit breaker disconnect with flange-mounted operator handle and mechanical door interlock, plus control power transformer for internal power control and power module with PWM IGBT inverter.

The enclosure ventilation fans on the SINAMICS G120XE are controlled via a relay and run only as needed.

Communications with higher level SCADA and PLC systems is possible via PROFINET or EtherNet/IP with additional communication options available like PROFIBUS, MODBUS RTU and BacNet MS/TP.
www.siemens.com

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POSTSCRIPT
BY JAYSON MYERS

Navigating the storm

It's always difficult to climb into the crow's nest in the midst of a storm, but it's the most important time for a business leader to do exactly that in order to get a better view of what lies ahead.

In this context, Ben was speaking as the CEO of a successful manufacturing company based in the B.C. lower mainland. He was referring to what seems to be life as usual for most manufacturers. However, his advice is even more relevant today as the sector reels from soaring cost pressures, supply and labour shortages, and disruptions caused by the pandemic, trade tensions, and new geopolitical conflict. So, as the headwinds blow and the waves crash, what are the key trends that are going to shape the course of manufacturing in Canada, and the world, over the next three to five years? Here are six hazards to look out for.

First, there is no end in sight when it comes to supply chain disruptions. A few years ago, manufacturers were worried about accidents, weather events and security threats. They are all still very real, and perhaps more pressing than ever, given the increase in cyber threats. Then COVID-19 hit, and manufacturers needed to respond to shifting patterns of customer demand, production slowdowns and closures on the part of suppliers, and shortages of critical components resulting from the pandemic. Those threats are still with us. It's also unlikely that supply lines will snap back to normal once the pandemic subsides. Many suppliers and shippers have been reticent to invest in expanding service, focusing instead on higher value product lines and benefiting from inflated profit margins.

Labour and skills shortages are a second challenge that will be with us for some time to come. A quarter of all workers currently employed in Canadian manufacturing will retire within the next ten years. New entrants into the workforce will compensate for only about a fifth of those retirees. At that rate, manufacturers will need to boost productivity by more than two per cent per year just to maintain current levels of production, let alone grow their business. That means more automation and higher demand for employees with digital and technical as well as manufacturing skills. Manufacturers will be competing with every other sector of the economy for talent. And, they will be paying much higher rates of labour compensation in order to attract and retain the talent they need to compete and grow.

That brings us to inflation. Labour shortages are pushing up wage rates. Supply chain disruptions are driving up both input and output costs. But that's not the whole story behind rising prices. Government stimulus measures during the pandemic lowered borrowing costs and inflated consumer demand as well as property prices. Now central banks around the world are tightening and governments are beginning to reduce stimulus spending. There's going to be a fine balance required in both monetary and fiscal policy not to tip major economies into recession.

Higher interest rates are designed to tackle inflation by cooling off consumer spending. However, they are likely to have little impact on inflation driven by supply side factors. Manufacturers are being caught in the middle. Costs of doing business will remain high and are likely to rise further as a result of the conflict in Ukraine. Meanwhile, customers will see their spending power diluted by inflation, higher borrowing costs, and greater fiscal restraint. Bottom line, competition is going to get a lot fiercer as profit margins shrink.

Lower profits mean greater cash constraints and lower levels of investment in R&D and equipment, just at the time when manufacturers will need to make significant investments in more environmentally sustainable and less carbon intensive processes and facilities. Governments around the world have committed to achieving significant reductions in greenhouse gases over the next ten to fifteen years, and most OEMs have followed suit.

Customers, investors and the general public will hold them to account, even if the path to net-zero is disrupted by energy shortages along the way. Decarbonization in manufacturing will take a number of forms, from net-zero facilities to electric vehicles to circular manufacturing. The carbon footprint of logistics and supply chains will become a key factor determining manufacturing investment, product mandate, and supplier selection decisions. Product value and pricing will be subject to carbon discounts in the market, as well as to higher carbon taxes and stiffer regulations by government.

Meanwhile, the pace of innovation will continue to accelerate as advanced digital, materials, and production technologies lead to new competitive capabilities, new products and processes, and new business models for manufacturers. Manufacturers will need to turn to more automation and AI-based solutions to deliver the customization, value, and productivity improvements required to overcome labour shortages, compete and grow. Market opportunities will open up for new products and entirely new industry sectors (particularly in the fields of health care, food production and transportation). But the pace of disruption will also accelerate, and suppliers that are dependent on outmoded products or manufacturing processes will need to adjust quickly or see their business shrink, sometimes overnight.

It all depends on customers at the end of the day. And manufacturers can expect them to be more discerning than ever before. As always, they'll be looking for the best available products at the lowest cost. But, they will also be more demanding when it comes to personalized products and services, quality control, environmental footprint, ethics, ownership and corporate governance, and traceability throughout the supply chain. Governments, investors, and public stakeholders will also become more demanding. They, too, will expect to see their requirements built into how manufacturers and supply chains operate.

Scary stuff, or is it? How can manufacturers steer their way through? Clearly, by being aware of these potential market and supply chain risks, what they mean for their business, and becoming more proactive in managing them. Next, by focusing on their core value proposition, understanding that their business is not getting product out the door, but providing solutions for their customers, or even better for their customers' customers. And finally, by building the capability to pivot rapidly to take advantage of new business opportunities as they arise.

Technologies can provide tools that will help, but the strategic direction must be set by manufacturing leadership. In addition, management will need to ensure people and processes are in place to execute well. Plt

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